Comment Log Display

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Comment 1 for To Consider Proposed Control Measure for Ocean-Going Vessels At Berth (ogvatberth2019) - 45 Day.

First Name: Dennis
Last Name: Miller
Email Address: dfmiller@msn.com
Affiliation:

Subject: comments on ships at berth
Comment:

1.1 Ships at berth allowed to operate engines using fossil fuels should be required to switch from such engines to Hydrogen Fuel Cells (HFC) as an energy source. Such HFC when operated have no air emissions. Using renewable Hydrogen, the supplier of Hydrogen will be eligible for financial benefits, which will help lower production cost. The only by-product of operation is water, which can be recycled in the ship's water system. Without air emissions, the air in the Port will be cleaner and there will not be any CO2 emissions that contribute to climate change. In addition, the health and public safety of ship employees, workers supplying the ship with goods and services, guests on the ship, and people working in and near the port will have improved health, which will contribute to lowering medical costs in support of all people who are in or near the ship. HFC's are currently in use in cars, buses, trucks, trains, and in some ships around the world. HFC is an emerging technology that will surpass the use of battery power for all such vehicles, trains, and ships without the problem of toxic battery disposal and the length of time required to recharge batteries. Refueling time for HFC equipment takes less than five minutes for an auto. Larger systems will probably require more time, but still much shorter time than battery recharging. Looking at this issue holistically, such ships should be served by trucks and buses and even fork lifts that use HFC as a source of energy. The sale price of the renewable Hydrogen is about the same as high test gasoline or diesel now used by many vehicles. If questions arise about the practically or cost of such renewable HFC, I can easily provide supporting data and cost analysis for all points briefly stated above.

Attachment:

Original File Name:

Date and Time Comment Was Submitted: 2019-10-26 12:26:35

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COALITION FOR CLEAN AIR

FAQs: California Air Resources Board Proposed At-Berth Regulation for Ocean Going Vessels

CARB has proposed to update a regulation requiring ports operating statewide to reduce the worst air pollution emissions from ocean-going vessels (OGVs) while in dock. These vessels typically derive power from diesel fuel auxiliary engines when in port. By regulating and enforcing a stronger regulation that will require all vessels to either plug-in to cleaner electrical grid power or capture and treat emissions, CARB will dramatically reduce OGV emissions while in dock and the level of toxic air pollutant exposure for those living near and working at ports. This issue of "cold-ironing" or "shore-side power" for OGVs is one that residents and advocates have been championing for more than two decades.

What is the purpose of the At-Berth Regulation?
The purpose of the Proposed CARB At-Berth Regulation is to improve upon its 2007 regulation and reduce emissions from diesel auxiliary engines on container ships, passenger ships, and refrigerated-cargo ships while berthing at a California port. The At-Berth Regulation defines a California port as the Ports of Los Angeles, Long Beach, Oakland, San Diego, San Francisco, and Hueneme.

What does the At-Berth Regulation require?
The At-Berth Regulation provides vessel fleet operators visiting these ports two options to reduce at-berth emissions from auxiliary engines: 1) turn off auxiliary engines and connect the vessel to some other source of power, most likely electric grid-based shore power; or 2) use alternative control technology that achieve equivalent emission reductions. The regulation will go into effect in phases:

- *Phase 1*: Would begin in 2021 and require plug-in to shore power or use of a CARB approved emission control strategy capable of achieving at least 80 percent emissions control on applicable **container, reefer, and cruise vessel auxiliary engines**.
- *Phase 2*: Would begin in 2025 and require plug-in to shore power or use of a CARB approved emission control strategy capable of achieving at least 80 percent emissions reductions on applicable **roll on-roll off vessel auxiliary engines**, which mean those vessels that carry cars and other vehicles internationally.
- *Phase 3*: Would begin in 2027 and require plug-in to shore power or use of a CARB approved emission control strategy capable of achieving at least 80 percent emissions reductions for all applicable Los Angeles and Long Beach **tanker vessel auxiliary engines and tanker boilers that are used to power steam-driven pumps to load and off load product**.
- *Phase 4*: Would begin in 2029 and require plug-in to shore power or use of a CARB approved emission control strategy capable of achieving at least 80 percent emissions reductions for **all remaining tanker vessel auxiliary engines and tanker boilers that are used to power steam driven pumps to load and off-load product**.

What are the benefits of the At-Berth Regulation?
The requirements of the Proposed At-Berth Regulation will help the State of California meet its Clean Air Act requirements, especially as cargo is estimated to increase by 50 percent by 2032. In addition, CARB estimates the regulation will reduce greenhouse gas emissions by an average of 33,000 metric tons annually, or the equivalent of about 7,000 passenger vehicles. Most importantly, the proposed regulation will result in approximately 23 annually avoided cases of cardiopulmonary mortality, as well as lower health costs statewide from lower particular emissions. Over time, the health benefits of the proposed regulation are estimated to be worth $2.64 billion, in the form of localized reductions in cancer and decreases in incidence of cardiopulmonary hospitalizations and emergency room visits. (The Department of Finance approved these benefit calculations during the summer of 2019.)

What are the real costs of the At-Berth Regulation?
CARB calculates that all infrastructure, administrative and other costs to the ports and the vessel operators add up to $2.35 billion through 2032. Costs to the average California consumer would be the equivalent of (a) adding $8 per 20-foot equivalent unit (TEU) container, (b) $5 per cruise ship passenger, (c) $7.50 per vehicle on a roll on-roll off vessel, and (d) less than 1 cent per gallon of gas.

You can find more information about the proposed regulation and the financial analysis submitted to the Department of Finance at the following links:

https://ww3.arb.ca.gov/ports/shorepower/shorepower.htm

http://www.dof.ca.gov/Forecasting/Economics/Major_Regulations/Major_Regulations_Table/
(You can find the At-Berth proposed regulation information at the August 1, Air Resource Board submission for “Proposed Control Measure for Ocean-Going Vessels at Berth.”)

3.1
4.1

November 6, 2019

Clerk's Office
California Air Resources Board (CARB)
1001 "I" Street
Sacramento, CA 95814

Subj: Comments on Proposed Control Measure for Ocean-Going Vessels at Berth

To CARB Staff:

I am writing to provide commentary on the proposed timeline for the design, permitting, construction, and testing of an At-Berth Shore Based Emission Control Program for tankers at California Ports. As an Oakland, CA resident and business owner, I share CARB's desire to implement regulations that achieve real world air quality goals.

My goal in writing is to share my experience as a California marine contractor – specifically as it applies to the lengthy project timelines of most marine projects in California and the reality of how difficult it is to move quickly through the phases of marine work. Marine projects routinely face regulatory hurdles and engineering constraints not found in land-based construction. These hurdles and constraints translate into long program schedules. I believe the timeline being considered for the proposed Control Measure is unrealistically short and doesn't consider the unique nature of designing, entitling, and constructing over-water structures and facilities.

As background, I am the President and Principle owner of Power Engineering Construction Co. We are a marine contractor based in Alameda, CA. The company has been in business for 33 years and I've been with the company for 27 years. Our business focuses on building and repairing in-water structures. Our slogan is "Engineering Construction near, on, and under the water". We routinely get involved in up-front preconstruction, design, and entitlement of marine structures and systems as part of the services we offer our clients. Our customer base is diverse and includes most major oil companies, a variety of municipal clients including SFPUC, the Port of San Francisco, WETA, and a range of private business owners working along the waterfront. For a small snapshot of projects we've completed throughout California, the attached graphic **(Exhibit A)** shows our recent San Francisco waterfront projects.

The range and breadth of our marine construction experience affords a unique perspective in how long it takes for a successful project to go from concept to operation. In general, we advise clients to expect a full project timeline of 8-10 years for a standard over-water marine facility. This timeline includes work from concept, through entitlement, to construction and operation.

One can quibble with the durations of individual tasks including site studies, engineering, the CEQA process, contracting, etc. However, empirically, all but the most basic marine construction projects prove to track into an 8 to 10-year timeline. The attached spreadsheet **(Exhibit B)** shows three example projects *outside* of the marine oil terminal industry that

support this assertion. Each of these projects was considered publicly desirable, faced little opposition, and each was managed by a very motivated team. Regardless, each example project followed a decadal life cycle due to the complexity of regulatory review, the challenges of over-water design, and the limitations and work windows imposed during construction.

While the three example projects demonstrate only a small sample size, these projects provide similarities to the work required to implement an At-Berth Emission Capture program. In a sense, the example projects provide a lower bound for the anticipated project duration as none was completed in an active marine terminal. An active marine fuel terminal imposes additional safety and scheduling constraints that generally result in longer construction durations.

Also, the three projects selected as examples do not consider one key element of the proposed new regulation: issues surrounding the technical feasibility of an At-Berth Shore Based Emission Control System. The Emission Capture equipment and supporting machinery will add to the overall project timeline through both feasibility testing and extended equipment procurement. The attached spreadsheet **(Exhibit C)** shows a sampling of recent heavy over-water equipment purchases (cranes and fuel loading arms) and demonstrates the additional timeline that may be required. One can assume the required emission control equipment, or the expansion of required electrical infrastructure, will follow a similar (if not longer) procurement cycle to these example purchases.

I believe the Proposed Emission Control Measure projects at California Marine Oil Terminals will likely take more than 10 years to design, permit, and construct when one considers the added on-going operational and safety issues. I ask the CARB staff to consider proposing on a minimum 10-year timeline for design, entitlement, and construction of an At-Berth Emission Control program in California Marine Terminals. This timeline should begin once a feasibility study is completed and appropriate emission control technology is proven to be readily available.

Should you have any questions, please contact me at 415-559-0097.

Sincerely;

Power Engineering Construction Co.

David Mik
President

Enclosed:
Exhibit A – Power Engineering Construction Co. example projects.
Exhibit B - examples of three relevant marine project timelines.
Exhibit C - examples of equipment procurement and installation timelines.

POWER
ENGINEERING CONSTRUCTION CO.



WHERE WE'VE WORKED
SAN FRANCISCO WATERFRONT
USA

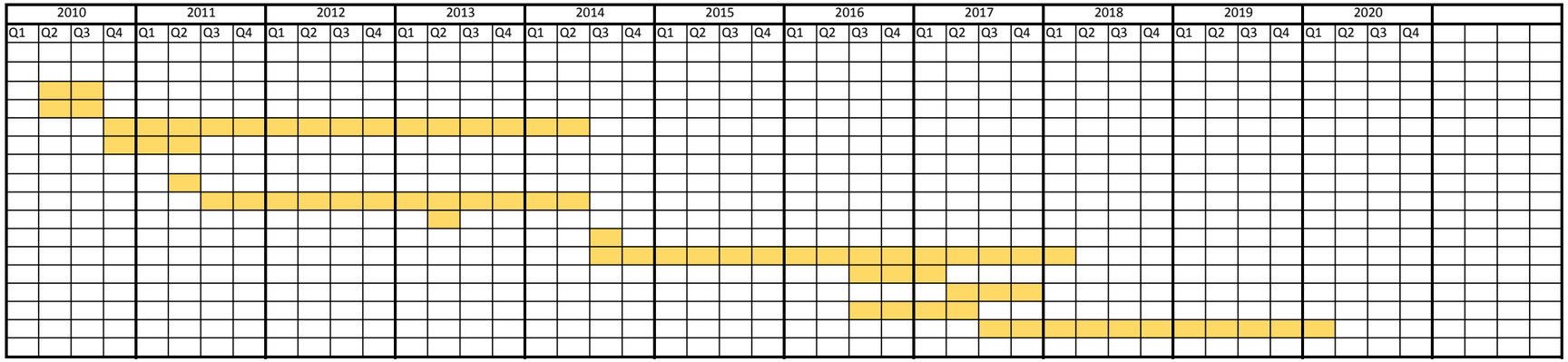
Example Marine Construction Projects in Northern California
Timeline Summary

Project Lifecycle Duration	Number of Years
WETA SF DFTX, SF, CA	10.0
SFFD Fire Station 35, SF, CA	8.5
Exploratorium Museum at Pier 15	10.5

WETA - SF Downtown Ferry Terminal, SF, CA

($76M over-water ferry terminal)

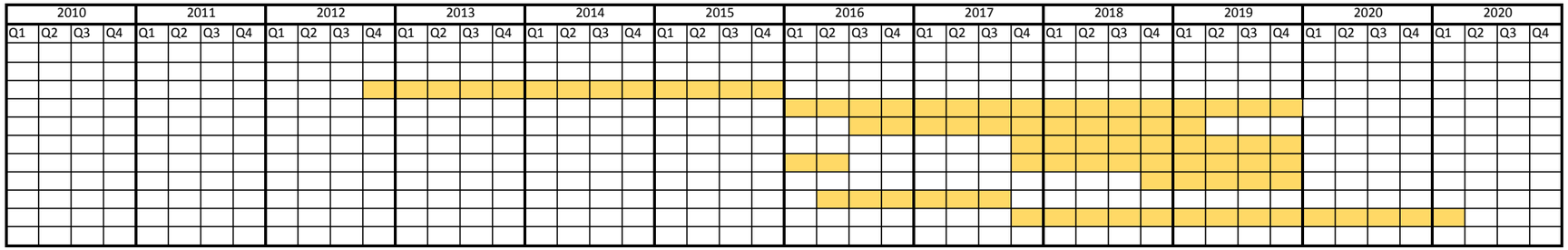
Hire Design Consultants
Hire Environmental Consultants
Design
Environmental Preparation
Environmental (NEPA/CEQA):
NOI/NOP
EIR Development
Draft EIR
Final EIR/Final Determination
Permitting
Contracting - Section 1
Construction - Section 1
Contracting - Section 2
Construction - Section 2



SFFD Fire Station 35 - New Floating Fire Station, SF, CA

($31M new-build floating fire station)

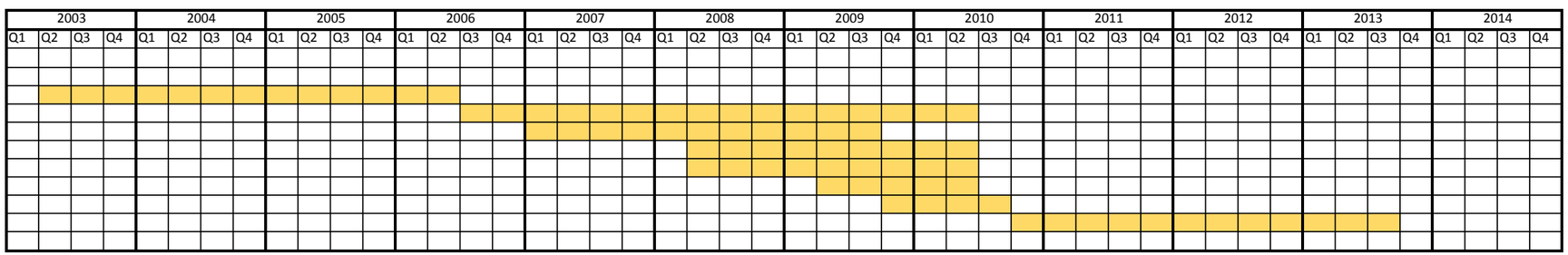
Site Determination, Massing, Funding, Initial Contact with Regulators
Regulatory/Entitlement Process
CEQA Process (Project received a Neg. Dec.)
Regulatory Approvals
Design
Permitting
Contracting
Construction



Exploratorium Museum at Pier 15, SF, CA

($51M in-water/$300M total construction of new museum space)

Site Determination, Massing, Funding, Initial Contact with Regulators
Regulatory/Entitlement Process (over 30 AHJ's involved)
CEQA Process
Regulatory Approvals
Design
Permitting
Contracting
Construction



Heavy Equipment
Procurement & Installation Duration

Large Container Cranes (source, Shanghai Zhenhua Heavy Industries/ZPMC/Liftech Consultants, Inc.)

	Average	Min	Max	
Duration for Standard Cranes:	33.0	30.0	36.0	

(for non-standard, add "several quarters" to duration)

	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Procurement/Vendor Selection												
Design												
Fabrication												
Delivery												
Installation & Testing												
(install duration is for one berth)												

Conventional Dock Mounted Marine Hydraulic Cranes (source, Rapp Marine NW, LLC - see WETA Central Bay Maintenance Terminal, Chevron RLW Berth 2, etc.)

	Average	Min	Max	
Duration for Hydraulic Cranes:	17.0	15.0	19.0	

	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Procurement/Vendor Selection												
Design												
Fabrication												
Delivery												
Installation & Testing												
(install duration is for one berth)												

Rotary or Dual Counterweight Fuel Loading Arms (source, FMC/PEC - see Chevron RLW Loading Arm Replacement Project

	Average	Min	Max	
Duration for Fuel Loading Arms:	23.5	22.0	25.0	

	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Procurement/Vendor Selection												
Design												
Fabrication												
Delivery												
Installation & Testing												
(install duration is for one berth)												

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Comment 5 for To Consider Proposed Control Measure for Ocean-Going Vessels At Berth (ogvatberth2019) - 45 Day.

First Name: Jeffrey
Last Name: Kilbreth
Email Address: jeffrey.kilbreth@gmail.com
Affiliation:

Subject: ogvatberth2019
Comment:
I live in Point Richmond - roughly a half mile from Chevron's wharf where 400 tankers a year idle with their engines on. The amount of PM in Richmond is visibly greater than in say San Francisco. (I've lived in both cities). And I'm sure you know that Richmond has very high asthma and chronic respiratory health problems. Speaking frankly, it is astonishing to me that the State of California has been so unconcerned and passive about reducing PM where it can be easily reduced. Truck PM is a tough regulatory problem requiring long lead times and complex economic changes - marine vehicle PM is far less difficult.

Chevron's Richmond refinery is the biggest on the west coast - if they were forced to put a wet scrubber on their primary cracking unit and hook their tankers up to shore power, Richmond residents would experience a HUGE improvement in quality of life. These 2 things could have and should have been required ten or even twenty years ago. The installation of a wet scrubber might legitimately require 5 years lead time, but it is very difficult to understand why bringing electricity to the wharf should take even five years much less the ten that you are proposing.

From the documents you provided, a few facts stood out to me:

1) Tankers generate three times as much PM as container ships!
2) Richmond tankers (Chevron) generate more PM and DPM than is generated by the much larger Port of Oakland!
3) DPM can be reduced by 70% in Richmond and PM 2.5 by 30% (we need the wet scrubber to increase this number!)

5.1 PLEASE, re-draft this rule to implement the requirement to use shore power at Chevron's Richmond wharf within 2 or 3 years. And make sure that any regulation with a slower implementation schedule is fully justified by actual required lead times rather than simply Chevron's preferences.

Thank you for addressing this area of major possible improvement.

Jeff Kilbreth
Richmond Planning Commission 2015-2016

Attachment:

Original File Name:

Date and Time Comment Was Submitted: 2019-11-18 12:39:27

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Comment 6 for To Consider Proposed Control Measure for Ocean-Going Vessels At Berth (ogvatberth2019) - 45 Day.

First Name: Stephen
Last Name: Rosenblum
Email Address: pol1@rosenblums.us
Affiliation:

Subject: New Pollution Control for Oceangoing vessels
Comment:

6.1 I support the goals and methods for this new control measure but object to the long time line of 2025 to include motor transport vessels and 2029 to include oil tankers in the control regime. Please examine what can be done to reduce this time line to the same 2021 date as for container and cruise ships. If it is a purely cost issue this needs to be carefully weighed against the costs of the well known damaging human health effects of delaying impementation.

Attachment:

Original File Name:

Date and Time Comment Was Submitted: 2019-11-19 14:17:48

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Comment 7 for To Consider Proposed Control Measure for Ocean-Going Vessels At Berth (ogvatberth2019) - 45 Day.

First Name: joseph
Last Name: puleo
Email Address: joepuleo@hotmail.com
Affiliation:

Subject: !0 year window to require electric power for docked tankers
Comment:
The proposed ten year delay in implementing this requirement is unacceptable.

35 percent of Bay Area pollution comes from non motor vehicle mobile sources, primarily bulk carriers . Compare this to 28 percent from on-road motor vehicles.

Accordingly the single largest source of dangerous pollution, diesel particulates , is primarily from bulk carriers, tankers.

I live in Point Richmond where we yearly endure 400 + tankers at the Chevron Long Wharf dock running their diesel engines to generate electricity.

This electricity has a twofold purpose, first to heat the petroleum to increase its viscosity and secondly to run their pumps sending it up to the refinery .

Chevron had the opportunity five years ago to electrify its dock during plant modernization but refused to do so.

The Air Board has the power to, almost overnight, erase this dangerous condition but it is failing to do so.

This ten year delay will add to the communities health dangers with no justification except the convenience of the polluters .

7.1 Please require this to be done in at most the next two years.

Yours truly

Joseph Puleo

Attachment:

Original File Name:

Date and Time Comment Was Submitted: 2019-11-19 17:52:22

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Comment 8 for To Consider Proposed Control Measure for Ocean-Going Vessels At Berth (ogvatberth2019) - 45 Day.

First Name: Larry
Last Name: Wilske
Email Address: Larry@mec.energy
Affiliation:

Subject: Vessels at berth
Comment:
Hello,

I've been following this closely and while I'm very impressed with CARB's clean air initiatives so far I'm wondering if you're going to include vessels at anchor as well. As you know in Long Beach, Los Angeles, San Diego, and the bay area numerous vessels are in close proximity to population centers while at anchor waiting a turn at berth, bunkering, or other reasons. While at anchor they run their high polluting auxiliary engines; I would like to inquire if you're going to place the requirements for vessels at berth and at anchor?

8.1

I await your response.

Very Respectfully,
Larry A. Wilske

Attachment:

Original File Name:

Date and Time Comment Was Submitted: 2019-11-21 11:30:58

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Comment 9 for To Consider Proposed Control Measure for Ocean-Going Vessels At Berth (ogvatberth2019) - 45 Day.

First Name: Clayton
Last Name: Heard
Email Address: claytonpheard@gmail.com
Affiliation:

Subject: At-Berth Regulation
Comment:
Require California ports to reduce air pollution from ocean-going vessels while in dock by implementing the following at-berth requirements.

1. OGV's must turn off auxiliary engines and connect to electrical grid based shore power
2. Use alternative control technology to achieve emission reductions as currently being used in the Port of Long Beach

9.1 Implementation should be immediate and without delay. The communities who live adjacent to the Ports deserve clean air and good health.

Attachment:

Original File Name:

Date and Time Comment Was Submitted: 2019-11-21 16:39:12

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November 19, 2019

Mary Nichols, Chair
California Air Resources Board
1001 I Street
Sacramento, CA 95814

Re: Support for Proposed Vessels At Berth Rule to Address Unacceptable Health Risks

Dear Chair Nichols and Members of the Board:

10.1 On behalf of the undersigned health and medical organizations and individuals, we are writing to express our strong support for the California Air Resource Board's adoption of the proposed At Berth rule to replace the existing At Berth regulation. The proposed rule is necessary to build upon the existing regulation and ensure greater health protections for communities subjected to unacceptable health risks due to nearby shipping pollution.

Largely due to transportation pollution sources like our ports, California is home to the most difficult air pollution challenges in the United States. The American Lung Association's 2019 *State of the Air* report found that over 90 percent of Californians live in counties impacted by unhealthy levels or

ozone and/or particle pollution.[1] Californians living near major diesel pollution hot spots like the ports face significant health risks, breathing higher levels of fine particles and diesel particulate matter that bring elevated risks respiratory and cardiovascular harms, cancers and premature death.[2] As noted in the Standardized Regulatory Impact Analysis, emissions from port operations pose an "unacceptable" health risk[3], particularly to local, disadvantaged communities which bear the brunt of this pollution burden.

We appreciate that CARB staff have taken significant lessons from implementation of the existing At-Berth rule to reduce shipping pollution at California ports. The updated rule proposal builds off of those learnings and addresses this source of pollution in a more holistic and protective manner. The proposal extends existing requirements for reducing pollution by expanding the types of ships that will be required to achieve 80 percent emission reductions. The proposal further expands the benefits of emissions control requirements (*i.e.* plugging in to shore-side power or implementing other CARB-approved control systems) to additional port-impacted communities not currently protected by the existing requirements.

Our organizations support the proposed rule as a critical tool to protecting public health as the freight sector in California grows. By ensuring strong protections at our ports, a win-win scenario of economic growth coupled with public health protections is possible. Without the proposed rule, the current health harms will grow and the conditions facing communities near our ports will represent an unacceptable failure to act to protect local residents and achieve our air and climate standards. We appreciate the opportunity to offer the comments below to support and strengthen the proposal.

> ***This proposal is specifically identified as necessary action within the State Implementation Plan to achieve health-based air quality standards.*** Amendments to the existing At-Berth Regulation were included in the State Implementation Plan for achieving mobile source emission reductions in support of ozone and particle pollution standards.[4] In order to achieve California's clean air goals to protect public health, SIP commitments must be adopted as quickly as efficiently as possible.
>
> ***The proposal will ensure emissions controls keep pace with growth in cargo handling and diesel pollution generated at port facilities.*** The proposed regulatory update addresses the growth in the cargo industry and ensures that as port terminals grow, health risks are not allowed to grow with them. This is critical to ensuring lasting benefits to nearby communities. As noted in the Health Risk Assessment, estimates point to more than a 50 percent increase in cargo activity in the United States by 2023 (57 percent at the Ports of Los Angeles and Long Beach), and a projected 20 percent increase in diesel particle pollution in California by 2023.[5] We support the "once-in/always-in" concept for the facilities, meaning that once a facility is designated for pollution controls under the proposed rule, they will always follow those requirements to cut harmful pollution.

---

[1] American Lung Association. *State of the Air*. April 2019. www.stateoftheair.org
[2] California Air Resources Board. *Ocean-Going Vessels At Berth Proposal ISOR*. Oct. 2019. p.V-15: "Individuals who live in high-risk areas near ports are exposed to higher PM2.5 concentrations from vessels at berth than other California residents. These individuals are at a higher risk of developing respiratory impairments as a result of auxiliary engine and boiler emissions, especially those individuals within sensitive groups"
[3] CARB. *Vessels at Berth Standard Regulatory Impact Analysis*. August. 2019. p. 30. https://ww3.arb.ca.gov/regact/2019/ogvatberth2019/appc-1.pdf
[4] CARB. *Revised Proposed 2016 State Strategy for the State Implementation Plan*. March 2017. p. 97. 2017. https://ww3.arb.ca.gov/planning/sip/2016sip/rev2016statesip.pdf
[5] CARB. *Vessels At Berth Proposal ISOR*. p. II-2

The proposal will save lives, reduce cancer risks and other illnesses and avoid billions in health-related outcomes. As noted above, the reduction in health impacts to local communities is a major focus of this regulation: The proposed rule will reduce cancer risks due to at-berth ship pollution by approximately 60 percent near the Ports of Long Beach, Los Angeles and Richmond facilities[6], including eliminating several categories of cancer risks altogether.[7] This proposal will reduce the cancer risk for 2.4 million people living near the Ports of Long Beach and Los Angeles and another 14,000 people in the Richmond area.[8] These health risk reductions are estimated to avoid over 200 premature deaths and avoid over $2.2 billion in associated health impact costs in 2032.[9]

Without the proposed rule, cancer risks associated are projected to increase. Cancer risk to residents near the Ports of Long Beach and Los Angeles are projected to increase by 37 percent, and by 14 percent for residents near Richmond facilities between 2020 and 2031.[10]

10.2 ***Earlier implementation of final amended rule would accelerate health benefits.*** The current proposal extends implementation out to 2029 for certain tankers. We urge the board to pursue earlier emission reductions wherever possible and consider updating the implementation dates to an earlier timeline to accelerate the health protections envisioned under the proposal.

The rule is an important lever for reducing climate-forcing black carbon pollution. Climate change is a public health emergency, threatening health through a wide range of impacts such as extreme heat events, degraded air and water quality, wildfires and other risks to Californians. The proposed rule will deliver significant reductions in black carbon, a potent short-lived climate pollutant targeted for a 50 percent reduction in California by 2030.[11]

Our organizations look forward to working with the CARB board, staff and stakeholders in advancing the strongest possible rule to eliminate the unacceptable health risks associated with pollution from ships visiting California port facilities.

Sincerely,

Barbara Sattler, RN, DrPH, FAAN, Co-Founder
Alliance of Nurses for Healthy Environments

Kris Calvin, CEO
American Academy of Pediatrics – California Chapter

Autumn J. Ogden-Smith, Director California State Legislation
American Cancer Society – Cancer Action Network

Soma Wali MD, MACP, President
American College of Physicians, California Chapter

Will Barrett, Clean Air Advocacy Director
American Lung Association

---

[6] CARB. *ibid* at p. V-14
[7] CARB. *ibid* at p. VI-1
[8] CARB. *ibid* at pp. VI 12-13
[9] CARB. *ibid* at p. V-17
[10] CARB, *ibid* at p. ES-11
[11] CA Senate Bill 1383 (Lara, 2016) requires a 50 percent reduction in anthropogenic black carbon emissions by 2030. www.leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=201520160SB1383

Marghot Carabali, MPA, Coordinator
Asthma Coalition of Los Angeles County

Janet Nudelman, Director of Program and Policy
Breast Cancer Prevention Partners

Adam Francis, Director of Government Relations
California Academy of Family Physicians

Dr. Angelo Williams, Deputy Director
CA Black Health Network

Sarah Schear, medical student
Lisa Patel, MD
Amanda Millstein, MD
Ashley McClure, MD
California Climate Health Now

Justin Malan, Executive Director
California Conference of Directors of Environmental Health

Samantha D. Pellón, MPH
Associate Director, Center for Health Policy
California Medical Association

Wayne Walls, President
California Society for Respiratory Care

Lorriana Leard, M.D., FACCP, President
California Thoracic Society

Linda Rudolph, MD, MPH, Director
Center for Climate Change and Health

Elridge D. Proctor, MPA, Senior Director, Government Affairs
GO2 Foundation

Fonda Winslow, Executive Director
Kern County Medical Society

Sylvia Bettencourt, Program Manager
Long Beach Alliance for Children With Asthma

Robert M. Gould, MD, President
San Francisco Bay Area Chapter
Physicians for Social Responsibility

Manal J. Aboelata, MPH, Deputy Executive Director
Prevention Institute

Joel Ervice, Associate Director
Regional Asthma Management and Prevention (RAMP)

Jim Mangia, MPH, President & CEO
St. John's Well Child and Family Center (Los Angeles)

Comment Log Display

Below is the comment you selected to display.
Comment 11 for To Consider Proposed Control Measure for Ocean-Going Vessels At Berth (ogvatberth2019) - 45 Day.

First Name: Diana
Last Name: Bohn
Email Address: nicca@igc.org
Affiliation:

Subject: Cut Air poliution from ships
Comment:

11.1 Please approve a proposal that would make a big dent in toxic air pollution from ships at Bay Area ports and refineries.

Attachment:

Original File Name:

Date and Time Comment Was Submitted: 2019-11-23 06:58:13

If you have any questions or comments please contact Clerk of the Board at (916) 322-5594.

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Jack P. Broadbent
EXECUTIVE OFFICER/APCO

Connect with the
Bay Area Air District:

November 26, 2019

Mary D. Nichols, Chair
California Air Resources Board
1001 I Street
Sacramento, CA 95814

RE: Proposed Control Measure for Ocean-Going Vessels At Berth

Dear Chair Nichols:

Thank you for the opportunity to comment on the proposed *Control Measure for Ocean-Going Vessels At Berth*. The Bay Area Air Quality Management District (Air District) commends the Air Resources Board's staff for their work to improve the effectiveness of the At Berth rule while addressing implementation concerns raised by the maritime industry. This regulation is a key strategy in *Owning Our Air*, the West Oakland Community Action Plan developed by the West Oakland community to fulfill the promise of AB 617. I urge the Board to adopt the regulation proposed by your staff in the Initial Statement of Reasons, with consideration of three key changes that will deliver community benefits sooner to overburdened communities in the San Francisco Bay Area and ensure that any changes in operations at regulated ports do not erode the regulation's benefit to local communities.

The Staff proposal contains modifications to the existing At Berth regulation that will clarify requirements, increase compliance and ensure that Port Authorities, Terminal Operators and Shipping Lines share equally in controlling emissions from vessels while at berth. Importantly, the expansion of the rule to cover all vessel visits at the regulated terminals and to include motor vehicle carriers and tankers are important steps forward in further reducing health impacts on communities adjacent to the ports and refineries in the Bay Area.

The health risk assessment prepared for this regulation cleary demonstrates the benefits that will accrue to local communities from controlling emissions from auxiliary engines and boilers. The Air District, in partnership with the Aclima, is collecting baseline conditions in these communities as part of our AB 617 program. Preliminary results will be available soon. Air District staff believes this monitoring effort will further document the health impacts caused by emissions from at-berth vessels.

To ensure there is no delay in the air quality improvements that Richmond and other overburdened communities near Bay Area's refineries have been promised through AB 617 and the Environmental Justice and Social Equity policies adopted by the California State Lands Commission and the Bay Commission and Development Commission, I encourage the Board to

12.1 make the compliance deadline for oil tankers January 1, 2025.

ARB staff, in recommending a 2029 compliance date for Bay Area refineries, refer to lengthy regulatory approval processes for construction over or adjacent to bay waters. While approvals from multiple agencies are necessary and can add to design and contruction timelines, I believe this concern is overstated. Terminal operators will submit implementation plans by December 2021. An inter-agency group can assist ARB staff in reviewing the plans. This early consultation will help identify any concerns that can be addressed prior to the submittal of permit applications to the regulatory agencies and make compliance by 2025 more feasible. This approach has been used successfully in the Bay Area in coordinating multi-agency review and approval of maintenance dredging in the region. Air District staff is available to assist ARB with this inter-agency review. Additionally, the proposed 2023 interim evaluation of the regulation provides ARB the opportunity to maintain or extend the 2025 compliance deadline.

The staff proposal recommends exempting bulk and general cargo vessels from any at-berth emission control requirements. The proposed exemption is based on the likely high cost of implementing controls on a fleet consisting of vessels of many different designs operating auxiliary engines at relatively low effective power. However, proposals to expand bulk material handling in West Oakland at the Oakland Bulk and Oversized Terminal and at the Port of Oakland may erode the health benefits gained from controlling emissions from the container vessel fleet. I urge that the

12.2 proposed interim evaluation in 2023 include an assessment of the need to control emissions from bulk vessels at terminals located within or near an AB 617 designated community to ensure the benefits of the regulation are maintained.

ARB and the Air District provided Proposition 1B funding for shore power infrastructure at the Port of Oakland. Under the terms of the Proposition 1B agreements, by 2020 at least 90% of vessels must control emissions while at berth, an increase over the requirements of the current regulation. ARB staff is proposing compliance flexibility between 2021 and 2024 by exempting up to 15% of vessel visits annually. This proposed compliance flexibility may impede achieving the goals of the West Oakland Community Emission Reduction Plan, as emissions from vessels berthing at the Port of Oakland are a significant contributor to local health impacts in this

12.3 overburdened community. I urge that berths with shore power equipment funded by Proposition 1B be allowed exemptions for no more than 5% of vessel visits.

Thank you again for the opportunity to comment on the proposed improvements to the control of emissions from vessels while at berth. These improvements are a critical part of the Bay Area's efforts to improve and protect community health. Please contact me if I can provide any additional information on our comments.

Sincerely,

Jack P. Broadbent
Executive Officer/APCO

cc: BAAQMD Board of Directors
Mr. Richard Corey, Executive Director, ARB
Ms. Angela Csondes, Manager, Marine Strategies Section, ARB
Ms. Margaret Gordon, West Oakland EIP
Mr. Brian Beveridge, West Oakland EIP
Ms. Linda Whitemore, Santa Fe Neighborhood Council
Dr. Naama Raz-Yaseef, Richmond Heights Neighborhood
Ms. Nain Villanueva de Lopez, West County First Five
Mr. Randy Joseph, RYSE Youth Center
Mr. Willie Robinson, NAACP Richmond Branch

South Coast
Air Quality Management District
21865 Copley Drive, Diamond Bar, CA 91765-4182
(909) 396-2000 • www.aqmd.gov

Office of the Executive Officer
Wayne Nastri
909.396.2100, fax 909.396.3340

November 26, 2019

CARB Board Members
California Air Resources Board
1001 I Street
Sacramento, CA 95814

Re: Proposed Control Measure for Ocean-Going Vessels At Berth

Dear Honorable Board Members:

Thank you for the opportunity to comment on CARB's Proposed Control Measure for Ocean-Going Vessels At Berth. South Coast AQMD staff appreciates CARB staff efforts in developing this proposal which would implement one of the key measures of CARB's 2016 SIP Strategy. I urge the CARB Board to adopt the proposed regulation without any delay and I would like to offer the following comments in support of the proposal.

As you know, South Coast Air Basin (Basin) is facing a daunting challenge to meet the upcoming deadlines for attaining federal ozone standards requiring significant NOx reductions. NOx emissions need to be reduced by 45% and 55% beyond all existing regulations by 2023 and 2031, respectively, to meet these standards. Aggressive regulations, advancements in technologies and innovative solutions as well as coordinated efforts among all stakeholders, at local, state and federal levels are needed to achieve these reductions. Ocean-Going Vessels (OGVs), combined with harbor craft, will be the largest source of NOx emissions in our Basin in 2023. Therefore, it is absolutely essential to maximize both early and long-term reductions from OGVs through both regulatory programs and incentive measures to help achieve our attainment deadlines.

The proposed At Berth Regulation would achieve much needed NOx reductions from OGVs at berth by requiring higher compliance rates for previously regulated vessels (i.e., container, cruise, reefers) and also expanding the requirements to two additional vessel types - tankers and roll-on roll-off (RORO) vessels. We fully support the January 2021 compliance date for container ships, cruise ships and refers and inclusion of other vessel types. However, given the urgency to achieve significant NOx reductions by 2023, South Coast AQMD staff would like to offer the following suggestions for your consideration:

RORO Vessels

Under the proposed regulation, RORO vessels will be required to comply with the rule requirements by January 2025. RORO vessels accounted for 7% of all calls at the Ports of Los Angeles and Long Beach in 2018 and they will also be responsible for about 7% and 9% of at-berth NOx and DPM emissions in 2023, respectively. Since the operational power requirements of these vessels are similar to container vessels and currently approved control technologies can be utilized for this vessel type, we request that CARB consider accelerating the compliance date for ROROs at the Ports of Los Angeles and Long Beach to January 2023.

13.1

Technology Demonstration and Certification

In order to accelerate deployment of new or improved control technologies for tankers (with a 2027 compliance date for POLA/POLB) and to identify feasible technologies for other vessel types not subject to control requirements under the proposed regulation, expeditious development and demonstration of these technologies will be critical. Robust funding coupled with a streamlined certification process is key to the success of these demonstration projects. Given the significant contribution of OGV emissions, funding for demonstrating OGV technologies has been limited compared to other mobile sources (e.g., heavy-duty trucks). Therefore, we request that CARB allocate additional funding to identify, develop, demonstrate, and certify these technologies. We suggest a more coordinated effort among our agencies, U.S. EPA, technology providers and the ports for these projects and we are fully committed to support these efforts.

13.2

New Incentive Programs

While the proposed At Berth Regulation would achieve substantial emission reductions, there are still opportunities for additional reductions. Development of new and innovative OGV incentive programs will be critical for achieving near-term reductions through early compliance for regulated vessels and through voluntary actions by non-regulated vessels. The accelerated development and certification of new technologies will be the key in implementing these new incentive programs and achieving early reductions. We fully support these efforts and offer our assistance to CARB in this area.

13.3

Technology Assessment

13.4 Although the proposed regulation includes an interim evaluation of technologies for regulated vessel types, we recommend that CARB also consider conducting a technology assessment for other vessel types excluded from control requirements under the proposed regulation (e.g., bulk, general cargo vessels) by 2022 to better identify and evaluate cleaner technologies for these vessel types. Left unchecked, these vessels will represent a larger share of emissions in the future.

Again, South Coast AQMD staff strongly supports the adoption of the Proposed At Berth Regulation. Achieving reductions from OGVs will be essential in meeting the ozone attainment deadlines in the Basin. We are fully committed to continue to work collaboratively with CARB staff to develop and implement other innovative programs for reducing emissions from OGVs.

Sincerely,



Wayne Nastri
Executive Officer

From: Joseph Puleo
To: ARB Clerk of the Board
Subject: Shore Power Hearing
Date: Friday, November 29, 2019 10:18:19 AM

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Sent from Mail for Windows 10
I've previously submitted objection to the ten year time for implementation of the shore power requirement.

Further discussion indicates problems for some vessel berthing;
for example the tankers at anchorage # 9 in the lower bay which might take five years years to obtain regulatory approval.

I suggest a solution. A two year, not ten year implementation, but with the authority to grant extensions upon application to the Air Board.

14.1

This would permit quick electrification in places like the Chevron Dock in Richmond while allowing a longer time frame for more difficult locations.

Comment Log Display

Below is the comment you selected to display.
Comment 15 for To Consider Proposed Control Measure for Ocean-Going Vessels At Berth (ogvatberth2019) - 45 Day.

First Name: Marinell
Last Name: Daniel
Email Address: marinelldaniel@gmail.com
Affiliation: Resident of El Sobrante, CA

Subject: Proposed Control Measure for Ocean-Going Vessels @ Berth
Comment:

15.1 Members,
I will not be able to attend the meeting, so I am emailing my comments. I am an elderly citizen living in El Sobrante, CA. I have asthma/COPD and do not want to see others suffer from this condition. Children in our area have very high rates of asthma. These proposal will cut some of the particulates in our air, and we need to do all we can to clear our air. I support the staff proposal to extend pollutions control requirements to container and cruise ships and to include oil and chemical tankers ships. Adopting these measures would be a find Holiday gift to our community.
Regards,
Marinell Daniel

Attachment:

Original File Name:

Date and Time Comment Was Submitted: 2019-12-02 09:49:55

If you have any questions or comments please contact Clerk of the Board at (916) 322-5594.

Board Comments Home

CONTACT US

(800) 242-4450 | helpline@arb.ca.gov
1001 I Street, Sacramento, CA 95814
P.O. Box 2815, Sacramento, CA 95812

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December 2, 2019

Clerks' Office
California Air Resources Board
1001 I Street,
Sacramento, California 95814
Via Electronic submittal: http://www.arb.ca.gov/lispub/comm/bclist.php

Re: PROPOSED CONTROL MEASURE FOR OCEAN-GOING VESSELS AT BERTH

We are excited to submit these comments in support of the California Air Resources Board's proposed Control Measure for Ocean-Going Vessels ("OGVs") At Berth ("At Berth Regulation"). The OGVs cause immense amounts of air pollution globally and particularly when in port when they are closest to people who live near, and work at, California's ports. OGVs are sources of both nitrogen oxide ("NOx") and particulate matter ("PM") emissions, both of which cause grave health impacts in people. Further, California is in non-attainment of NOx reduction goals under the federal Clean Air Act. Air Districts across the state are working to reduce NOx and other criteria pollutants from stationary sources. Moving OGVs from using diesel auxiliary engines, sources of

both NOx and PM, in port to alternatives such as plugging into electrical power or using a capture-and-control technology will go a long way to reducing air pollution, improving public health and reducing dangerous pollutants in our air. As a result, we urge the California Air Resources Board ("ARB") to adopt this regulation and move forward with its implementation as soon as possible.

I. Public Health Benefits of At Berth Regulation Are Obvious and Relevant

One of the main goals for us is to protect public health, and the At Berth regulation will do so. As stated in the ARB Staff Report: Initial Statement of Reasons ("SOR," released October 15, 2019), OGV emissions include criteria pollutants, air toxic contaminants, and greenhouse gases. (SOR, ES-2; see also SOR p. I-10.) As stated above, one of the main pollutants from an OGV is NOx. Exposure to NOx can cause respiratory irritation, aggravation of respiratory diseases, especially asthma, causing coughing, wheezing and difficulty breathing, all of which can lead to emergency room visits and hospital admissions for those people affected. (Id.) Negative public health impacts from NOx emissions are some of the main reasons we so strongly support adoption of this regulation. "California's combination of unique geography and robust freight contributes to our state experiencing some of the worst air quality in the nation." (SOR, ES-4.)

Another harmful emission from OGV operations is particulate matter ("PM") that can be inhaled into upper airways and lungs, creating respiratory ailments leading to still more public health concerns.

> Exposure can increase premature mortality, hospital admissions for cardiopulmonary causes, acute and chronic bronchitis, asthma attacks, and respiratory symptoms, and the health effects are of particular concern for sensitive groups such as infants, children, the elderly, and those with preexisting heart of lung disease. (SOR, ES-3; see also SOR p. V-15-19, and ARB, "Inhalable Particulate Matter and Health [PM2.5 and PM10]", August 10, 2017, https//ww3.arb.ca.gov/research/aags/common-pollutants/pm/pm.htm.)

As recently as November 13, 2019, new health impacts are being identified related to particles produced by fuel-burning, especially diesel fuel. The Guardian published an article that date, highlighting research conducted by McGill University in Canada and following over a million adult Canadians in Toronto and Montreal and their medical records from 1991 to 2016. Specifically, the studies found:

> New research has linked air pollution nanoparticles to brain cancer for the first time. The ultra-fine particles (UFPs) are produced by fuel burning, particularly in diesel vehicles, and higher exposures significantly increase people's chances of getting the deadly cancer. Previous work has shown that nanoparticles can get into the brain and that they can carry carcinogenic chemicals. (The Guardian, Air Pollution Nanoparticles Linked to Brain Cancer for First Time, November 13, 2019 (accessed November 18, 2019), https://www.theguardian.com/environment/2019/nov/13/air-pollution-particles-linked-to-brain-cancer-in-new-research.)

The article further documented:

> The discovery of abundant toxic nanoparticles from air pollution in human brains was made in 2016. A comprehensive global review earlier in 2019 concluded that air pollution may be damaging every organ and virtually every cell in the human body. Toxic air has been linked to other effects on the brain, including huge reductions in intelligence, dementia and mental health problems in both adults and children. The World Health Organization says air pollution is a "silent public health emergency". (Id.)

Even more important is the need to protect public health in areas near ports, most of which have been identified as "disadvantaged communities," or those most impacted by environmental injustice, over a period of years or even decades. These areas tend to be comprised of the working poor and people of color who have to contend daily with all the various and cumulative pollution burdens of goods movement, such as proximity to heavy duty trucks, locomotives, cargo handling equipment and OGVs. (SOR p. II-1,2, p. V-9 and V-15; see also Office of Environmental Health Hazard Assessment, CalEnviroScreen 3.0, June 25, 2018, https://oehha.ca.gov/calenviroscreen/report/calenviroscreen-30.)

We are aware that the Proposed At Berth Regulation applies to more OGVs than the existing At Berth Regulation. We are supportive of this change in the regulation, as it ensures that public health benefits are applicable to all ships that visit California ports statewide 20 or more times annually. To continue to apply a regulation to only selected ships would also continue to allow poor air quality to result from those ship visits.

As a result, because of the public health benefits of implementing this Proposed At Berth Regulation, We support this Regulation whole-heartedly and urge the ARB to implement the regulation as suggested by staff, beginning on January 1, 2021.

II. Proposed At Berth Regulation Is a Cost Effective Way to Reduce Emissions and Protect Health

The Proposed At Berth regulation will directly improve health benefits for California communities impacted by port operations. Specifically, by 2032, total costs for all entities to implement the rule will exceed $2.2 billion, while health benefits in that time add up to $2.3 billion from 230 fewer premature deaths, 72 fewer hospital admissions, and 116 fewer emergency room visits statewide. (SOR, ES-16, see also Table VI, "Statewide Valuation from Avoided Adverse Health Outcomes Between 2021 and 2032 as a Result of the Proposed Regulation," p. VI-3.) In addition, potential cancer risk from at berth emissions reduction will also be reduced by approximately 60%. (SOR VI-1,2.) From the Ports of Long Beach and Los Angeles alone, about 2.4 million residents would have a reduced potential cancer risk from implementing this At Berth Regulation, and communities around the Richmond Complex would have a potential 14,000 residents with a cancer risk level of 20 in a million would be eliminated. (Id., see also p. V-15.)

In addition, the annual cost to the average individual consumer is negligible at most. According to the ARB staff calculations, approved by the California Department of Finance, the following are the annual costs in 2030 broken down by vessel type:

Container Ship	**$1.11 per Twenty Equivalent Unit or TEU**
Cruise Ship	**$4.56 per Passenger**
Roll On-Roll Off Vessel	**$7.49 per Automobile**
Oil Tanker	**$.008 per Gallon**

(SOR, Table IX-9, p. IX-23.)

Thus, although the initial price tag of the At Berth Regulation implementation may seem excessive, when measured against the direct health benefits and the cost to the average consumer, it is clearly a worthy investment in a cleaner goods movement system and a healthier California populace.

III. We Support the Use of Remediation Fund in Communities Impacted by Uncontrolled Emissions

ARB staff states quite clearly that any ship that cannot comply with the At Berth Regulation will pay an hourly-based fee and "any remediation funds received would be required to be put back into projects in the communities impacted by the uncontrolled emissions." (SOR, ES-34, 35.) We support this use of the remediation funds, and further respectfully request that ARB ensures that fund administrators, working with air districts or directly with ARB via a Memorandum of Understanding, have an obligation to provide

an annual report to the public as to how funds have been administered. Although the SOR provides for semi-annual reporting to ARB, there is no provision for an annual accounting of mitigation funds to the public. (SOR, p. VI-102, "Rationale for Section 93130.16(h)(6)".) For an example of how this is done, We refer ARB to the Harbor Community Benefit Foundation, which partners with the Port of Los Angeles to gather and spend container fees to decrease community impacts of port operations. (Harbor Community Benefit Foundation website: https://hcbf.org/, accessed November 18, 2019.) However, it is essential that these payments not substitute for any regulated entity good faith efforts to comply with the rule.

Conclusion

16.1 For all the reasons stated above, we strongly support the Proposed At Berth regulation, and urge the ARB to implement the rule as soon as possible, and certainly no later than January 1, 2021. Thank you for your time and consideration.

Respectfully submitted,

Jerilyn López Mendoza
Senior Policy Advocate
Coalition for Clean Air

Andrea Viadurre
Policy Analyst
Center for Community Action and Environmental Justice

Taylor Thomas
Research and Policy Analyst
East Yard Communities for Environmental Justice

Heather Kryczka
Attorney
NRDC

Joel Ervice
Associate Director
Regional Asthma Management and Prevention

Katherine Garcia
Policy Advocate
Sierra Club California

PORT OF OAKLAND

December 2, 2019

Angela Csondes
Manager, Marine Strategies Section
California Air Resources Board
P.O. Box 2815
Sacramento, CA 95812-2815
Submitted Via Electronic Comment Log

Subject: Comments on October 15, 2019, Draft Proposed Control Measure for Ocean-Going Vessels At Berth and Supporting Documents

Dear Ms. Csondes:

The Port of Oakland ("Port") appreciates the opportunity to comment on the rulemaking materials posted October 15, 2019, for the Proposed Control Measure for Ocean-Going Vessels At Berth ("Proposed Control Measure"). The Port understands that the California Air Resources Board ("CARB") plans to replace the current Airborne Toxic Control Measure for Auxiliary Diesel Engines Operated on Ocean-Going Vessels At Berth in a California Port (the current "At-Berth Regulation") with the Proposed Control Measure, with the goal of taking the Proposed Control Measure to the CARB Governing Board on December 5, 2019 at a special meeting to be held in West Oakland. The Port understands that the CARB Governing Board will not vote on the Proposed Control Measure on December 5, 2019, and that comments are due December 9, 2019.

The Port fully supports CARB's efforts to reduce emissions from ocean-going vessels at berth and is working diligently to maximize the number of vessel visits using shore power. Port staff work collaboratively with shipping lines to provide education and resources about the shore power program. Port staff track shore power usage in real time, collecting detailed information from marine terminal operators. The Port regularly posts up-to-date shore power usage statistics, reasons for vessels not plugging in, and cost information on the Port's shore power website: https://www.oaklandseaport.com/development-programs/shore-power/.

In 2018, 75% of all vessel calls at the Port of Oakland drew shore power (the number for all vessel calls includes steamships and "infrequent callers" which are both exempt from the current At-Berth Regulation), which surpassed the regulatory requirement of 70% compliance. The plug-in rates at the Port of Oakland continue to increase. For example, in October 2019, 100% of vessels

that were equipped with shore power plugged in and 83% of all vessel calls plugged in. This was the third time in 2019 and the second consecutive month where shore power plug-in rates were above 80%. For 2019, the year-to-date average, including October 2019, was 76%.

The Port has commented on previous drafts of the Proposed Control Measure and various supporting documents, and those previous comment letters are enclosed with this comment letter. The Port appreciates CARB's consideration of its past comments and sets forth its new and continuing comments and concerns below.

Comments on Emissions Inventory

The Port has reviewed Appendix H: 2019 Update to Inventory for Ocean-Going Vessels at Berth: Methodology and Results. This inventory is extremely important, as it lays the foundation for the need for, and cost-effectiveness of, the Proposed Control Measure.

17.1 The Port appreciates all the hard work that went into the inventory, and the willingness of CARB staff to attempt to explain their methodology. At the same time, Port staff (along with other public seaport authorities and shipping partners that operate in the State) have struggled to understand the inventory results and implications for both Oakland and the State as a whole. Based on the collective feedback that has been received from stakeholders, CARB staff continues to revisit the baseline and forecasted emissions assumptions with updated calculations and results even as this Proposed Control Measure is being put before the CARB Governing Board. In other words, the methodology and analysis upon which the Proposed Control Measure is based, are still in flux.

17.2 To highlight just one particularly notable example, the 2020 estimated total hours at berth divided by typical call durations by vessel size indicate that there will be 2,580 calls for the Port of Oakland in 2020, which is a dramatic departure and increase (a deviation of over 40%) from observed operational realities and shipping trends. For context, the Port of Oakland had 1,175 calls in the first 10 months of 2019, 1,543 calls in 2018, and 1,598 calls in 2017. The same calculation applied to CARB values for the Ports of Los Angeles and Long Beach predicts 2,405 calls in 2020, which means Oakland would see 175 more calls than the Ports of Los Angeles and Long Beach combined. Such an order of magnitude difference has implications for evaluating the effectiveness and potential impact of the Proposed Control Measure and any marginal benefits that could be achieved by it.

Port staff compared the 2016 baseline values used by CARB in the inventory to 2016 actual values recorded at the Port. It appears that CARB's 2016 values for total time at berth are about 8% higher than actual, and that CARB's estimates for average power by ship size (which were derived from values at the ports of Los Angeles and Long Beach) are about 9% higher than actual for Oakland. Additionally, it seems that CARB has underestimated the total activity for the regulated fleet in 2016 by about 11%, which makes it appear that the Proposed Control Measure overestimates projected reductions. These over- and under-estimates do not balance out. In fact, they lead to further discrepancies which are compounded by CARB's assumed 21.5% growth rate which is applied equally across all vessel size bins. The Port understands that this growth rate was

developed from the Federal Highway Administration's Freight Analysis Framework and requests that CARB explain how this growth rate applies to hours at berth, cargo volumes, emissions, ship calls, and cost.

The Port appreciates CARB staff's recent acknowledgment that the cargo growth rate for Oakland needs to be adjusted. Port staff and CARB staff have had multiple discussions about the growth rate issue, and the Port understands that CARB will consider instead the Oakland-specific cargo forecast commissioned by the Bay Conservation and Development Commission ("BCDC")[1]. This will lower the forecasted annual growth rate for Oakland from ~4.6% to a more realistic, but still high, forecast of 2.2%. For reference, the Port's historical compounded annual growth rate from fiscal year 2008 to fiscal year 2018 was 0.4%.[2]

We look forward to evaluating the results and implications of these revised forecasts when the technical work is presented at a future date by CARB staff. The Port seeks assurance that no CARB vote will proceed until the emission reduction estimates reflect more realistic growth rates, for example as provided in the BCDC report.

17.3 The Port appreciates CARB staff's willingness to apply an "efficiency factor" that acknowledges efficiency gains produced by moving more cargo on fewer, larger ships. One point of caution is that the layering of percentages makes it extremely difficult to follow the logic and relate CARB's forecasted activity and emissions to any real-world metrics. Small errors and invalid assumptions with an initial set of data points can be magnified as these results are extrapolated into later forecast years, which lead to unrealistic and unreliable conclusions. The Port understands the complexity of the task, but a regulation as important and expensive as the one being proposed needs to be based on data that can be fact-checked, and must include forecasts that are grounded in factual operational data.

As an alternative, the Port of Oakland prefers and requests that CARB re-evaluate the inventory using 2016 baseline values provided by the Port and a Port-specific growth forecast. The Port further requests that the forecast activity levels be related to ship calls, which can be readily understood by all ports, regulatory agency staff as well as by the public. This would be consistent with how the Port tracks shore power usage and compliance. Lastly, and most importantly, the Port asks that these changes be made and the inventory fully peer-reviewed before the CARB Governing Board contemplates further action on the Proposed Control Measure.

Broad Concerns about the Proposed Control Measure

17.4 The Port is extremely concerned that the Proposed Control Measure adds a substantial additional regulatory burden and cost to carriers and terminals that are already achieving high levels of plug-ins and emissions reductions. As the Port has discussed with CARB previously along with other California seaports, CARB could achieve more cost-effective emissions reductions from other source categories. In fact, during a conference call with CARB staff on Friday, November 22,

[1] BCDC is currently amending its Seaport Plan for the San Francisco Bay Area.
[2] From Budget and Finance report at May 23, 2019 Port Board Meeting (File ID 098-19), slide 6.

2019, the Port joined its sister ports in proposing potentially preferred emissions reductions project alternatives based upon readily available specific equipment replacements, which will result in a significant reduction of emissions.

17.5 A second broad concern is that the Port of Oakland would be disadvantaged under the Proposed Control Measure because it does not have the option of a CARB approved emission control strategy ("CAECS") other than shore power. As CARB itself found, the Port of Oakland cannot use a barge-based capture and control ("C+C") method at three of its four terminals "due to concerns expressed from SF Bar Pilots about wave interaction from passing vessels and channel space and navigational constraints." (See Appendix E: *Berth Analysis*.) The three terminals cited in CARB's Appendix E (Everport, Matson, and OICT) account for over 83% of the Port's call volume.

To elaborate, the potential negative impact to the Port and its carriers, tenants, and the community from the Proposed Control Measure is foreseeable. It is well established that almost every vessel calling Oakland also calls the ports of Los Angeles and Long Beach. Unlike Oakland, the ports of Los Angeles and Long Beach can use a barge-based C+C strategy. What will happen if carriers rely on a barge for compliance at the ports of Los Angeles and Long Beach, and then come to Oakland where a barge is not possible? The Port is very concerned that carriers may bypass Oakland if the Proposed Control Measure is enacted as currently written. Oakland has no feasible C+C alternative[3], which could put the Port of Oakland at a serious competitive disadvantage.

To address the fact that a barge-based C+C will not work in Oakland, the Port requests that CARB grant Oakland exemptions corresponding to the number of calls that rely on barge-based C+C in Southern California.

17.6 As a third concern, the Port understands that the Proposed Control Measure anticipates other emission control strategies such as a land-based C+C system. However, the Port is concerned that landside emissions control approaches were never contemplated for use in the container fleets, have not been analyzed by CARB staff for use in the container shipping trades, and by CARB's own analysis can result in an increase in greenhouse gas emissions[4], which would seem to be an unacceptable outcome given the purpose and intent of this rulemaking.

The Port's fourth concern is the introduction of shared responsibility which potentially creates conflict among vessels, terminals, and ports (see Table 5 of Proposed Control Measure) where none now exists. Upon the adoption of the initial At-Berth Regulation, CARB rightly acknowledged that in a global shipping environment it was not reasonable to expect that every vessel in every fleet would be equipped to receive shore power, hence the creation of fleet compliance averages and an exemption for infrequent callers. The Port has seen that its diligent involvement with carriers and terminals has resulted in a continuous positive trajectory in shore power usage.

[3] Appendix E of the ISOR, page 12
[4] Appendix C-1 of the SRIA, page 15

17.7 The Proposed Control Measure continues the acknowledgement that there will be instances when ships cannot plug in, due to circumstances on the vessel or at the terminal, hence the inclusion of alternative compliance options and a complex regime of Terminal Incident Events ("TIEs") and Vessel Incident Events ("VIEs"). The Port understands the goal of the TIE and VIE regime, but it creates more problems such as record-keeping and dispute resolution, than it solves. The Proposed Control Measure has no clear grievance or dispute resolution process when conflicts arise

Specific Comments on Proposed Control Measure

1. 17.8 Regarding the Terminal and Port Plans required for Container terminals in Section 93130.14, the deadline of July 1, 2021 is confusing because the Compliance Start Date listed in Section 93130.7(b) is shown as January 1, 2021. Shouldn't the Plans and associated 90-day review window be completed prior to requiring compliance?

17.9 Port staff object to the text in Section 93130.14(a) that "[a]s an alternative, Ports may submit plans for their terminal operators." Ports should not be expected to submit plans for terminal operators. In addition, the statement in Section 93130.14(b)(1) that "Ports should use terminal plans as [the] basis for developing port plans" seems to indicate that the deadline for Port Plans should be adjusted to come after the deadline for Terminal Plans.

2. 17.10 The definition of "Fleet" in Section 93130.2(b)(29) does not explain how fleets will be established. What will CARB require at the beginning of each compliance year to establish fleets? How will this work?

17.11 The proposed regulation does not address how or whether VIEs will be granted for new fleets entering the California market, or for fleets that expand. New entrants should be allowed to estimate their annual ship calls and be granted the associated number of VIEs for the coming year. Otherwise, this is a barrier to entry for new fleets because they will be granted zero VIEs in their very first year of operation. This puts California ports at a competitive disadvantage compared to ports in Oregon, Washington, Canada, Mexico, and on the U.S. Gulf and East Coast.

17.12 The definition of Fleet and the requirements for VIEs also need to be responsive to changes in the shipping industry, for example when businesses merge or alliances change. It is not clear whether VIEs will be granted on a port-specific or State-wide basis. It is also not clear how disagreements will be resolved on whether a specific instance should use a TIE or a VIE. Will CARB adjudicate these?

3. 17.13 The Port is glad to see that Vessel Commissioning is specifically exempt from the rule, as listed in visit exception Section 93130.8(c). However, the Port notes that it should not be limited to only the first visit, and should not matter whether the commissioning was successful. What happens if the commissioning was not successful? The Port of Oakland requires that vessels be re-commissioned if they have not been in Oakland for over a year. Further, the same vessel might need commissioning on both port side and starboard side. For these reasons, the same ship might require multiple commissioning trips.

Port staff request that vessel commissioning events that do not successfully connect to shore power as discussed in Section 93130.8(c) be eligible for exceptions under the regulation without the use of a VIE. The commissioning attempt shows that the goal was to reduce emissions through shore power and as such should be an exception in this situation. Port staff conduct each vessel commissioning (with the exception of those at Berths 61-6[5] to ensure the safety of the vessel, terminal, and workforce. Vessel commissioning is an invaluable safety procedure and should not be penalized under the Proposed Control Measure.

17.14 The Port requests that the definition of "Vessel Commissioning" in Section 93130.2(b)(76) of the Proposed Control Measure be expanded to include the port authority as the commissioning agent, as is the case at the Port of Oakland. The same language is found in Section 93130.7(e)(2) ("Ensure the vessel is commissioned as required by terminal operator"), Section 93130.8(c)(2) ("The terminal requires that the vessel be recommissioned"), and Section 93130.9(a)(2) "The terminal operator is responsible for commissioning vessels equipped with shore power."). The commissioning requirement should be determined by the port authority or the terminal operator.

4. The Port requests that the definition of "Ready to Work" in Section 93130.2(b)(55) be expanded to include "Auxiliary Marine Power (AMP) container has been loaded on the ship and is in position, if applicable." This is crucial for the requirement in Section 93130.9(d)(2)(D) that the vessel be plugged in "within 1 hour of vessel "Ready to Work"." Many of the ships that call at the Port of Oakland rely on an AMP container to connect to shore power. The AMP container is often domiciled at the terminal and needs to be loaded onto the vessel by a ship-to-shore crane prior to plugging in. Some of the major carriers calling in Oakland rely on an AMP container to use shore power [MOL, NYK, K-Line (the ONE Alliance), Hyundai, and APL]. A vessel is not ready to plug in until the AMP container is in position.

17.15 Likewise, the Port requests that the disconnection requirement in Section 93130.9(d)(2)(E) be re-written to accommodate certain situations where the AMP container has been removed from the ship prior to the pilot boarding.

5. The Port appreciates the increase in TIEs to 15% for the first four years of the regulation as listed in Table 3 of Section 93130.11. The Port requests that the number of TIEs and VIEs be rounded *up* to the nearest whole number instead of rounding to the nearest whole number for instances where the number of TIEs or VIEs is calculated at a fraction of ship call as stated in Section 9310.11(a)(2). Any fractional call should be counted as a whole call. For example, if a carrier made 49 calls to a California port in 2019, the VIE calculation

17.16

[5] The Port does not commission vessels at the Matson Terminal because these shore power vaults were installed by the former tenant, APL. The current terminal operator has assumed responsibility for these vaults.

would award 2.45 VIEs at the 5% level. This should be rounded up to three, not down to two.

6. Regarding the Remediation Fund described in Section 93130.15 of the Proposed Control Measure, what is the procedure and timeline for CARB to approve a public entity to manage the funds generated at the Port? What happens if no Remediation Fund administrator is established per Section 93130.15(a)? Does that mean the Remediation Fund would not be an option?

17.17

7. Port staff request further information from CARB on when and where the Remediation Fund will be deployed. Given that CARB anticipates zero-emissions regulation on trucks, transport refrigeration units, forklifts, and cargo-handling equipment in the time frame of enhanced usage of the Remediation Fund, would those categories be ineligible for incentive-funded emissions reductions?

8. Port staff note that the power meter readings required in Section 93130.9(d)(2)(C) and (F) and Section 93130.9(d)(3)(I) are not available until the close of each calendar month. This means that it will often not be possible to report the power usage within seven calendar days of a vessel's departure, as required in the Proposed Control Measure.

17.18

9. In Section 93130.1 of the Proposed Control Measure, the stated intent of the Proposed Control Measure is "to reduce oxides of nitrogen (NOx), reactive organic gases (ROG), particulate matter (PM), diesel particulate matter (DPM), and greenhouse gas (GHG) emissions from ocean-going vessels while docked at berth at California ports." How will CARB monitor GHG emissions after implementation of the Proposed Control Measure? What is the GHG emissions baseline?

17.19

10. The Port requests that maintenance events of landside shore power equipment be included in Section 93130.9(f) along with "construction or repair" so that maintenance events also have the option of using a TIE.

17.20

11. The Port requests that the Proposed Control Measure include an exemption for liquified natural gas (LNG) powered vessels. This would have the desired effect of incentivizing cleaner ships, which would provide significant emission reductions throughout the ship's voyage, not just the small fraction of time while the ship is at berth in California.

17.21

Conclusion

In conclusion, the Port of Oakland is fully committed to reducing emissions, and is proud of the results achieved with its industry and regulatory partners. In fact, the Port is unaware of any other port authority in the world that plugs in as many container vessels on an annual basis as the Port of Oakland. The partnership and collaboration with CARB, the Bay Area Air Quality Management District, and the Port's shipping and marine terminal customers have been a key to the success of

this program. The Port believes that these efforts can be used a model for other states and nations who might seek to reduce localized emission from ships at berth.

Port staff appreciate the opportunity to review and comment on the Proposed Control Measure and attend the public workshop on December 5, 2019. We look forward to continuing to work with CARB towards improving shore power effectiveness, emissions inventories, and associated analyses and to collaborate together to achieve cost-effective and feasible air quality improvements to protect public health.

Please contact Ms. Tracy Fidell, P.E., Port Associate Environmental Planner/Scientist at tfidell@portoakland.com with any follow-up questions.

Sincerely,

Richard Sinkoff
Director of Environmental Programs and Planning

Enclosures:

1) June 10, 2019 Port letter to ARB re: Comments on May 10, 2019, Draft Proposed Control Measure for Ocean-Going Vessels At Berth and Supporting Documents
2) February 15, 2019 Port letter to ARB re: Comments on Draft 2018/2019 Update to Inventory for Ocean-Going Vessels: Methodology and Results for the Proposed Control Measure for Ocean-Going Vessels At Berth and At Anchor
3) January 31, 2019 Port letter to ARB re: Comments on Preliminary Draft Health Risk Assessment ("HRA") for the Proposed Control Measure for Ocean-Going Vessels At Berth and At Anchor

CC:

Danny Wan, Executive Director
Michele Heffes, Acting Port Attorney
Matt Davis, Director of Government Affairs
Delphine Prevost, Manager Maritime Administration and Finance
Diane Heinze, Environmental Assessment Supervisor

PORT OF OAKLAND

June 10, 2019

Angela Csondes
Manager, Marine Strategies Section
California Air Resources Board
P.O. Box 2815
Sacramento, CA 95812-2815
Submitted Via Electronic Comment Log

Subject: Comments on May 10, 2019, Draft Proposed Control Measure for Ocean-Going Vessels At Berth and Supporting Documents

Dear Ms. Csondes:

The Port of Oakland ("Port") appreciates the opportunity to comment on the rulemaking materials posted May 10, 2019, for the Proposed Control Measure for Ocean-Going Vessels At Berth ("Proposed Control Measure"). The Port understands that the California Air Resources Board ("CARB") is planning for the Proposed Control Measure to replace the current Airborne Toxic Control Measure ("ATCM") for Auxiliary Diesel Engines Operated on Ocean-Going Vessels At Berth in a California Port (the "At-Berth Regulation"), with the goal of taking the Proposed Control Measure to the CARB Governing Board in December 2019. On May 10, 2019, CARB posted the revised text of the Proposed Control Measure, and provided, as supporting documents, the presentation from the May 14 and May 16, 2019 public workshops, Cost Inputs and Assumptions in PDF format, and Cost Estimates in Excel format.

The Port supports CARB's ongoing efforts to reduce emissions from ocean-going vessels ("OGVs") at berth and is working diligently to maximize the number of vessel visits using shore power. Port staff work collaboratively with shipping lines to provide education and resources about the shore power program. Port staff also track shore power usage in real time, collecting detailed information from marine terminal operators. The Port posts shore power usage statistics, reasons for equipped vessels not plugging in, and cost information on our shore power website: https://www.oaklandseaport.com/development-programs/shore-power/. In 2018, 75% of all calls to the Port drew shore power.

Public comments on the Proposed Control Measure are due to CARB June 10, 2019. Port staff understand CARB will then finalize the regulatory language and prepare an Initial Statement of

Reasons ("ISOR") to release on October 18, 2019, with public comment on the ISOR closing on December 2, 2019. The CARB Governing Board is scheduled to hear the Proposed Control Measure on December 5, 2019. Do CARB staff intend to respond to public comment on the ISOR? Three days does not leave time for meaningful CARB response to public comment or public review of subsequent changes to the Proposed Control Measure. Port staff suggest a minimum of 14 days for CARB staff to review and respond to public comment, and for the public to review any changes, before the Proposed Control Measure can be heard.

The Proposed Control Measure includes the concept of an Incident Exemption, which is new since CARB published its draft Proposed Control Measure in August 2018. Vessel fleets would be granted Vessel Incident Exemptions (VIEs) and terminals would be granted Terminal Incident Exemptions (TIEs). Starting in 2021 for container ships and terminals, VIEs and TIEs would be granted at levels of 5% of the previous calendar year's calls. CARB stated at the May 14, 2019, public workshop that the expected plug-in level for the container fleet is 90% in 2021.

Port staff submit the following comments and questions, divided into the topic areas of the draft regulatory text of the Proposed Control Measure, the presentation from the May 14, 2019 and May 16, 2019 public workshops, and the Cost Inputs and Assumptions in PDF format.

Comments and Questions on the Draft Regulatory Text of the Proposed Control Measure

17.22a
17.22b
1. Port staff request clarification on the definition of "necessary infrastructure…that will enable a terminal to comply with this Control Measure" in Section 93130.10(b) of the Proposed Control Measure and what, in this context, "subject to verification by [CARB] enforcement staff" means. From Table XI Berth and Terminal Counts, Anticipated Infrastructure Needs, and Unique Vessels of the CARB Cost Inputs and Assumptions in PDF format, it appears that CARB believes that three new shore power vaults "would be installed in response to the Draft Regulation [Proposed Control Measure]…" at the Port. Accordingly Port staff request documentation supporting CARB staff's berth-by-berth infrastructure analysis and determination that three new shore power vaults would be required at the Port in response to the Proposed Control Measure.

17.23
2. Regarding the Terminal and Port Plans required for Container terminals in Section 93130.11 of the Proposed Control Measure, the deadline of June 1, 2020 does not allow for sufficient time after the anticipated adoption of the Proposed Control Measure for ports and terminals to submit plans. Port staff object to the text in Section 93130.11(a) that "[a]s an alternative, Ports may submit plans for their terminal operators." Ports should not be expected to submit plans for terminal operators. In addition, the statement in Section 93130.10(b) of the Proposed Control Measure that "Ports should use terminal plans as [the] basis for developing port plans" seems to indicate that the deadline for Port Plans should be adjusted to come after the deadline for Terminal Plans.

17.24
3. The definition of "Fleet" in Section 93130.2(b)(22) of the Proposed Control Measure does not explain how fleets will be established. What will CARB require at the beginning

of each compliance year to establish fleets? Will this be part of the online Freight Regulations Reporting System ("FRRS") mentioned in the presentation from the May 14, 2019 and May 16, 2019 public workshops?

17.24 Port staff request an initial accommodation for new fleets entering the California market. New entrants should be given an opportunity to estimate the coming year's ship calls and estimate the number of VIEs to be awarded for the coming year.

The definition of Fleet and the requirements for VIEs also need to be responsive to changes in the shipping industry, for example when businesses merge or alliances change. Likewise, CARB should clarify what provisions will accommodate changes in the terminal industry, such as new terminals or changes in ownership, in the allocation of TIEs.

4. Port staff have two comments regarding vessel commissioning. Port staff request that vessel commissioning events that do not successfully connect to shore power as discussed

17.25 in Section 93130.7(f)(2) of the Proposed Control Measure be considered eligible for exceptions under the regulation. The commissioning attempt shows that the goal was to reduce emissions through shore power and as such an Exception should be available to operators in this situation. Port staff conduct each vessel commissioning (with the exception of those at the Matson Terminal) to ensure the safety of the vessel, terminal, and workforce. Vessel commissioning is an invaluable safety procedure and should not be penalized under the Proposed Control Measure.

17.26 Port staff request that the definition of "Vessel Commissioning" in Section 93130.2(b)(61) of the Proposed Control Measure be expanded to include the case in which the port authority is the commissioning agent, as is the case at the Port of Oakland. Likewise, in Section 93130.7(d)(1) ("If applicable, commission vessel as required by terminal operator"), Section 93130.8(a)(4) ("It is the terminal operator's responsibility to commission vessels equipped with shore power"), and Section 93130.8(d)(1) ("If applicable, commission vessel for use of shore power"), the commissioning requirement should be determined by the port authority or the terminal operator.

5. The reduction in VIEs and TIEs for Container, Reefer, and Passenger vessels from 5% each to 3% each discussed in Sections 93130.7(g)(1)(A)(ii) and 93130.8(h)(1)(A)(ii) of

17.27 the Proposed Control Measure serves to increase the usage of the Remediation Fund [Section 93130.12(a)] in and after 2023. Port staff request further information from CARB on when and where the Remediation Fund will be deployed, given that CARB anticipates zero-emissions regulation on trucks, transport refrigeration units, forklifts, and cargo-handling equipment in the time frame of enhanced usage of the Remediation Fund, making those categories ineligible for incentive-funded emissions reductions.

17.28 6. The allotted VIEs and TIEs for vessels other than Container, Reefer, and Passenger vessels in Sections 93130.7(g)(1)(A) and 93130.8(h)(1)(A) of the Proposed Control Measure reduce from 5% to 3% after only one year. Port staff note that at the advent of the ATCM, the requirement was 50% of all calls in the first year. An initial expectation of 90% usage does not accommodate the fact that the Proposed Control Measure is the first-of-its-kind requirement for Ro-Ro and Tanker vessels in the world, and the technologies and equipment required do not exist at this time and have not been tested.

17.29 7. Regarding the Remediation Fund described in Section 93130.12 of the Proposed Control Measure, what is the procedure and timeline for CARB to approve a public entity to manage the funds generated at the Port?

17.30 8. Port staff request clarification from CARB of what constitutes a failure to achieve "full emission reductions" as referenced in Section 93130.12(a)(3) of the Proposed Control Measure, regarding when the Remediation Fund may be used.

17.31 9. In response to the suggestion in Section 93130.8(a)(2) of the Proposed Control Measure that a terminal operator should be responsible to interrupt a vessel call to shift the vessel to a berth with shore power if no berth was previously available, Port staff request CARB prepare and share an analysis of harbor craft emissions associated with such a shift at each port. Second to OGV, harbor craft are the second-highest emitting sources of emissions in the Port's 2017 Emissions Inventory. Given the short duration of the average vessel call to the Port, the suggestion to call additional harbor craft to reduce the remaining hours of an OGV call's auxiliary emissions could lead to increased overall emissions.

17.32 10. Likewise, Port staff question if the suggestion in Section 93130.8(a)(3) of the Proposed Control Measure that a terminal operator should be responsible to provide an alternative CARB-approved emission control strategy if a commissioned shore power vessel is berthed such that it cannot connect to shore power is necessary. CARB's own analysis in the Cost Inputs and Assumptions in PDF format, Table XI, declares that no barge-based capture and control system is anticipated for the Port.

17.33 11. Port staff note that the "power meter readings at the time of shore power connection and disconnection" requested in Section 93130.8(e)(2)(C) of the Proposed Control Measure are typically not available within 7 calendar days of a vessel's departure, as anticipated by CARB. Power meter readings at the Port are typically available at the close of the calendar month and not sooner.

17.34 12. In Section 93130.1 of the Proposed Control Measure, the stated intent of the Proposed Control Measure is "to ensure that operators of ocean-going vessels reduce emissions using a California Air Resources Board (CARB) approved emission control strategy to reduce PM, NOx, and ROG emissions at berth without increasing overall GHG emissions from this Control Measure…" How will CARB monitor GHG emissions after

implementation of the Proposed Control Measure and what is the GHG emissions baseline?

Comments and Questions on the presentation from the May 14, 2019 and May 16, 2019 public workshops

17.35 13. On Slide 4 of the presentation for the May 14, 2019 and May 16, 2019, public workshops, CARB staff show OGV at-berth emissions for the entire state. Port staff request to see these emissions totals further tabulated both by port or marine terminal and by vessel type. This is especially important as, per Section 93130.7(g)(2) of the Proposed Control Measure, VIEs are specific to the Fleet-Port pairing they are granted to.

14. On Slides 5 and 29 of the presentation for the May 14, 2019 and May 16, 2019 public workshops, CARB staff show a table of cost effectiveness for this rulemaking. The Port provides specific comments on the cost estimates below. Port staff request to see the total cost estimates and cost effectiveness estimates further tabulated both by port and by vessel type.

Comments and Questions on the Cost Inputs and Assumptions in PDF format

17.36 15. In Table V. Auxiliary Engine Effective Power Values, CARB states that it is relying on "the same power values cited in Table 7 of the emission inventory methodology https://ww3.arb.ca.gov/msei/ordiesel/draft2019ogvinv.pdf. Values used in cost analysis for container/reefer and tanker vessels are calculated as one kW-average per vessel type, weighted by average vessel kW at each port/terminal and vessel visits to each port/terminal."

As noted in the Port's February 15, 2019 letter to CARB regarding the emissions inventory, the emissions inventory relies on the assumption that container vessel effective power is a function of vessel size bin. Will this assumption in the emissions inventory be modified to align with the cost estimate?

17.37 16. In Table VI. Duration of Emission Control at Berth, CARB shows that it is estimating statewide emissions reductions based on average duration of emission control at berth per vessel visit. The Port requests an emissions and cost analysis specific to each port or marine terminal and each vessel type. The stated average Container/Reefer duration of emission control at berth of 38.8 hours is about twice the average time for shore power connections at the Port. The difference between Port data and the average shows that the statewide average is not meaningful for the Port, and the conclusions of the averaging analysis may not apply to the Port.

17.38 17. Table VIII. Electricity and Fuel Cost Inputs and the associated Cost Estimates in Excel format show that CARB expects 100% of any Low Carbon Fuel Standard ("LCFS") credits would be reinvested into shore power. It is not guaranteed that the credits would

all be reinvested into shore power. What assumptions did CARB staff make in projecting the LCFS credit value through 2032?

18. Related to the duration of emission control at berth in Table VI, Port staff would like to reiterate that shore power usage at the Port is billed based on hours of use, not kWh drawn. This affects the assumptions in Table VIII. Electricity and Fuel Cost Inputs, as well. While the cost of Pacific Gas & Electric electricity is relevant to the Matson Terminal and the overall discussion of electricity costs, the Port is the utility serving shore power at all but the Matson Terminal.

17.39

19. The growth assumptions in Table IX. Growth Factors overestimate actual TEU growth for the Port between 2016 and 2018 and continue to use a 3.9% compound annual TEU growth rate between 2018 and 2032. Port staff request that in addition to this high estimate of TEU growth, CARB prepare an estimate of emissions using a realistic growth estimate. For reference, the Port's CAGR between 2008 and 2018 was 0.4%. Port staff understand that the growth estimates CARB is using for emissions and costs for the Port will align with the vessel fleet projections (such as larger vessels each year) that are being used for the Ports of Long Beach and Los Angeles.

17.40

20. Port staff note that the cost of compliance with the existing At-Berth Regulation is high and requires frequent vessel retrofits. In 2018, the Port commissioned or re-commissioned nearly 100 vessels, or about 25% of the ever-commissioned vessel list. The ongoing costs of retrofitting vessels when the line rotation changes, maintaining vessel equipment, and commissioning vessels with the current At-Berth Regulation apply equally to comply with the Proposed Control Measure and should be included in the cost estimates as they are real and necessary costs of compliance with the Proposed Control Measure. The Proposed Control Measure is not additive and incremental to the At-Berth Regulation, but rather a replacement and as such the entire cost to comply with the Proposed Control Measure needs to be factored into the cost effectiveness.

17.41

Closing

Port staff appreciate the opportunity to review the Proposed Control Measure and attend the public workshop on May 14, 2019. We look forward to working with CARB on refinements to improve the Proposed Control Measure, emissions inventory, and associated analyses.

Please contact Catherine Mukai, P.E., Port Associate Environmental Planner/Scientist at cmukai@portoakland.com with any follow-up questions.

Sincerely,

Colleen Liang, Port Environmental Supervisor, for
Richard Sinkoff
Director of Environmental Programs and Planning

Enclosures: January 15, 2019 Port letter to ARB re: Comments on Preliminary Draft Health Risk Assessment ("HRA") for the Proposed Control Measure for Ocean-Going Vessels At Berth and At Anchor

February 15, 2019 Port letter to ARB re: Comments on *Draft 2018/2019 Update to Inventory for Ocean-Going Vessels: Methodology and Results* for the Proposed Control Measure for Ocean-Going Vessels At Berth and At Anchor

https://www.arb.ca.gov/lists/com-attach/18-atberth-atanchor-ws-UGJWYAY2BG4AKwly.pdf

PORT OF OAKLAND

February 15, 2019

Angela Csondes
Manager, Marine Strategies Section
California Air Resources Board
P.O. Box 2815
Sacramento, CA 95812-2815
Submitted Via Electronic Comment Log

Subject: Comments on *Draft 2018/2019 Update to Inventory for Ocean-Going Vessels: Methodology and Results* for the Proposed Control Measure for Ocean-Going Vessels At Berth and At Anchor

Dear Ms. Csondes:

The Port of Oakland ("Port") appreciates the opportunity to comment on the *Draft 2018/2019 Update to Inventory for Ocean-Going Vessels: Methodology and Results* posted January 15, 2019, for the Proposed Control Measure for Ocean-Going Vessels At Berth and At Anchor ("Proposed Control Measure"). The Port understands that the California Air Resources Board ("CARB") is planning for the Proposed Control Measure to replace the current Airborne Toxic Control Measure ("ATCM") for Auxiliary Diesel Engines Operated on Ocean-Going Vessels At Berth in a California Port (the "At-Berth Regulation"), with the goal of taking the Proposed Control Measure to the CARB Governing Board in December 2019. CARB posted the text of the Proposed Control Measure on August 31, 2018. The *Draft 2018/2019 Update to Inventory for Ocean-Going Vessels: Methodology and Results* was prepared in support of the Proposed Control Measure.

The Port supports CARB's ongoing efforts to reduce emissions from ocean-going vessels ("OGVs") at berth and is working diligently to maximize the number of vessel visits using shore power. Port staff work collaboratively with shipping lines to provide education and resources about the shore power program. Port staff also track shore power usage in real time, collecting detailed information from marine terminal operators and posting that information on the Port's website for public information purposes.[1]

[1] https://www.oaklandseaport.com/development-programs/shore-power/

530 Water Street • Jack London Square • P.O. Box 2064 • Oakland, California 94604-2064
Telephone: (510) 627-1100 • Facsimile: (510) 627-1826 • Web Page:
www.portofoakland.com

The *Draft 2018/2019 Update to Inventory for Ocean-Going Vessels: Methodology and Results* document includes emissions from California ports and CARB-defined Marine Terminal Complexes ("MTCs"). The emissions for 2016 are tabulated in Appendix B, while emissions for other years are only represented graphically in figures in the document and in tables published by CARB on November 9, 2018.

Comments on the *Draft 2018/2019 Update to Inventory for Ocean-Going Vessels: Methodology and Results* are due to CARB February 15, 2019. CARB will then host a public workshop to discuss the emissions on February 26, 2019. After that, Port staff anticipate the need for a revised emissions inventory for the Proposed Control Measure that responds to public comments. The Port provides wharfinger information to CARB annually as required by grant funding obligations. In addition, Port staff request that CARB staff work with the Port to refine assumptions made in the emissions estimates.

Given the scheduling of the public workshop after the public comment period has closed, this letter includes comments and questions that may best be addressed in the workshop. Thus, the Port is providing a list of comments and questions on the draft emissions inventory and topics for discussion at the February 26 public workshop.

Comments and Questions on the *Draft 2018/2019 Update to Inventory for Ocean-Going Vessels: Methodology and Results*

17.42 1. Why was 2016 selected as the baseline calendar year for the emissions inventory? Does CARB plan to conduct in-depth emissions inventories for 2017 and 2018?

17.43 2. Table 4 of the *Draft 2018/2019 Update to Inventory for Ocean-Going Vessels: Methodology and Results* shows vessel visit counts to California ports and MTCs in 2016 only. However, current trends are for fewer calls by larger vessels for a given amount of containerized cargo. The discussion on page 25 of the draft clarifies that "vessel practice changes" are not considered, even as the total number of calls is dropping in real time. Since 2013, total annual calls to the Port have been decreasing. Container cargo throughput is thus decoupled from vessel call activity. CARB should expand the vessel growth forecasting for the baseline scenario to include the effects of larger vessels and fewer calls for the same amount of containerized cargo.

17.44 3. Table 7 of the *Draft 2018/2019 Update to Inventory for Ocean-Going Vessels: Methodology and Results* relies on the assumption that for all ports and MTCs, container vessel effective power will match that of the Ports of Los Angeles and Long Beach in 2016. The effective power does not appear to be a function of vessel size bin, so the level of detail with which the effective power is classified by CARB-defined size bin is not appropriate. In addition, given the variation between data from the Port of Los Angeles and the Port of Long Beach within the same CARB-defined size bin, the data may not be meaningful when averaged by CARB-defined size bin. CARB should use an average effective power for container vessels regardless of size.

4. The growth rates in the Freight Analysis Framework ("FAF") for ports and MTCs outside of the San Pedro Bay are at odds with current trends. The FAF assumption for container cargo at the Port of Oakland is a 5% year-over-year growth rate between 2016 and 2020. Actual growth rates between 2016 and 2018 have not kept pace, with current Oakland planning documents estimating about half the FAF compound annual growth rate.[2] CARB should adjust the FAF growth forecasting for the baseline scenario to align with actual trends.

17.45

5. Page 27 of the *Draft 2018/2019 Update to Inventory for Ocean-Going Vessels: Methodology and Results* discusses statistical significance in the context of the emission forecasting. If CARB staff have conducted an uncertainties analysis, it should be included in the methodology and results document.

17.46

6. Table 15 of the *Draft 2018/2019 Update to Inventory for Ocean-Going Vessels: Methodology and Results* does not treat all ports and vessel types equally when assuming "Projected 2020 and Later Time on Shorepower," without justifying the differences. For instance, CARB assumes container vessels at the Port of Hueneme spend 80% of their time on shore power after 2020, while CARB assumes at the Ports of Los Angeles and Long Beach container vessels spend only 65% of their time on shore power. Impossibly, CARB-defined size bins 7, 9, and 12 container vessels at the Port of Oakland are assumed to spend 100% of their time at berth on shore power.[3] Port staff request further justification for and synchronization of the assumptions for "Projected 2020 and Later Time on Shorepower."

17.47

7. In the discussion of the "static age distribution model" versus a survival and turnover model, CARB staff do not consider the abnormally high number of OGV keels laid in 2015. How did CARB decide that the spike in keels laid in 2015 was not material to estimating NOx emissions through 2050?

17.48

8. CARB should revise its assumption that sulfur content in fuel is 0.1% based on the results of enforcement analyses of in-use fuel sulfur. The sulfur content of in-use fuel as sampled by the CARB enforcement team in calendar years 2017 and 2018 is lower than 0.1% by 30% and almost 50%, respectively, presenting information that actual emissions are lower than those estimated by CARB. (As stated on page 12, information from CARB's enforcement team is already used to determine reduced emissions from reduced engine activity time.)

17.49

[2] https://www.portofoakland.com/community/environmental-stewardship/maritime-air-quality-improvement-plan/

[3] Vessels arriving at berth need time to tie lines and lower gangways before they can connect shore power and likewise vessels need time to disconnect from shore power when leaving the berth. With these bookends on each vessel call, a vessel cannot be plugged into shore power for 100% of the time at berth.

9. CARB should elaborate in the text on the Particulate Matter ("PM") emission factor for Marine Gas Oil ("MGO") at 0.1% sulfur. The 2007 Initial Statement of Reasons for At-Berth Regulation rulemaking used a value of 0.25 g/kW-hr for 0.1% S MGO. The *Draft 2018/2019 Update to Inventory for Ocean-Going Vessels: Methodology and Results* uses a PM emission factor of 0.18 g/kW-hr for the same fuel. The root source for OGV auxiliary engine emission factors is stated in both cases as the 2002 Entec study, with no description of why two different values of PM emission factors are used for the same fuel.

17.50

10. Please add References to the Table of Contents and to the document (Sources of emission factor information are only included at the end of Appendix A).

17.51

11. On page 42, should the last sentence read "it excludes emissions from boilers," not "it excludes emissions from auxiliary engines"?

17.52

Closing

Port staff look forward to working with CARB to support the updated emissions inventories referred to in the *Draft 2018/2019 Update to Inventory for Ocean-Going Vessels: Methodology and Results* after the workshop on February 26.

Please contact Catherine Mukai, P.E., Port Associate Environmental Planner/Scientist at cmukai@portoakland.com with any follow-up questions.

Sincerely,

Richard Sinkoff
Director of Environmental Programs and Planning

https://www.arb.ca.gov/lists/com-attach/13-atberth-atanchor-ws-ATNUYIJiVD4ELwEx.pdf

PORT OF OAKLAND

January 31, 2019

Angela Csondes
Manager, Marine Strategies Section
California Air Resources Board
P.O. Box 2815
Sacramento, CA 95812-2815
Submitted Via Electronic Comment Log

Subject: Comments on Preliminary Draft Health Risk Assessment ("HRA") for the Proposed Control Measure for Ocean-Going Vessels At Berth and At Anchor

Dear Ms. Csondes:

The Port of Oakland ("Port") appreciates the opportunity to comment on the Preliminary Draft HRA posted November 5, 2018, for the Proposed Control Measure for Ocean-Going Vessels At Berth and At Anchor ("Proposed Control Measure"). The Port understands that the California Air Resources Board ("CARB") is planning for the Proposed Control Measure to replace the current Airborne Toxic Control Measure ("ATCM") for Auxiliary Diesel Engines Operated on Ocean-Going Vessels At Berth in a California Port (the "At-Berth Regulation"), with the goal of taking the Proposed Control Measure to the CARB Governing Board in December 2019. CARB posted the text of the Proposed Control Measure on August 31, 2018. The November 5, 2018, Preliminary Draft HRA and associated air dispersion modeling files that CARB released December 14, 2018, were prepared in support of the Proposed Control Measure.

The Preliminary Health Analyses document contains two types of assessment, 1) an HRA using air dispersion modeling and impacts estimation guidance from the California Environmental Protection Agency Office of Environmental Health Hazard Assessment ("OEHHA") and 2) an Incidents per Ton ("IPT") analysis.

The Port supports CARB's ongoing efforts to reduce emissions from ocean-going vessels ("OGV") at berth and is working diligently to maximize the number of vessel visits using shore power. Port staff work collaboratively with shipping lines to provide education and resources about the shore power program. Port staff also track shore power usage in real time, collecting

530 Water Street • Jack London Square • P.O. Box 2064 • Oakland, California 94604-2064
Telephone: (510) 627-1100 • Facsimile: (510) 627-1826 • Web Page:
www.portofoakland.com

detailed information from marine terminal operators and posting that information on the Port's web site for public information purposes.[1]

17.53 **The key input to the Preliminary Draft HRA is the estimated emissions from vessels at berth, which are not yet final. Emissions estimates need to be final and the Preliminary Draft HRA updated before the Preliminary Draft HRA results can be used.**

CARB conducted two HRAs addressing only the Ports of Long Beach and Los Angeles together and the Richmond Complex. CARB's use of AERMOD and the 2015 OEHHA Risk Assessment Guidelines for HRAs represents current best practices. However, the robustness of the findings is limited by the emissions estimates. Emissions estimates are typically completed before the HRA but in this case are open for public comment and discussion through the end of February 2019, at which point they may be refined.

The air dispersion model AERMOD, which CARB selected for the Preliminary Draft HRA is the preferred model from the US Environmental Protection Agency. Required inputs to AERMOD include meteorological data, emissions information for each pollutant considered, and exhaust parameters for release points. Of these inputs, the estimated emissions are key, since emissions have a direct linear relationship with the estimated ambient concentrations and health impacts from each source.

On November 5, 2018, CARB posted the Preliminary Draft HRA. CARB then posted a hard-coded spreadsheet of "Draft At Berth Emissions Estimates" used in the Preliminary Draft HRA on November 9, 2018, and air dispersion modeling files in mid-December with a public comment period for the Preliminary Draft HRA closing January 31, 2019.

CARB also posted the "Draft: 2018/2019 Update to Inventory for Ocean-Going Vessels: Methodology and Results"—for the emissions that were entered into the Preliminary Draft HRA—on January 16, 2019, with a separate public comment period for the emissions methodology and results closing February 16, 2019.

Without greater understanding of the emissions used as data inputs to the air dispersion model and risk estimation calculations, the utility of the Preliminary Draft HRA is limited. Port staff are reviewing the emissions methodology released on January 16, 2019, and are comparing it with the spreadsheet posted November 9, 2018. Port staff look forward to discussing the emissions with CARB staff at the public workshop CARB scheduled for February 26, 2019. After that, Port staff anticipate the need for a revised HRA for the Proposed Control Measure that relies on emissions that have been reviewed and understood by all parties.

The AERMOD input and output files and risk estimation databases CARB provided on December 14, 2018, appear to carry out the methodology discussed in the Draft Preliminary HRA, but further review is not warranted until emissions are finalized. In addition to the

[1] https://www.oaklandseaport.com/development-programs/shore-power/

wharfinger information provided by the Port to CARB annually as required by grant funding obligations, Port staff are happy to work with CARB staff to refine assumptions made in the emissions estimates.

The role of the Preliminary Draft HRA posted November 5, 2018, in rulemaking for the Proposed Control Measure is not clear.

17.54 The Proposed Control Measure is not an ATCM, in fact its stated purpose is to reduce NOx, PM, and GHG but not the toxic air contaminant DPM—which is the focus of the Preliminary Draft HRA. The inclusion of an HRA for any of the ports in California is therefore not a fundamental driver of the Proposed Control Measure (leaving the CARB Governing Board direction, Mobile Source Strategy, and Sustainable Freight Action Plan as drivers). Thus, any reductions in risk shown in the Preliminary Draft HRA are purely informational. Indeed, CARB's elimination of the At-Berth Regulation ATCM by focusing on a Proposed Control Measure for NOx and PM but not DPM seems to imply that no further risk reductions are required.

The Preliminary Health Analyses report announces that the risk reductions of the Proposed Control Measure are "significant," a term defined in the California Environmental Quality Act ("CEQA") and used in CARB's Certified Regulatory Program, but not defined in the CARB rulemaking process. While CARB staff present the percentage of reduction in risk of the Proposed Control Measure over the current At-Berth Regulation, the total residual risk should be compared to that of other source categories to prioritize the need for the Proposed Control Measure.

Health impacts from Criteria Air Pollutants are managed through SIP Planning, which does not require a new Proposed Control Measure for the container fleet.

17.55 $PM_{2.5}$ is a criteria air pollutant, not a toxic air contaminant, and the California Ambient Air Quality Standards ("CAAQS") and National Ambient Air Quality Standards ("NAAQS") are the appropriate health-protective standards for $PM_{2.5}$. Regional ambient air concentrations of $PM_{2.5}$ are managed to levels below the CAAQS and NAAQS through SIP planning. Even so, CARB's Mobile Source Strategy calls for an evaluation of emissions reductions from currently unregulated fleets, not the already regulated container fleet which calls Oakland. Thus, SIP planning for $PM_{2.5}$ attainment does not mandate an amended At-Berth Regulation to reduce statewide emissions through an "every vessel, every visit" control strategy like CARB staff have proposed.

The Incidents Per Ton ("IPT") methodology presented for $PM_{2.5}$, a criteria air pollutant, is not a cost effectiveness metric.

17.56 The IPT methodology provides information on health effects assuming ambient $PM_{2.5}$ concentration is the sole contributor to adverse health effects, with a direct linear relationship. The IPT methodology is not, however, part of a cost-effectiveness evaluation. CARB released a "Preliminary Cost Information" document in August 2018 as part of this rulemaking effort,

https://www.arb.ca.gov/lists/com-attach/13-atberth-atanchor-ws-ATNUYIJiVD4ELwEx.pdf

which relies on the same assumptions as the emissions inventory (which, as discussed above, may need refinement). The preliminary costs data evaluated total costs of the Proposed Control Measure, but not cost effectiveness of proposed measures calculated in terms of cost per ton of emissions removed. CARB has also not yet prepared a socio-economic impact analysis of the proposed rule.

Closing

Port staff are interested in working with CARB to improve the current ATCM focused on DPM to allow for 100% compliance. We look forward to seeing enhanced supporting documentation for the CARB emissions estimates and a revised HRA and cost effectiveness analysis once the emissions are updated.

Please contact Catherine Mukai, P.E., Port Associate Environmental Planner/Scientist at cmukai@portoakland.com with any follow-up questions.

Sincerely,

Richard Sinkoff
Director of Environmental Programs and Planning

Comment Log Display

Below is the comment you selected to display.
Comment 18 for To Consider Proposed Control Measure for Ocean-Going Vessels At Berth (ogvatberth2019) - 45 Day.

First Name: Ben
Last Name: Keller
Email Address: benk@sonic.net
Affiliation:

Subject: Shore Power for Ocean-going Vessels - Support
Comment:

18.1 Pollution from ocean-going vessels, especially fuel tankers, is particularly harmful to communities located near the Port of Richmond and other port communities. I strongly support the proposal to require such vessels to shut off their engines while docked and instead use cleaner shore-based power, and I urge the Board to implement such requirements on an aggressive timeline.

Attachment:

Original File Name:

Date and Time Comment Was Submitted: 2019-12-02 18:13:04

If you have any questions or comments please contact Clerk of the Board at (916) 322-5594.

Board Comments Home

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December 2, 2019

Chair Mary Nichols
California Air Resources Board
1001 I Street
Sacramento, CA 95814
Submitted via email to cotb@arb.ca.gov & Submitted via website at https://www.arb.ca.gov/lispub/comm/bcsubform.php?listname=ogvatberth2019&comm_period=A

Re: Proposed Control Measures for Ocean-Going Vessels At Berth
Item 19-11-1, December 5, 2019

Dear Chair Nichols,

Thank you and the ARB staff for continuing to work with us on amendments to the existing At Berth Regulations for Oceangoing Vessels to address the myriad issues which exist with respect to the proposals that effectively rewrite and create an entirely new set of control measures for Oceangoing Vessels At Berth. Our industry coalition members continue to have many significant concerns with the proposed replacement of the existing rules.

We respectfully request that the Board direct the ARB staff to do both of the following prior to bringing this item back for approval at a future meeting:

19.1

- work with fleets of existing regulated container, cruise, and refrigerated vessels and the terminals and ports at which they call to create amendments to the current regulation to help improve compliance methodologies and develop checklists for fleets, ports and terminals consistent with current CARB enforcement guidelines
- conduct feasibility studies to evaluate and identify the most effective and most economical application of future At Berth controls to additional classes of oceangoing vessels in a new and separate rule and potentially identify alternative compliance pathways which achieve emissions which are greater than or equal to the existing proposal at a higher level of cost-effectiveness

As the Board is well aware, the existing regulations on Vessels At Berth were not only groundbreaking when adopted in 2007, but they remain the most comprehensive and strict set of vessel at berth regulations in the world. The existing regulations have been exceptionally successful in creating overall emissions reductions well in excess of ARB's original estimates and have resulted in a globally unprecedented level of private and public investment in vessel fleets and on-shore cold-ironing infrastructure estimated at some $1.8 billion. Moreover, the current rule is still being phased-in, with even stricter requirements starting January 1, 2020. Under existing rules, CARB's current prediction is that regulated vessel fleets will achieve 93% DPM emissions reductions – to 0.1 tpd - through 2031, a level well-below CARB's targeted 2020 outcomes for the current rule. (see Charts, *attached*)

The current ARB regulation has built a foundation of significant industry investment in the infrastructure and equipment necessary upon which the Board can rely for sustained emissions reductions. Additional changes are however needed to the current regime to make it more equitable, to improve compliance methodologies and to ensure parties are not subject to requirements that fall outside of their operational control. The Coalition members have collectively and individually worked with ARB staff for many years to provide suggestions and recommendations to address our joint and individual concerns with the rule and to help ARB staff meet the underlying emissions and health objectives that the Board has established. However, while the current staff proposal addresses some of the Coalition member concerns, many issues remain outstanding. These concerns and issues will be addressed in individual Coalition member comments and recommendations submitted to this docket.

19.2 Further, with respect to regulating new classes of vessels, the current staff proposal fails to provide a clear and comprehensive cost-benefit analysis for each class, assumes that capture and control technology which barely functions today is a viable control option, and omits needed pre-regulatory feasibility determinations.

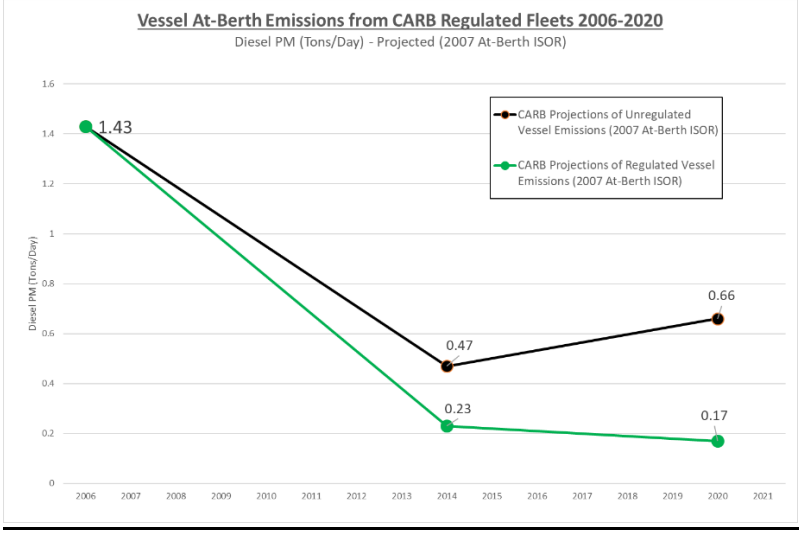
19.3 In addition, to achieve the goals shared by ARB and stakeholders, and to achieve the State's policies as enunciated in the SIP, Mobile Source Strategy, Sustainable Freight Action Plan, SB 32 Scoping Plan, and AB 617 Blueprint, an Alternative Proposal was submitted by the industry coalition in February of this year which would have boosted and improved compliance by currently regulated fleets within the parameters of the existing regulations as well as setting a solid foundation for a discussion on how and when to further reduce emissions from all categories of vessels at berth in the near future. Unfortunately, we are disappointed that the ARB staff proposal before you, including the SRIA, did not analyze the benefits of the Alternative Proposal. The industry coalition respectfully requests that the Board further direct the ARB staff to evaluate the Alternative Proposal prior to bringing back the current staff proposal before the Board for approval.

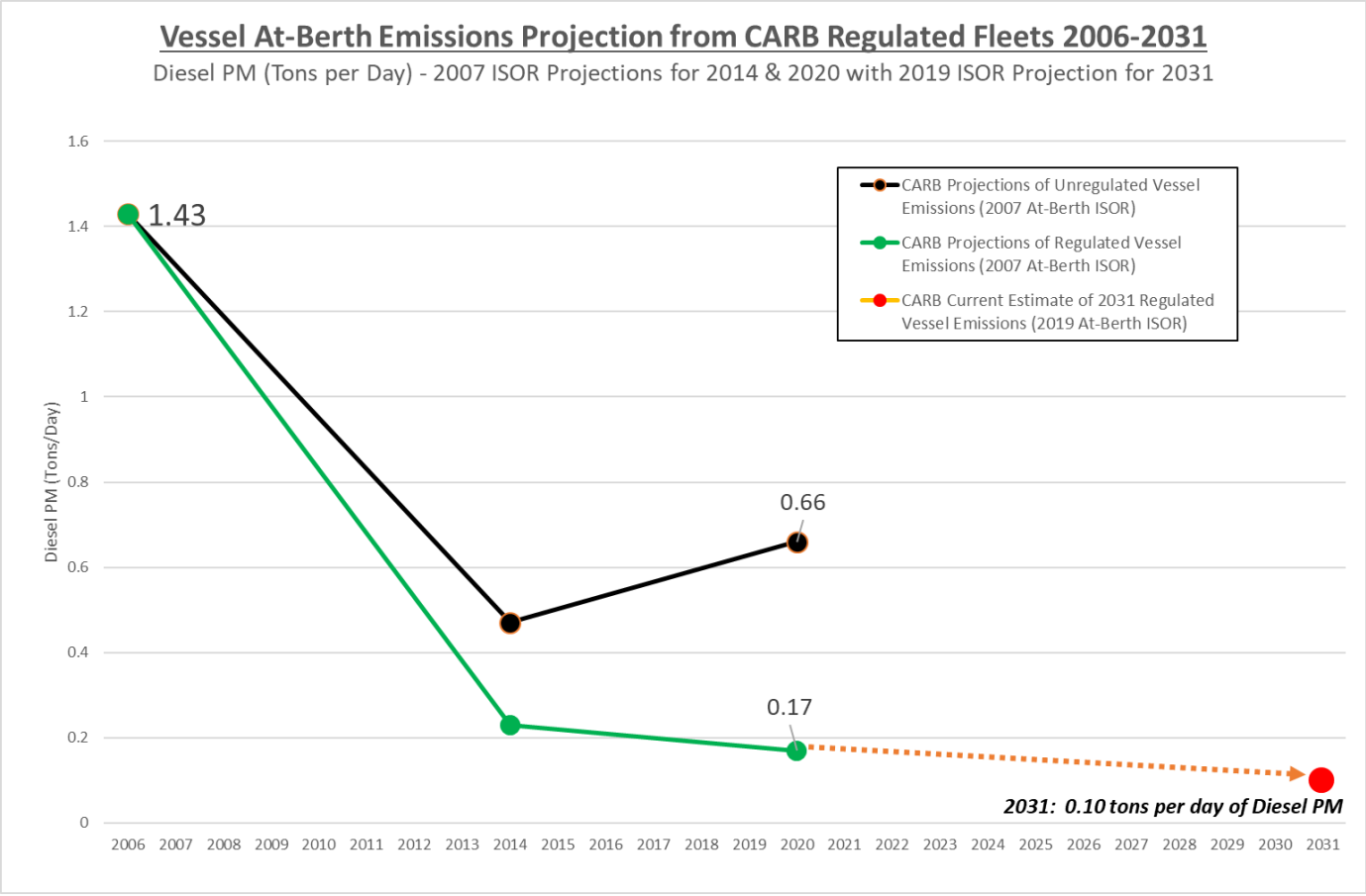
Each of the undersigned organizations and/or their memberships will be submitting independent comments by the December 9, 2019 submission deadline. These comment letters will contain more technical and specific comments with respect to individual vessel fleets, vessel types, port and terminal issues, equipment concerns, and numerous other rulemaking considerations. This letter incorporates those concurrent submissions by reference here. Additionally, this letter incorporates all prior correspondence by our collective industry associations by reference.

We very truly look forward to immediately improving the current rule and working to achieve the most cost-effective and successful future emissions reductions from the waterfront as possible.

Sincerely,

California Association of Port Authorities
Cruise Lines International Association
Pacific Merchant Shipping Association
Western States Petroleum Association
World Shipping Council


Vessel At-Berth Emissions from CARB Regulated Fleets 2006-2020
Diesel PM (Tons/Day) - Projected (2007 At-Berth ISOR)
Diesel PM (Tons/Day)
CARB Projections of Unregulated Vessel Emissions (2007 At-Berth ISOR)
CARB Projections of Regulated Vessel Emissions (2007 At-Berth ISOR)
1.43
0.47
0.66
0.23
0.17


Vessel At-Berth Emissions Projection from CARB Regulated Fleets 2006-2031
Diesel PM (Tons per Day) - 2007 ISOR Projections for 2014 & 2020 with 2019 ISOR Projection for 2031
Diesel PM (Tons/Day)
CARB Projections of Unregulated Vessel Emissions (2007 At-Berth ISOR)
CARB Projections of Regulated Vessel Emissions (2007 At-Berth ISOR)
CARB Current Estimate of 2031 Regulated Vessel Emissions (2019 At-Berth ISOR)
1.43
0.66
0.17
2031: 0.10 tons per day of Diesel PM

INTERTANKO
The International Association of Independent Tanker Owners
– For safe transport, cleaner seas and free competition –
www.intertanko.com

OSLO OFFICE
NEDRE VOLLGATE 4
P.O. BOX 761 SENTRUM
N-0106 OSLO, NORWAY
TEL: +47 22 12 26 40
OSLO@INTERTANKO.COM

California Air Resources Board
1001 I Street
Sacramento, CA 95821
USA

Monday, December 2, 2019
Our Ref.: 3943-11117/DR

Dear Madame/Sir,

INTERTANKO comments to
Public Hearing to Consider Proposed Control Measures for Ocean-Going Vessels At Berth

The International Association of Independent Tanker Owners (INTERTANKO) would appreciate submitting a few relevant comments to the proposed amendments to the current regulation for Control Measures for OGV at Berth. The comments we submit should be considered as contributions aiming at safe and practical solutions for such a regulatory development.

INTERTANKO is a non-profit association of independent tanker owners from 40 countries operating approximately 4,000 oil, chemical and gas tankers trading worldwide. INTERTANKO has made previous contributions to this process and we apologise if some of the comments are repetitive.

The proposed amendments are aimed to extend At Berth Measures to tankers. The options suggested are:

a) vessel based options like use of clean fuels, including dual fuel boilers and
b) shore side options like "cold ironing", use of shore electric pumps or "emissions capture and control systems" either located on shore or on barges coming side by side when the tanker is at berth.

20.1

As in our previous submissions, INTERTANKO recognises all these measures could be applied but there are a number of practical and very important safety issues that need to be clearly addressed, defined and implemented.

Vessel based options

Use of "clean fuels" while at-berth in boilers. According to another CARB regulation, all ships calling at California ports as well as trading within 25 nautical miles from the California shores use distillate fuels which, in accordance with the MARPOL Annex VI ECA regulation have a Sulphur content limited to maximum 0.10% by weight. Use of natural gas as fuel in boilers will only marginally reduce SOx and PM emissions versus the significant cost to retrofit and change operations of boilers for use of natural gas at berth. Such a cost should be taken into account versus the emissions from 0.10% Sulphur content (or lower) distillate fuels.

20.2

LONDON OFFICE
ST. CLARE HOUSE
30-33 MINORIES
LONDON EC3N 1DD, UK
TEL: +44 (0)20 7977 7010
FAX: +44 (0)20 7977 7011
LONDON@INTERTANKO.COM

SINGAPORE OFFICE
70 SHENTON WAY
#20-04 EON SHENTON
SINGAPORE 079118
TEL: +65 6333 4007
Fax: +65 6333 5004
SINGAPORE@INTERTANKO.COM

US OFFICE
801 NORTH QUINCY ST., SUITE 200
ARLINGTON, VA 22203
UNITED STATES OF AMERICA
TEL: +1 703 373 2269
Fax: +1 703 841 0389
WASHINGTON@INTERTANKO.COM

ATHENS OFFICE
KARAGIORGI SERVIAS 2, SYNTAGMA
ATHENS 105 62
GREECE
TEL: +30 210 373 1772
FAX: +30 210 876 4877
ATHENS@INTERTANKO.COM

BRUSSELS OFFICE
37-41 RUE DU CONGRÈS
B-1000 BRUSSELS
BELGIUM
TEL: +32 2 609 54 40
FAX: +32 2 609 54 49
BRUSSELS@INTERTANKO.COM

With regard to the NOx emissions, California ports are located in a MARPOL Annex VI NECA sea area, meaning that ships with a keel laid on and after January 1, 2016 have to be compliant with NOx Tier III emissions level which means a 90% reduction of such type of emissions. Should tanker be equipped in the future with dual fuel boiler and engines, then California ports should develop LNG supply infrastructure.

Shore side options

20.3 Use of cold ironing. There are three main important issues to be addressed. Firstly, clarification should be sought with Terminals and local Port Authorities of their safety regulations for use of electricity in transfer of flammable cargoes. Secondly, the risk of using electrical power instead of classic steam power in tankers transporting hydrocarbon cargoes should be assessed. Thirdly and very importantly, there has to be a very clear crafted legal scheme to address incidents and consequences of incidents in case the shore power is cut during the cargo operations. INTERTANKO acknowledges that automatically closed systems and procedures can be established, but tankers should not have any liability in the aftermath of an incident caused by such an event.

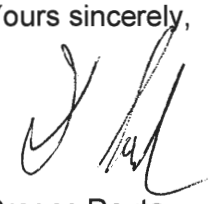
20.4 Use of capture and control systems. Once again, if the capture system is based on the shore, this has to be clarified with Terminals and Port authorities first. Costs and operation of such systems also have to be taken into consideration versus the low levels of SOx, PM and NOx emissions from distillates with ultra-low Sulphur content and from increased number of tankers meeting NOx Tier III level of emissions. Another aspect to be addressed is emergency situations when the tanker has to leave the terminal quickly. Such an emergency could be due to an incident on board the ship but also an incident on the shore side. A capture system operated from the shore should be capable of
20.5 quickly disconnecting, independent of the cause and the nature of the emergency at the terminal.

For capture and control systems based on board barges, the same comments apply. Additional assessments and strict procedures will be needed for a safe ship-to-ship stability of operation and positioning.

INTERTANKO appreciates the opportunity to provide its input on this rule development. We will continue to assist to the best of our ability and hope that CARB recognises the challenges that need to be addressed, since, as long as the tanker is moored at-berth, particularly during cargo operations, there is not much it can do to control many of the associated risks indicated.

Looking forward to further dialogue.

Yours sincerely,



Dragos Rauta
dragos.rauta@intertanko.com

Friends of the Earth

Dec. 3, 2019

Submitted VIA PORTAL

California Air Resources Board
1001 I Street
Sacramento, CA 95814

RE: Proposed Control Measure for Ocean-Going Vessels at Berth

Dear Mr. Corey:

We at Friends of the Earth—an environmental nonprofit organization with over 1.6 million members and activists across the nation and over 200,000 in California—commend ARB for its proposed Control Measure for Ocean-Going Vessels at Berth. The expansion of vessel shore power and emission capture and control systems is needed in California—and in the rest of the country and world, for that matter.

We agree with the need to introduce and broaden, as proposed, requirements for cruise ships, containerships, reefers, ro-ro's, and tankers to reduce harmful emissions at berth. The public health benefits of this extension are significant, with ARB estimating that 230 premature deaths could be avoided by implementing the measure. Moreover, the effort is in accord with shore power expansion initiatives in Europe and Asia,[1] as well as internationally,[2] which intend to curb emissions of traditional air pollutants and greenhouse gases in port areas.[3]

1

Nevertheless, we do have some recommendations for the proposed rule, and the rest of this letter will focus on areas where it can be improved. First, the compliance timelines for ro-ro's and tankers are too
21.1 conservative. Compliance start dates for both vessel categories, especially tankers, should be advanced by several years.

Second, general cargo and bulk cargo vessels (also known as bulk carriers) are not included in the proposal. This decision raises concerns not only about emission reductions forgone but also the equity of
21.2 including some ship types and not others. General cargo and bulk cargo ships made 812 combined visits, in 2016, to California ports, and tend to stay at berth, on average, for long periods of time. Statewide port calls for these two ship types exceeded 10 percent of overall vessel calls, in 2016. And, from 2021 to 2031, their combined auxiliary and boiler $PM_{2.5}$ emissions are projected to climb from 5.3 to 7.2 tons per year, a 36 percent increase.

[1] *See e.g.*, Directive 2014/94/EU; ICCT, Action Plan for Establishing China's National Emission Control Area, March 2019, *at* https://theicct.org/sites/default/files/publications/DECA_China_policy_update_20190304.pdf.

[2] Onshore power supply (preferably from renewable sources) is listed as a possible provision in the International Maritime Organization's recent resolution, MEPC.323(74), which encourages voluntary cooperation between the shipping industry and ports to reduce greenhouse gas emissions from vessels.

[3] The OECD estimated port emissions from ocean-going vessels, for 2011, to be two percent of global shipping emissions, producing 18 million metric tons of carbon dioxide, 0.4 million metric tons of nitrogen oxide, and 0.03 million metric tons of particulate matter ($PM_{2.5}$). O. Merk (2014). Shipping emissions in ports – Discussion paper no. *2014-20*, at 17, OECD International Transport Forum: Paris, France.

1101 15th Street, NW · 11th Floor · Washington, DC 20005
202.783.7400 · 202.783.0444 fax · 877.843.8687 toll free · www.foe.org

2150 Allston Way, Suite 360 · Berkeley, CA 94704
510-900-3150 · 510-900-3155 fax · 866.217.8499 toll free

Friends of the Earth

21.3 Third, the proposed rule does not apply to ships at anchorage. A considerable number of these vessels are using anchorage sites that are, relatively, proximate to the California coastline and affected communities.

21.4 Finally, boiler emissions, with the exception of emissions from boiler-powered, steam-driven pumps of tankers, are not included in the proposed rule. While particular matter emissions from vessel boilers are not considered diesel particulate matter, they are by no means benign and should be mitigated further. Another ship category ripe for boiler emission reductions is the containership segment, which produces more than 0.04 tons per day of $PM_{2.5,}$ an amount greater than its auxiliary engine $PM_{2.5}$ output. Between 2021 and 2031, containership boiler $PM_{2.5}$ emissions are anticipated to rise from 19.5 to 26.6 tons per year, an increase of 36 percent.

21.5 A greater emphasis by ARB on the role of emission capture and control systems, as a supplement to grid-based shore power in reducing harmful vessel air emissions, particularly in light of the preceding criticisms of the proposed rule, is warranted. Concerns about cost-effectiveness of capture and control systems for certain vessel categories should, of course, be taken into account; however, these systems could likely be scaled to desired sizes and capacities, thereby improving these calculations. And, on issues such as vessel emission reductions at anchorage, emission capture and control systems are a viable option—as opposed to shore power, for instance—and ought to be integrated in a comprehensive proposed rule.

We appreciate your consideration of these comments, and if you should have any questions, please contact John Kaltenstein at jkaltenstein@foe.org, or at (510) 900-3142.

Sincerely,

John Kaltenstein

John Kaltenstein
Deputy Director, Oceans & Vessels

1101 15th Street, NW · 11th Floor · Washington, DC 20005
202.783.7400 · 202.783.0444 fax · 877.843.8687 toll free · www.foe.org

2150 Allston Way, Suite 360 · Berkeley, CA 94704
510-900-3150 · 510-900-3155 fax · 866.217.8499 toll free

WSPA

Catherine Reheis-Boyd
President

December 3, 2019

Clerk's Office
California Air Resources Board
1001 I Street
Sacramento, California 95814

sent via e-mail to: http://www.arb.ca.gov/lispub/comm/bclist.php

Re: WSPA Comments on CARB Proposed Control Measure for Ocean-Going Vessels at Berth

To the Office of the Clerk:

Western States Petroleum Association ("WSPA") appreciates the opportunity to provide comments on the California Air Resources Board's ("CARB") Proposed Control Measure for Ocean-Going Vessels at Berth ("At Berth Regulations"), released October 15, 2019, and its accompanying Draft Environmental Analysis ("Draft EA"), released October 1, 2019. WSPA is a non-profit trade association representing companies that explore for, produce, refine, transport and market petroleum, petroleum products, natural gas and other energy supplies in California and four other western states.

WSPA is providing these comments as part of a continuing effort to provide feedback on the At Berth Regulations. We incorporate our previous comments submitted on February 15, March 29, May 30, June 14 and August 15, 2019 by reference herein. This letter contains both comments on the At Berth Regulations and on the Draft EA pursuant to the California Environmental Quality Act ("CEQA").

Under the California Health and Safety Code, CARB must make and support several findings before adopting the At Berth Regulations, including the following:

- CARB must document that the At Berth Regulations are necessary to attain ambient air quality standards, cost effective, and technologically feasible. *See* Cal. Health & Safety Code ("HSC") §§ 38560, 38562, 39602.5, 43013, 43018.

- The At Berth Regulations must be designed "in a manner that is equitable," must "minimize costs and maximize the total benefits to California," and must minimize administrative burden and "leakage" (i.e., "a reduction in emissions of greenhouse gases within the state that is offset by an increase in emissions of greenhouse gases outside the state.") *See* HSC § 38505(j), 38562.

- The At Berth Regulations must achieve emissions reductions that are "real, permanent, quantifiable, verifiable, and enforceable" by CARB *See* HSC § 38562.

22.1 As discussed further below, WSPA continues to have serious concerns that the At Berth Regulations, as currently proposed, are neither technologically feasible nor cost-effective, particularly in the context of operations at marine terminals hosting vessels carrying hazardous materials such as crude oil and other petroleum products.

22.2 WSPA further believes that the At Berth Regulations impose certain unnecessary costs on regulated parties that result in little or no incremental benefit to California's air quality or its greenhouse gas ("GHG") levels. Many aspects of the At Berth Regulations, as detailed below, also are not likely to produce the real, permanent,

quantifiable, verifiable and enforceable emissions reductions Staff claims, and risk driving marine vessels out of California and to out-of-state marine terminals where those vessels' GHG emissions will continue unaffected by the Rule.

I. Land-Based Capture and Control Systems are Not Reasonably Feasible and Would Pose Serious Safety and Reliability Problems

In the Initial Statement of Reasons ("ISOR") for the At Berth Regulations, CARB Staff notes that it "assumed that the majority of tanker visits will use land-based capture and control systems based on industry feedback." ISOR, p. III-19. However, at numerous points in this rulemaking, WSPA and its members have informed Staff that land-based emission capture and control systems have not been designed, tested, or demonstrated to be a feasible, safe or reliable option for tankers[1]. To date, WSPA is not aware of any real-world examples of such land-based systems being successfully implemented on tankers at the scale typically seen at California marine terminals.

22.3

This real-world evidence reflects that the majority of marine terminals would be poorly situated to feasibly install and safely operate land-based capture and control systems at marine terminals. At a minimum, very large shore cranes would need to be constructed at each berth in order to reach all vessel designs, considering many tanker vessel exhaust stacks sit nearly 160 feet above the wharf. These cranes' connections to the vessel stack are not designed with the emergency break away coupling required for all tanker vessels, nor do they come with an engineered working safety margin for movement between vessels. Indeed, no emergency protocols exist *at all* for the type of connection the At Berth Regulations would mandate.

There is no data to support the concept that a land-based system can operate safely at a marine terminal. At the very least, the land-based systems currently required by the At Berth Regulations would create several significant safety concerns at California terminals:

- Exhaust systems and combustion control systems are not designed for connection to external capture devices. Such connections change the fluid dynamics of gas flow from the stack and increase the risk of an unsafe combustion space. Additionally, establishing and safely maintaining connections can be extremely difficult at night and in adverse weather conditions.

- Executing emergency disconnection procedures (which have not been developed) for such land-based systems would add steps and delay tankers in responding in an emergency (e.g., to allow safe disconnection from power, removal of shore-side equipment, engine start up, etc.). Federal anchorage regulations (33 C.F.R. § 110.215(a)(2)(B)(iv)) and California State Lands Commission regulations (2 Cal. Code Regs. ("CCR") § 2340(c)(28)) enforced by the U.S. Coast Guard (and included in local fire codes and standards under the International Safety Guide for Oil Tankers and Terminals) require all tankers moored alongside an oil terminal to be capable of safely vacating the berth within 30 minutes in order to minimize risks from dangerous flammable materials on the vessel or shore-side and avoid escalation of an incident. The additional steps required to disconnect from the capture and control system would likely extend the disconnection process to longer than 30 minutes.

[1] WSPA Comment Letter to CARB entitled "Additional WSPA Comments on CARB Proposed At Berth Regulation Working Draft, dated August 15, 2019.

- Third party owners and operators are not manned with crews and officers properly trained on how to safely operate shore-side control systems and facility operators do not have the legal authority to regulate crews aboard third-party vessels.

- Concepts for a shore-based capture and control system have not undergone a safety evaluation to assess potential fire and explosion risk associated with collection, pressurization, and transportation of gases in a crowded terminal. Additionally, no standards or procedures exist to conduct such a safety evaluation for a shore-based system.

- A wide equipment operating window would be required to account for vibrations and wind. No standards exist to assess how to define that window for a shore-based control system.

- Safety standards related to any required manual operation of the control system must be considered, especially in relation to immediately dangerous to life or health (IDLH) environment and nighttime operation.

- As no technology has been proven in practice, the ability to control key connections at the shore-based omissions control to boilers is unknown. This includes the possible inability to adjust for changes in load and while controlled, as well as the unknown effect of a control technology on the boiler combustion space.

- No tanker industry standards exist for the safe operation of this technology while transferring hazardous cargo.

See Exhibit 1, WSPA's March 29, 2019 comment letter, Enclosure B, "Proposed CARB At Berth At Anchor Regulation – Limitations and Issues Presented by Shore Based Emission Controls", which details many other dangers and complications that would be associated with the attempted operation and interface of a shore-side emissions control system with a tanker carrying hazardous and flammable liquid. Moreover, all interfaces between any emission control strategy and a tanker must be designed in conformance with an international standard endorsed by a classification society to safely and feasibly accommodate all vessels, and vessel interfaces then must be certified to that standard. To date, there is no such standard or certifications available for safe operation of shore-based emissions control during the transfer of hazardous cargo, and manufacturers have not yet designed or built systems that would qualify under such a future standard. Even if there were such a standard, boiler manufacturers have informed WSPA that in order to connect a capture and control system, modifications would be required on board every ship to be connected to the system, in order to install higher capacity blowers and modified control systems.

Woodbridge Marine, Inc., an independent marine consultant engineering firm specializing in safety inspections on oil tanker vessels, has provided a letter (attached hereto as Exhibit 2) containing further detailed discussion of feasibility and safety issues, including electrostatic hazard, handling inert gas in cargo tanks and exhaust stack pressure maintenance, emergency disconnection, the need to develop equipment suitable for all tank vessel types that visit California, safety standard certification and the need to consult standards organizations and develop new standards for emission control system safety, and review for compliance with

California's Marine Oil Terminal Engineering and Maintenance Standards ("MOTEMS"). To date, none of these issues has been addressed for tanker exhaust gas capture systems.

In addition, Woodbridge points out specific operational concerns that must be resolved, such as the need for the system to maintain a secure and safe connection accommodating both a wide range of vertical motion (during tidal movement and vessel draft changes during cargo discharge) and a wide range of lateral distances (due to variation in vessel widths and the fact that vessels can be docked either with port or starboard side facing the wharf). Thus, as Exhibits 1 and 2 demonstrate, by mandating a shore-based control system before such systems have been developed and proven feasible and safe at scale, the At Berth Regulations create a host of safety and feasibility problems with no immediate solutions yet available.

CARB Staff also incorrectly assumes that existing marine terminal berths can accommodate such mandated land-based capture and control equipment. Again, real-world evidence contradicts this assumption in many instances. For example, contrary to Staff's assertions, the existing wharf structures may not be large enough to accommodate all the equipment that would be required to install a land-based capture and control system, meaning significant and costly structural upgrades would be required. In several cases, wharfs may have to be rebuilt entirely to accommodate the weight and movement of the crane (as vessel stack locations may vary from vessel-to-vessel).

Indeed, given these numerous concerns, WSPA and other industry stakeholders have repeatedly urged Staff to delay this rulemaking and have invited Staff to partner with industry to conduct a study. This study would evaluate the technical feasibility, safety, reliability and operability of shore-based emission capture and control systems for tankers at real-world scale, and the feasibility of permitting, constructing and commissioning such a system in the timeframes in the At Berth Regulations. Staff have repeatedly declined this invitation, proposing instead to mandate compliance dates knowing a feasible real-world compliance path does not exist. This has made it impossible for Staff to point to any empirical evidence justifying the ISOR's assumption that land-based capture and control systems are feasible for tankers at California terminals. Regulations requiring tasks that cannot be practically implemented in the time periods provided are not equitable, do not minimize costs for Californians, and do not demonstrate technological feasibility as required by California law.

II. The At Berth Regulation's Compliance Deadlines are Infeasible and Do Not Reflect Experience With Real-World Terminal Construction Projects

22.4a

The At Berth Regulations impose compliance deadlines of January 1, 2027 for tanker vessels that visit the Ports of Los Angeles ("POLA") and Long Beach ("POLB"), and January 1, 2029 for all remaining tanker vessels. *See* Proposed 17 CCR § 93130.7(b), (c). Section 93130.14(a) requires tanker terminal operators to develop and submit compliance plans by December 2021, detailing the "most likely control strategy" to meet the deadlines. Section 93130.14(d) requires Staff to assess the status of tanker control technologies and landside infrastructure improvements and report to the public and the Board by July 1, 2023. If this "interim evaluation" finds that the compliance deadlines need to be extended, Staff may "initiate development of potential regulatory amendments." *Id.* However, unless and until the Board adopts amendments, the deadlines will remain in effect. Regulated entities must undertake their best efforts to timely comply and, if that proves impossible, are at risk of noncompliance.

A. Completing All Steps Necessary for Construction and Permitting of Infrastructure Projects Would Be Impossible By the Proposed Deadlines

As WSPA has advised in previous written comments and in discussions with CARB Staff, it is already abundantly clear that compliance with the 2027 and 2029 deadlines is infeasible. In comments submitted August 15, 2019 (attached hereto as Exhibit 3), WSPA compiled information from member companies in an "Estimated Timeline-CARB At Berth Regulation Shore-Based Emission Control System" and "Timeline Survey Summary" (Exhibit 3, Att. A & B). The Estimated Timeline chart demonstrates that – starting with general and site-specific technical, safety and other studies immediately on rule adoption in 2020 – completion and commissioning of land-based capture and control systems for tanker vessel emissions[2] is not expected before mid-2034 in most cases and is likely to extend at least to the end of 2035 for complex installations.

22.4b

In general, larger and more complex terminals will need more time to complete each step due to the larger scale of the engineering, design and construction effort. Real-world experience demonstrates that, for complex installations, it is difficult to anticipate precise timelines for each step at the outset of the process, and timelines typically lengthen as the project proceeds. With unknown permitting timelines and delays, contracting and vendor timelines, the earliest compliance demonstration for most facilities is not before 2033 (i.e., a minimum of four to six years later than the proposed 2027 and 2029 deadlines). Some of the steps in the process may partly overlap, as shown in the Estimated Timeline. However, numerous dependent steps exist and are unavoidable. Construction cannot begin until construction contracts are in place. The terms and conditions of construction contracts cannot be finalized until all necessary permits and approvals are issued. State and local permits and approvals cannot be issued until CEQA review is completed. CEQA review cannot begin until at least 30-60% of the design is complete, in order to provide an accurate and stable project description as the basis for review. Detailed design and engineering cannot begin until the preliminary project scoping, feasibility evaluation and supporting technical studies are conducted.

22.4c

The Timeline Survey Summary provides additional detail on the necessary steps to achieve compliance and their estimated durations. These necessary steps include technical and feasibility studies, site-specific design, engineering, CEQA review, regulatory agency permitting and approvals, contracting, construction and commissioning. Moreover, no construction can begin without all required permits and approvals from numerous state and local regulatory agencies including the California State Lands Commission, the California Coastal Commission (where coastal permitting is not delegated to the local city or county), the California Department of Fish and Wildlife, the San Francisco Bay Conservation and Development Commission (for northern Californian terminals), the local Regional Water Quality Control Board, and the local city or county, as well as federal permits and approvals from the U.S. Coast Guard, U.S. Army Corps of Engineers, U.S. Fish and Wildlife Service and National Marine Fisheries Service. The operators have no control over the duration of environmental review and permit processing by these agencies. Some responsible agencies will not even begin processing applications until the lead agency completes CEQA review. Even if the many agencies could promptly process applications for a few projects, their limited resources would be overwhelmed when facing the simultaneous application for projects throughout the state as required for all applicants to achieve compliance by the deadlines in the At Berth Regulations. It is highly likely that the agencies would need to

[2] As discussed below in the CEQA comment section, WSPA agrees with CARB's assumption that land-based capture and control systems constitute the reasonably foreseeable means of compliance with the At Berth Regulations for tanker vessels.

stagger permit processing, so that regulated entities at the end of the queue would again be at risk of noncompliance.

Again, these deficiencies demonstrate that, as currently worded, the At Berth Regulations require an implementation schedule that is not technologically feasible.

B. Staff's Cited Terminal Project Examples are Not Representative of the Massive Infrastructure Work Needed to Comply With The At Berth Regulations

22.4d

CARB Staff concedes that the time needed for permitting and construction of the required new infrastructure may delay compliance; indeed, that is the stated reason for providing for the interim evaluation. ISOR, pp. ES-30-32, III-19-23. Nevertheless, Staff claims that the proposed timeline "is both aggressive and technically feasible for implementation" (ISOR, p. ES-30) – a claim that appears to be based entirely on a handful of examples of recent projects at tanker terminals whose timelines purportedly "ranged roughly from five to seven years for completion." ISOR, pp. III-21-22. On the contrary, the real-world evidence, including evidence regarding the projects cited in the ISOR, refutes this claim.

The ISOR concedes that "[i]nfrastructure development and the permit process stand out as the most time consuming and complex parts of utilizing land-based capture and control technology to control emissions from a tanker vessel." ISOR, p. IV-52. Even so, the ISOR greatly underestimates the time required to install infrastructure at the substantial scale contemplated in the At Berth Regulations. Staff's asserted timeline of "five to seven years for completion" is based on a survey of five recent projects, four of which were undertaken to address issues identified in MOTEMS audits in 2008-2010. ISOR, pp. III-21-22. However, the ISOR presents only a truncated picture of the anticipated timelines that would be needed for wharf infrastructure projects to comply with the At Berth Regulations, by including minor projects taking far less time than At Berth Regulations projects, and by presenting only subsets of the time required for the remaining, more substantial projects.

1. *Two of Staff's Cited Projects are Far Smaller Than the Scale of Infrastructure That Would Be Required By the At Berth Regulations*

22.4e

Two of the projects cited in the ISOR – the Chevron Richmond Long Wharf MOTEMS compliance project and Green Omni Terminal ShoreKat Demonstration Project – were limited to repairs of existing structures and minor equipment installation. The timelines for those two projects are not properly comparable with those for planning, permitting and constructing substantial new wharf infrastructure, such as the large cranes and other major equipment installation on new or expanded wharf decking with new supporting piles required by the At Berth Regulations. Moreover, the ShoreKat project appears to have been exempt from CEQA review, while the modest Chevron MOTEMS project did not require a full-scale EIR, only a limited Negative Declaration allowing a much shorter CEQA review timeline.

The massive scale of anticipated infrastructure projects that would be needed for compliance with the At Berth Regulations is illustrated in the ISOR (*see* ISOR, pp. IX-11 to IX-13):

- As Staff recognizes, project components include the emission treatment unit itself, "foundational support structures" for the control system with "construction of additional pilings into the sea floor", electrical connections, "[h]undreds to thousands of feet of piping and associated support structure . . . to pipe exhaust from the vessel stacks to the

emission control system," and "[s]pecially constructed crane(s) . . . to move the exhaust capture device to the vessel stack(s)."

- Staff also concedes that "support structures would be needed for the crane(s) at each berth regardless of whether the crane(s) were built on the wharf or on an adjacent standalone support structure. These structures may also require pilings into the sea floor."

- As the ISOR further notes, Staff conducted a berth-by-berth evaluation of compliance strategies at tanker terminals and found that significant infrastructure improvements would be needed at each facility to support land-based capture and control systems. *See* ISOR Appendix E, CARB Staff Analysis of Potential Emission Reduction Strategies by Port/Terminal/Berth for Crude and Product Tanker Vessels (September 2019).[3] Except in a few cases where it may be possible to place facilities on land, Staff conceded that substantial wharf improvements would be needed to support the weight of emission capture and control systems, between one and eight large cranes, and extensive piping.

Moreover, the Draft EA (p. 9) acknowledges that: "Adding berth-side equipment may require ports and/or terminals to upgrade wharf infrastructure. This may include the addition of new pilings and new surface area to existing piers/ports and/or terminals to allow for additional weight or space for vault and cable systems… Increasing power loads for vessels to use while at berth may require electrical and support infrastructure, which would be installed by existing utility service providers. It is reasonably assumed that additional power would require the installation of new or additional high-voltage lines and substations to increase the power supply required by vessels while at berth. Construction equipment, workers, and material deliveries for power utility modifications would be needed at the ports/terminals, as well as in areas subject to upgrading along the utilities' existing infrastructure." However, the consequences of that scope of work are given short shrift.

22.4f

To further clarify the scale of infrastructure projects needed to comply with the At Berth Regulations, additional information was provided to Staff by Chevron in a presentation on June 10, 2019 (attached hereto as Exhibit 4). As shown in slides 2 and 3 of Exhibit 4, the existing wharf at Chevron's Richmond Long Wharf contains no space to accommodate installation of an emission control system and cranes. At a minimum, installation of equipment at those sizes would require construction of half an acre of new deck structure as well as 4,000 to 6,000 feet of new piping. Slides 4-6 illustrate the scale of heavy pile driving activities for Chevron's MOTEMS project, which would be multiplied by the estimated 700 to 800 concrete piles, driven deep into the sea floor, necessary to provide support for an At Berth Regulations compliance project. Slide 7 illustrates the magnitude of required electrical infrastructure improvements, including miles of new electrical cable, replacement of two transformers and changes to the utility interconnection. Nor is Chevron's wharf configuration unusual; other tanker terminal wharves have similarly narrow linear designs with comparable space constraints, and likely would require a comparable magnitude of expansion, as demonstrated by the aerial photographs of Shell's Martinez dock and Marathon Petroleum's Amorco and Avon facilities in Martinez; see Exhibit 5, slides 1-3. Moreover, available space is heavily utilized and potential locations for new equipment are highly constrained even at terminals where berths are not located at the end of narrow linear docks, as illustrated by Marathon's Terminal 2 at the Port of Long Beach and Valero's Berth 164 at the Port of Los Angeles; see Exhibit 5, slides 4 and 5.

22.4g

[3] Note that footnote 3 on the last page in ISOR Appendix E is incomplete. The sentence ends "this does not preclude the terminals or vessels from." The text should be revised to state what is not precluded.

2. *Staff's Discussion of the Other Three Project Timelines Ignores the Additional Time Those Projects Incurred for Planning, Design, Permitting and Project Delays*

The other three projects cited in the ISOR are more comparable to the scale expected for At Berth Regulations compliance projects, but ISOR reports only part of their timelines:

22.4h

- The ISOR describes the Chevron Richmond Wharf Maintenance and Efficiency Project ("WMEP") as starting in 2014, when Chevron submitted its initial permit applications. However, the ISOR omits the necessary steps of project scope development following the MOTEMS audit, planning, design and technical studies, which preceded the applications.

- The ISOR describes the Port of Richmond IMTT Terminal Project as starting in 2011 and quotes an estimated completion date from a 2014 document. The ISOR again omits scoping and planning following the MOTEMS audit and also the delay in actual project completion.

- The ISOR describes only the construction period for the Berths 167-169 Shell MOTEMS Wharf Improvement Projects at POLA, omitting all planning, design and permitting steps prior to construction.[4]

The average duration for the project stages reported in the ISOR is 5.2 years, with a range of 3 - 9 years. Even based on Staff's reported information, a project taking 9 years would exceed the "five to seven years" claimed in the ISOR, p. III-21, and would be unable to meet the 2027 deadline.[5] Additional project steps omitted from the ISOR are included in the attached "Timelines for Projects Involving Substantial New Wharf Infrastructure Comparable to At Berth Regulations Compliance Projects" (attached hereto as Exhibit 6).

Below are examples of other agency approvals, construction and commissioning not discussed by Staff in the ISOR, but that likely would hinder further progress on an infrastructure project until completed:

22.4i

- For any pilot test of the equipment installed at a terminal, permitting, design and construction will require additional time.

- Detailed engineering cannot begin until the feasibility evaluation study is completed, and the risks associated with the control technology are well understood, to allow for design of appropriate mitigation.

22.4j

- CEQA review cannot begin until a lead agency is assigned and at least 30-60% of the design is complete, in order to provide an accurate and stable project description as the basis for review.

[4] A more accurate picture is presented elsewhere in the ISOR (p. IX-13), conflicting with these abbreviated timelines: "Ports and tanker terminals would need to conduct feasibility assessments, engineering analysis and design, and secure required permits to construct terminal infrastructure projects needed to support the land-based capture and control systems."

[5] If the two minor projects are included, the average duration of project stages discussed in the ISOR decreases to 4.6 years, with a range of 3-9 years.

22.4k
- Building and other permits are dependent on completing the CEQA analysis and certifying a final Environmental Impact Report (EIR) or Negative Declaration. Many responsible agencies with permit or approval authority will not begin processing applications before the CEQA document is approved.

22.4l
- Contracting for construction and installation cannot be finalized until the permits and approvals are received; before that time, the conditions under which construction will occur remain yet unknown. Additionally, construction cannot commence until contracting is complete.

22.4m
- CEQA lead agencies and responsible regulatory agencies may require completion of some mitigation measures before construction commences.

22.4n
- In some cases, commissioning of individual pieces of equipment can occur in parallel with the construction; however, overall commissioning cannot begin until all construction is completed.[6]

California law prohibits adopting the At Berth Regulations until and unless the proposed Regulations reflect realistic timelines that are both technologically feasible and provide sufficient time for regulated entities to minimize unnecessary implementation costs.

C. Real-World Experience With Terminal Infrastructure Projects Shows That Compliance With the At Berth Regulations Is Unattainable By 2027/2029

22.4o
In addition, two other MOTEMS compliance projects at tanker terminals, involving substantial new wharf infrastructure, are included in Exhibit 6 for comparison.[7] Based on the full timelines in Exhibit 6, the actual average duration of projects comparable to At Berth Regulations projects is 11.6 years, with a range of 7-15 years. Exhibit 6 also demonstrates that, more often than not, actual project completion dates are later than the projected completion dates on schedules in planning and CEQA documents, suggesting that the ultimate timelines for projects not yet completed will run still longer, resulting in an average duration of more than 11.6 years.

Moreover, even the larger scale MOTEMS projects listed in Exhibit 6 may not fairly represent the magnitude of new wharf infrastructure for compliance with the At Berth Regulations. For example, large cranes will be needed to reach tanker stacks,[8] but no cranes have been installed for any MOTEMS work, and none of the projects described in the ISOR involved installing cranes. Major wharf expansions necessary to provide room and support for such large and heavy cranes will not only take longer to design and construct; they will also entail greater environmental impacts (as discussed in CEQA comments below), potentially involving longer CEQA review and permitting timelines including approval by additional agencies – again resulting in an average duration of more than 11.6 years.

[6] See also Slide 7 of Exhibit 4, which lists the permits that were required for Chevron's WMEP project as an example.
[7] For example, the Avon Terminal MOTEMS project included a new vessel loading/unloading platform and mooring dolphin on new steel pilings, with construction of associated facility structures, electrical, mechanical and piping systems – work which appears reasonably comparable to the scope of an At Berth Regulations compliance installation.
[8] Approximate heights which must be reached for different tanker vessel categories are: MR, 130 feet, Aframax, 133 feet, Suezmax, 140 feet, VLCC, 165 feet.

This record of timelines for comparable past projects, together with the estimated timelines for At Berth Regulations projects in WSPA's August 2015 comments, demonstrates that the 2027 and 2029 deadlines are unattainable for the majority of At Berth Regulations projects, even if project-level planning begins immediately on rule adoption in 2020.

Comments from Power Engineering Construction Co. ("Power"), attached hereto as Exhibit 7, provide independent confirmation for these concerns. Power has experience with all phases of preconstruction, design, entitlement and construction of a wide variety of marine engineering projects. Based on that experience, and on several examples of non-oil terminal projects, Power concludes that "empirically, all but the most basic construction projects prove to track into an 8 to 10-year timeline…. [d]ue to the complexity of regulatory review, the challenges of over-water design, and the limitations and work windows imposed during construction." In addition, Exhibit C to the Power comments describes timelines for projects involving large container cranes (average duration 33 months) and dock-mounted marine hydraulic cranes (average duration 17 months per crane). As noted above, the At Berth Regulations compliance projects require installation of between one and eight cranes. Cranes will need to be installed one at a time due to space limitations and to allow partial operation of the marine terminal during construction, so for some terminals, total installation time could take as long 22 years.

22.4p

Finally, and perhaps most importantly, the project timelines in the ISOR, as well as those described in Exhibits 6 and 7, all involve deployment of ***existing*** technology. As the ISOR notes, the technology for land based capture and control systems for tanker vessels does not yet exist and would be "more complex than the existing demonstration system at POLA . . . need[ing] to be scaled up from the existing systems in order to handle higher exhaust flow rates from tanker vessels." ISOR, p. III-19. In particular, designing emission controls for tanker vessels presents unique safety issues. *See* Exhibit 2, Letter from Woodbridge Marine, Inc. No technology is currently tested and proven safe for tankers, as was communicated to CARB staff by vendors during the CARB vendor meeting on April 16, 2019,[9] and also discussed in WSPA's comment letter of June 14, 2019. Significant work is needed up front to assess the risks and ensure that technology is safe, feasible and available, which will take additional time before individual projects can begin to be developed.[10]

22.5

D. <u>The Suggestion That the Compliance Deadline Should Be Shortened is Unsupported by Real-World Evidence</u>

In a letter dated November 26, 2019, the Executive Officer of the Bay Area Air Quality Management District ("BAAQMD") dismissed the ISOR's discussion of the lengthy regulatory

[9] At a meeting between CARB, vendors and industry stakeholders including WSPA members on April 16, 2019, one of the vendors, AEG, stated that the technology is not ready for a tanker demonstration. AEG's concerns included the large variation in gas volume and temperature from tanker boilers, which must be accounted for in designing emissions capture and control systems, and the need to address explosion risk from static electricity. AEG also noted the need for workable connection devices for every vessel and that relative movement of the tanker at berth is important, as large movements can rip the ducting off the stack.

[10] The Power comment letter (Exhibit 7) also explains that "issues surrounding the technical feasibility" of the system "will add to the overall project timeline through both feasibility testing and extended equipment procurement." Since Power's estimated 8-10 year "timeline should begin once a feasibility study is completed and appropriate emission control technology is proven to be readily available," it appears consistent with the 11.6 year average for projects listed in Exhibit 6.

approval process for construction over or adjacent to bay waters, stating "I believe this concern is overstated." However, the letter provides no facts or evidence to support that belief, which is contradicted by the evidence of long permitting timelines cited in and attached to this letter. The record shows that marine projects subject to the approval of multiple regulatory agencies (e.g., MOTEMS compliance projects) have taken substantially more time, not less, than estimated by CARB staff. The same record demonstrates that shortening the compliance deadline for tanker vessels to January 1, 2025, as suggested in the BAAQMD letter, is simply impossible.

The BAAQMD letter speculates that an interagency group could assist CARB in identifying and addressing concerns, and mentions the long-established interagency organization that issues dredging permits in San Francisco Bay as an example. However, that organization is narrow in its scope and only reviews dredging projects. More important, no such organization currently exists to review the projects that would be required for compliance with the At Berth Regulations. Coordination up front by an inter-agency group could ultimately result in more efficient and effective review and permitting of individual projects by individual agencies. However, BAAQMD's letter ignores the additional time needed to establish such a group and for it to carry out its coordinating efforts, which must precede the purportedly shortened review of individual projects. The more likely outcome of this additional time is that the total duration for interagency coordination plus individual project permitting would extend significantly beyond the proposed compliance deadlines.

In fact, the interagency dredging group cited in the BAAQMD letter – the Dredged Material Management Office ("DMMO") – is a particularly poor example to suggest as a model for the At Berth Regulations. The DMMO took six years to establish, beginning with a 1992 task group, followed by an initial pilot phase, a 1996 inter-agency Memorandum of Understanding ("MOU") establishing two additional pilot phases, and finally a revised MOU in 1998. See DMMO MOU (https://www.spn.usace.army.mil/Portals/68/docs/Dredging/memounderst.pdf); DMMO Third Pilot Phase Review Report (1999) (https://www.spn.usace.army.mil/Portals/68/docs/Dredging/Annual%20Reports/3rdpilot.pdf). The Long Term Management Strategy ("LTMS") which the DMMO implements was developed over an 11 year period, initiated in 1990 and finally adopted in 2001, as described in the DMMO's 2018 report, (https://www.spn.usace.army.mil/Portals/68/docs/Dredging/Annual%20Reports/2018%20DMMO%20Annual%20Report_Final.pdf?ver=2019-11-15-131717-210).

While BAAQMD's letter offers its assistance with inter-agency review, it will play only a relatively small role in the projects to comply with the At Berth Regulations. Instead, the agencies most involved will be some of the same agencies participating in the DMMO, as well as local land use authorities. There is no reason to think those agencies could move faster in the future than they have in the past.

Nevertheless, WSPA does not oppose engagement with other regulatory agencies. On the contrary, WSPA has proposed a feasibility study which would involve multiple regulatory agencies. The study would not only serve as a natural lead-in to developing an interagency process for permit review, but would also have regulatory agencies engaged up front in the safety and technical feasibility evaluations. CARB staff should recognize that while the permitting review process is a major factor in a project timeline, the first and principal roadblock is successfully addressing the technical feasibility and safety challenges outlined in this letter. WSPA's proposed study involves all the necessary stakeholders to address both challenges. This will minimize

project design recycle and improve the efficiency and effectiveness of subsequent individual project review and permitting.

E. The Interim Evaluation Report Provides No Assurance of Relief from the Unattainable Deadlines in the At Berth Regulations

22.6

The interim evaluation report envisioned under the At Berth Regulations would be of little help to regulated entities in avoiding the practical consequences of these unrealistic deadlines. Under the At Berth Regulations, Staff would have until July 2023 to prepare a report on "the progress made in adopting control technologies for use with tanker and ro-ro vessels, as well as the status of landside infrastructure improvements that may be needed to support emission reductions at ro-ro and tanker terminals." *See* Proposed 17 CCR 93130.14(d). At that time, "[i]f staff finds that the compliance deadlines for ro-ro or tanker vessels need to be extended, the report will include recommendations to initiate staff's development of potential formal regulatory amendments." *Id.*

As WSPA has explained to CARB Staff, while we agree with the need for a feasibility study (in coordination with industry stakeholders) with respect to tanker control technologies, the time to do that study is **before** adopting the At Berth Regulations that would set timetables for installation of potentially non-existent technologies, not after. Regardless of the feasibility of control technologies in 2023, regulated parties would not be able to wait until direction from Staff in late-2023 (or later) to begin the process of upgrading terminals in time to reach compliance in less than six years. By including a mandatory 2027/2029 compliance deadline in the At Berth Regulations, Staff would be effectively forcing regulated parties to commit to capital expenditures, construction planning, and permitting efforts years before the actual regulatory deadline for compliance. Even if Staff's interim evaluation report were to find continuing technology barriers in 2023, regulated parties would continue to be subject to a 2027/2029 compliance deadline until and unless CARB were to adopt changes to the At Berth Regulations (which this interim evaluation provision does not require). Staff have not produced any evidence in the record that regulated parties would be able to feasibly wait until 2023 or later to begin construction work and still reach compliance by 2029.

In sum, the evidence presented in this rulemaking strongly suggests that, even assuming that a safe and workable international standard can one day be developed for an interface between a tanker and a land-based capture and control system, the 2027 and 2029 compliance deadlines cannot feasibly be met. The ISOR's presentation of partial timelines for five projects, including two projects not comparable to the ISOR's own characterization of At Berth Regulations projects, does not contradict that conclusion. As such, there is no basis or support for imposing these deadlines as mandatory compliance requirements, subject to potential amendment following a future interim evaluation. If adopted as proposed, with patently unachievable default compliance dates (and penalties for failure to achieve them), the At Berth Regulations will be arbitrary, capricious and not supported by law or evidence. WSPA believes the Government Code, Health and Safety Code and other California laws and regulations require CARB to revise the proposed interim evaluation and compliance deadlines for proper development preparation and consideration of feasibility and cost effectiveness. *See*, *e.g.*, HSC §§ 38560, 39602.5, 39665, 43013; *see also* Gov. Code § 11346.36 & 1 CCR §§ 2000-2004 (Standardized Regulatory Impact Assessment (SRIA) requirements).

WSPA recommends that CARB incorporate a thorough and technically sound feasibility evaluation study into the regulation, with input from relevant agencies and stakeholders, to provide guidance for the most applicable compliance dates possible.

22.7 III. **The Draft EA Fails to Comply With CEQA**

22.7a This section contains WSPA's comments on the Draft EA pursuant to CEQA, the State CEQA Guidelines (14 CCR § 15000 et seq.), and CARB's CEQA implementation regulations, 17 CCR § 60000 et seq. Where indicated, other comments in this letter are also incorporated in our CEQA comments.

A. CEQA Requires CARB to Fully and Fairly Consider Environmental Effects Beyond Air Quality and Greenhouse Gases

22.7b The Draft EA – titled "Draft Environmental Analysis" though technically it is a "Draft Environmental Impact Analysis" under CARB's CEQA regulations, 17 CCR § 60004.2 – functions as a substitute for a traditional CEQA Environmental Impact Report (EIR) under CARB's certified regulatory program. Nevertheless, the Draft EA must comply with the substantive requirements of CEQA. CEQA Guidelines § 15250, 17 CCR § 60004(b).

In general, CEQA requires lead agencies to evaluate the potentially significant environmental impacts of their proposed actions, and to the extent feasible, mitigate those impacts to less than significant levels. In addition, CARB is subject to more specific requirements: before adopting a regulation that requires installation of pollution control equipment or compliance with performance standards or treatment requirements, CARB must (i) identify reasonably foreseeable methods of compliance; and (ii) analyze reasonably foreseeable environmental impacts of, mitigation measures for, and alternatives to, the reasonably foreseeable methods of compliance. CEQA §§ 21159(a), 21159.4. The environmental analysis must take into account a reasonable range of environmental, economic and technical factors, populations and geographic areas, and specific sites. CEQA § 21159(c).

Even though the At Berth Regulations are intended to benefit the environment by reducing air pollutant and GHG emissions, CARB must undertake a full and fair evaluation of its potential to result in unintended adverse environmental side-effects in other media. *POET LLC v. State Air Resources Board* (2012) 218 Cal.App.4th 681. The Draft EA, ISOR and attachments devote hundreds of pages to analysis of air pollutant and GHG emissions and reductions under CARB's regulatory jurisdiction. However, the central purpose of CEQA review by regulatory agencies such as CARB is to require consideration of impacts in other media, outside their jurisdiction. As discussed below, issues other than air quality and GHG are given short shrift in the Draft EA. That is impermissible under CEQA.

B. Land-Based Capture and Control Systems Constitute the Reasonably Foreseeable Means of Compliance for Tanker Vessels

22.7c As required by CEQA, the Draft EA identifies reasonably foreseeable means of compliance for vessel categories subject to the At Berth Regulations, in order to provide the basis for analysis of environmental impacts resulting from implementation of those means of compliance. For oil tanker vessels, the Draft EA finds that land-based capture and control systems constitute the reasonably foreseeable means of compliance. Draft EA, pp. 9-10, 22.

Given the difficulty of equipping a global fleet of tanker vessels with equipment to utilize shore powering, and the navigational and safety issues associated with barge-based systems at tanker terminals, it is not reasonably foreseeable that installation of onshore and onboard equipment for

connection to shore power or barge-based stack emission capture systems would be utilized as means of compliance. *See* ISOR, p. ES-30 ("Tanker vessel operators have expressed safety concerns with barge systems and indicate the method of capture and control would be land-based, which may require significant infrastructure improvements to the existing tanker terminals across the state"), p. I-31 (operators "are not prepared to make the vessel side investments because there are far fewer vessels that make regular or frequent calls to California" to justify investment in vessel modifications for shore power") and p. I-32 ("terminals with narrow channels may not be able to physically fit a barge without blocking navigation in the channel. At many of Northern California's independent marine terminals, there are also potential constraints resulting from the impacts of tidal flows and from prohibitions on impeding the transit of other vessels in designated shipping lanes (between the supports of an adjacent bridge, for example)." Site-specific navigational and safety concerns were identified at most tanker berths in the berth-by-berth analysis included in ISOR Appendix E. CARB therefore "assumed that tankers would use landside capture and control systems where exhaust gas is captured in a duct from the vessel stack and routed to an emission control system." Draft EA, p. 22.

As discussed throughout these comments, WSPA is broadly concerned with the feasibility of compliance with the At Berth Regulations. However, on the specific point of identifying the means of compliance for purposes of CEQA analysis, WSPA agrees with and supports CARB's conclusion that land-based systems will be utilized, rather than barge-based systems or shore powering. Our comments in this letter assume the use of such land-based systems.[11]

C. CARB's Timeline Is "Infeasible" as Defined In CEQA

22.7d

Alternatives considered under CEQA must be reasonable and able to feasibly accomplish basic project objectives, and an EIR is not required to consider alternatives which are infeasible. CEQA Guidelines § 15126.6(a), (c). CEQA defines "feasible" as "capable of being accomplished ***in a successful manner within a reasonable period of time***, taking into account economic, environmental, legal, social and technological factors." CEQA Guidelines § 15364 (emphasis added). Among the factors that may be taken into account when addressing feasibility are site suitability, economic viability, availability of infrastructure and regulatory limitations. CEQA Guidelines § 15126.6(f)(1). Findings regarding infeasibility must be supported by substantial evidence. CEQA Guidelines § 15091(b).

22.7e

In this case, it is the proposed project itself which cannot be accomplished in a successful manner within the prescribed period of time. As explained in the comments above, which are incorporated by reference in this CEQA comment, the compliance deadlines for tanker terminals in the proposed At Berth Regulations are infeasible and unreasonable. Given the scale and environmental footprint of work needed to install reasonably foreseeable land-based capture and control systems, the ISOR's claim that a reasonable period of time is allowed for compliance is not supported by the evidence. On the contrary, based on the evidence discussed above, it is clear that compliance cannot be achieved in a successful manner within a reasonable period of time. Relevant technological factors include the time needed to develop new technology and to address safety issues as discussed above. Legal factors include the time needed for project review and permitting before construction can commence. Environmental factors include the impacts of undertaking major construction projects in sensitive marine and estuary habitats, which

[11] For the same reasons, Alternative 3 in the Draft EA (p. 168), "Require Barge-based Capture and Control Only Compliance Pathway for Tanker, Ro-Ro, Newly Regulated Reefer, and Container Vessels and Shore Power Only Compliance Pathway for Cruise Vessels" should be rejected as infeasible.

will require additional time to resolve in the CEQA and permitting process. Finally, as discussed below (and again incorporated in this CEQA comment by reference), implementation of the At Berth Regulations will be far more costly and less cost-effective than Staff claims, based on an analysis that systematically underestimates the costs of compliance.

D. The Draft EA Fails to Analyze Information on Potential Impacts which CARB Already Possesses, Abusing the Tiering Provisions of CEQA

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The Draft EA fails to fully and fairly disclose reasonably foreseeable adverse environmental impacts associated with implementing the At Berth Regulations. A primary reason for this failure is the Draft EA's over-reliance on a programmatic level of analysis, together with significant and unavoidable findings, to cursorily dispose of many issues. The Draft EA's generic reliance on the programmatic level of review applies to aesthetics, agricultural, construction air emissions, biological resources, cultural resources, geological risk, hazards and hazardous materials, hydrology, mineral resources, noise, traffic and utilities impacts. Indeed, the extensive scope and magnitude of issues that the Draft EA defers to project-level reviews provides further confirmation that completing CEQA review and permitting in time to allow completion of construction by the proposed deadline is a practical impossibility.

Tiered environmental review is encouraged by CEQA; *see* Pub. Res. Code § 21093. 17 CCR § 60004(g) authorizes CARB to "tier its environmental analyses using the principles set forth in California Code of Regulations, title 14, section 15152, and other tiering-related provisions in CEQA." Accordingly, CARB has prepared the Draft EA as a programmatic evaluation, which will be followed by more detailed, project-level CEQA review of individual actions undertaken to construct facilities necessary to comply with the rule. These future project-level CEQA reviews will be conducted by cities, counties or other agencies with jurisdiction over the permits and approvals required for the construction projects. Draft EA, pp. 4-5.

22-7g

Nevertheless, the tiering approach "does not excuse the lead agency from adequately analyzing reasonably foreseeable significant environmental effects of the project and does not justify deferring such analysis to a later tier." CEQA Guidelines § 15152(b). Analysis at later tiers must focus "on the actual issues ripe for decision at each level of environmental review." *Id.* "While proper tiering of environmental review allows an agency to defer analysis of certain details of later phases of long-term linked or complex projects until those phases are up for approval, ***CEQA's demand for meaningful information is not satisfied by simply stating information will be provided in the future***." *Vineyard Area Citizens for Responsible Growth, Inc. v. City of Rancho Cordova* (2007) 40 Cal.4th 412, 431 (emphasis added, internal quotations omitted). Yet that is what CARB has done in the Draft EA.

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In virtually every one of the environmental analyses, the Draft EA asserts that impacts anticipated from the reasonably foreseeable means of compliance are "speculative" and repetitively concludes that, at the program level, adverse impacts must be considered "potentially significant and unavoidable" because implementation of corresponding mitigation measures is under the jurisdiction of the local decision makers, not CARB. *See*, *e.g.*, Draft EA, pp. 26, 31, 35, 41, 52, 63, 66, 71, 80, 96, 100, 104, 106, 112, 117, 119, 129, 131, 132, 136.

22.7i

CARB claims that "this Draft EA makes a rigorous effort to evaluate significant adverse impacts and beneficial impacts of the reasonably foreseeable compliance responses that could result from implementation of the Proposed Regulation and contains as much information about those impacts as is currently available, without being unduly speculative." Draft EA, p. 4. On the

contrary, the Draft EA fails to make such a "rigorous effort" by rejecting as "speculative" all of the detailed information that CARB itself has already placed into the rulemaking record.

22.7j Notwithstanding the uncertainties of project level implementation (which, as discussed above, will push out the project timelines) CARB already has at least some information to provide more in-depth analysis than the Draft EA's repeated, rote recitations of the programmatic approach. The Draft EA identifies twenty-one projects to install land-based capture and control systems, in six geographic areas as reasonably foreseeable means of compliance with the At Berth Regulations. *See* Draft EA, p. 22: "Five land-based capture and control systems would be needed in Carquinez, four in Long Beach, five in Los Angeles, four in Richmond, two in Rodeo, and one in Stockton." While asserting that site-specific analysis would be speculative, CARB develop an analysis of construction emissions scenarios for installation of representative equipment including tanker landside and dockside capture and control systems. Draft EA p. 45 and Attachment B (with an "in depth description" of the four scenarios).

22.7k Moreover, ISOR Appendix E, "CARB Staff Analysis of Potential Emission Reduction Strategies by Port/Terminal/Berth for Crude and Product Tanker Vessels (September 2019)" provides a berth-by-berth analysis containing further details on each of the twenty-one projects and the equipment they involve, including the number of land-based capture and control systems and number of new cranes to be installed per facility Appendix E also notes site-specific space constraints, navigational risks and potential piping routes. As the ISOR (p. I-8) acknowledges: "Many of these wharves [operated by oil companies] cannot accommodate pollution control equipment without extensive construction (on land and in the water) to support additional weight and demand for power." For at least two tanker berths, CARB has already identified potential wetland impacts from installing land-based capture and control systems and cranes. *See* ISOR Appendix E, pp. 3, 5. The Draft EA, Attachment B, develops representative facility scenarios in further detail for purposes of air quality modeling, including the construction equipment, pile driving and deck expansion that would be required (Attachment B, pp. 13-15 and Table B-24). Having analyzed the projects in some detail and already disclosed the project-specific information in the SRIA and representative scenarios in Draft EA Attachment B, CARB cannot now claim that it cannot use this information for analysis of adverse environmental impacts, even at the program level. Actual sites and site-specific equipment have already been evaluated.

22.7l The environmental analysis must take into account a reasonable range of environmental, economic and technical factors, populations and geographic areas, and specific sites. CEQA § 21159(c). By relying on the generic programmatic disclaimer, and dismissing any further analysis and disclosure on the majority of impacts as "speculative" despite the information that CARB has already collected, the Draft EA has failed to do so.

E. <u>The Record Overstates Benefits and Does Not Support Findings of Overriding Considerations</u>

22.7m Having determined that, at the program level of analysis, many impacts are potentially significant and unavoidable due to uncertainty of mitigation at the project level, CARB must adopt findings that the unavoidable significant impacts are acceptable given the anticipated environmental benefits of the At Berth Regulations, referred to as "overriding considerations." CEQA § 21081, CEQA Guidelines § 15091. However, findings of overriding considerations must be based on substantial evidence. CEQA Guidelines § 15091(b). As discussed in the sections below, and incorporated by reference in this CEQA comment, CARB's evaluation of the benefits of the At

Berth Regulations are overstated. For the same reasons, CEQA findings of overriding considerations are not supported by the overstated evaluation of benefits.

In addition, CARB's CEQA regulations provide for consideration of beneficial as well as adverse environmental impacts of its actions in the Draft EA. 17 CCR 60004.2(a)(3). For this purpose, and again for the same reasons, CARB's evaluation of beneficial environmental impacts is overstated.

F. The Draft EA Errs In Finding Less Than Significant Operational Hazard and Safety Impacts to Tanker Vessels

22.7n In one of the few exceptions to its generic assumption of potentially significant and unavoidable impacts based on uncertainty of project level mitigation, the Draft EA asserts that construction and operational impacts to vessels associated with hazards and hazardous materials will be less than significant. Draft EA, pp. 101 (Impacts 9.B-1 and 9.B-2), 151-152 (cumulative hazard impact). On the contrary, these are the impacts that are most clearly significant and unavoidable, if the At Berth Regulations are adopted as proposed without waiting for a feasibility study to demonstrate that safe and effective compliance technology exists for oil tankers. Indeed, as the ISOR acknowledges (p. III-22): "Regardless of location, safety studies need to be performed to ensure all safety consideration are met, given that the tanker vessels carry explosive cargos." Prior to such studies, the categorical dismissal of hazard impacts as less than significant at the programmatic level is, at the least, premature.

22.7o The hazard and hazardous materials section of the Draft EA (pp. 94-101) focuses on hazards from spills and hazardous materials use during facility construction and operation. Regarding construction and operational impacts to vessels, the Draft EA (p. 101) notes that vessels already utilize safe operation protocols and that vessels based in the United States must comply with Occupational Safety and Health Administration (OSHA) and U.S. EPA standards. However, safety protocols and standards do not yet exist for operating the new vessel emission control technology to be developed for the At Berth Regulations.

22.7p As discussed above, and documented in Exhibit 2 (Woodbridge Marine letter), compliance with the At Berth Regulations as proposed requires emission capture technology for tanker vessels that does not now exist. As detailed in Exhibit 2, by mandating a shore-based control system before such systems have been developed and proven feasible and safe at scale, the At Berth Regulations create serious safety risks with no immediate solutions yet available, including electrostatic hazard, stack pressure maintenance, safe and secure stack connection and emergency disconnection. As a result, the rule threatens to result in "[i]ncreased risk to the operation and also the terminal and vessel directly, including fire, explosion, loss of life and significant pollution events" and also "[s]ignificantly longer operations which also increases the risk of an accident." Exhibit 2, p. 5. Moreover, with only a nonbinding possibility of future amendment to extend compliance deadlines, the At Berth Regulations do not allow sufficient time to develop safe solutions and certify compliance with safety standards that also must be adapted to apply to the untried new technology. Thus, the Draft EA's claim of less than significant safety impacts for vessels is unsupported and implausible on its face.

For hazards associated with shore-side installation of capture and control systems (included in Impact 9.A-2), the Draft EA (pp. 96-100) takes its default approach of finding the impact significant and unavoidable, based on uncertainty of mitigation to be determined by the lead agencies that

review shore-side projects. The Draft EA does include a vague generic statement that accidents can happen but assumes that essentially "the same safety practices would continue to be used":

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> "Hazardous materials that may be classified as flammable, corrosive, or reactive are often transported in ocean-going tanker vessels. Accidents that could occur during the transportation of these hazardous materials could include things such as spills, fires, and explosions that could involve terminal equipment or vessels at berth. As such, there is an inherent need for additional safety measures for all tanker vessels visiting California ports and marine terminals.
>
> Under the Proposed Regulation the same activities which occur at California ports and terminals would continue. The primary change would be the requirements to control at berth emissions. CARB staff believes the most likely control option for tanker vessels would be land-based on capture and control systems. Use of capture and control technology would require additional interfaces at ports, which requires safety management due to the transfer of flammable materials from vessels. Use of these interfaces would be similar to activities already occurring at California ports, where there are interfaces for other purposes. It is assumed that the same safety practices would continue to be used, but that use of capture and control technology would result in increased safety management efforts.
>
> This technology would therefore not increase the risk of the release of hazardous materials."

Draft EA, pp. 99-100. It is unclear what conclusion the Draft EA reaches, since it goes on to state:

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> "Therefore, the requirements of the Proposed Regulation would ***not*** be expected pose significant risk for the public or the environment" (emphasis added) – but, immediately following, states that: "As such, long-term operational-related effects associated with the Proposed Project to hazards and hazardous materials ***could*** be potentially significant." *Id.* (emphasis added).

22.7s

Even so, the Draft EA fails to acknowledge that the At Berth Regulations will cause "[i]ncreased risk to the operation and also the terminal and vessel directly, including fire, explosion, loss of life and significant pollution events" and also "[s]ignificantly longer operations which also increases the risk of an accident." Exhibit 2, p. 5.

22.7t

Instead, the Draft EA (p. 100) assumes that "the same safety practices would continue to be used" though with "increased safety management efforts." By disregarding the risks associated with requiring new and untried technology, the analysis of non-vessel operational hazards posed by the requirements of the At Berth Regulations is also deficient.[12]

22.7u

Moreover, to the extent that the Draft EA (pp. 95-96, 100) relies on project-level mitigation to reduce construction and non-vessel operational impacts to less than significant in Mitigation Measures 9.A-2 and 9.A-2 (which calls for implementation of Mitigation Measure 9.A-1), the

[12] In addition, the tanker landside control system scenario that CARB staff developed for purposes of air pollutant emission calculations describes a hazard risk not mentioned in the Draft EA itself: "Due to the explosive nature of tanker vessel's cargo, emissions control systems that require a burner should be placed far from cargo." Draft EA Attachment B, p. 12.

measures lack any performance standards or potential actions that could feasibly achieve performance standards to reduce fire, explosion and other hazard risks associated with capture and control systems for tanker vessels. (MM 9.A-1 addresses only handling and storage of hazardous materials.) Accordingly, Mitigation Measures 9.A-1 and 9.A-2 fail to comply with the requirement for deferring the development of specific details of mitigation. CEQA Guidelines § 15126.4(a)(1)(B).

G. The Draft EA Erroneously Rejects Impacts to Fire Protection Service as Insignificant

22.7v

Like the vessel hazard analysis, the public services analysis also diverges from the otherwise conservative approach of treating impacts as potentially significant and unavoidable at the program level, to be addressed at the project. Level. Instead, the Draft EA (pp. 123-124, and p. 156 for cumulative impacts) concludes that both short-term construction and long-term operational effects of the At Berth Regulations on public services – including fire protection services – would be less than significant. This conclusion is based on the assumption that compliance with the regulations will not require a large new workforce. "Thus, the provisions of public services would be sufficient because [the] Proposed regulation is not anticipated to result in unplanned increases in population levels. As a result, short-term construction-related and long-term operational-related effects associated with the Proposed Regulation on response time for fire protection… would be **less than significant** (emphasis in original). *Id.* However, this exclusive focus on population-based demand for fire protection completely ignores any increased fire and explosion risk to vessels and to wharf and onshore infrastructure attributable the emission capture and control system itself, as documented in the Woodbridge Marine letter, Exhibit 2. Moreover, the Draft EA is internally inconsistent: though fire protection is dismissed as an insignificant issue in the public services analysis, it is recognized as requiring mitigation in the transportation impact analysis. See Mitigation Measure 17.A-2 (Draft EA, p. 131), requiring local lead agencies for implementation projects to "[c]onsult with and implement recommendations from local fire protection services regarding emergency access requirements." If local lead agencies fail to do so, the Draft EA concludes, the impact would be significant and unavoidable. By the same reasoning, the Draft EA should be revised to acknowledge the impact to fire protection in the public services analysis.

H. The Draft EA Erroneously Ignores Wildfire Risks and Public Safety Power Shutdowns

22.7w

Another issue on which the Draft EA departs from its otherwise conservative program-level approach and assumptions is wildfire risk. The Draft EA (pp. 95, 100) assumes without presenting evidence that, in every case, equipment would be located in areas without substantial open space and vegetation, and summarily concludes that impacts from increased wildfire risk during equipment construction and operation would be less than significant. This is an unreasonably broad conclusion for a programmatic analysis that does not examine conditions at any specific sites. California's recent experience of severe and widespread wildfires extending into developed areas, combined with the need to address safety and fire hazard impacts as discussed above and documented in the Woodbridge Marine letter (Exhibit 2), suggest that the potential impact of increasing wildfire risk should not be so summarily dismissed.

22.7x

California's recent wildfires and wildfire prevention efforts have also raised a new concern with the reliability of electrical systems: the prospect of public safety power shutdowns. The Draft EA considers electricity demand, but incorrectly assumes that electric power will always be available for operating emission control systems. The analysis should be revised to include the consequences of power shutdowns and the need for backup systems.

I. The Draft EA Provides Only Cursory Discussion of Impacts to Biological Resources

22.7y The Draft EA again falls back on the cursory programmatic approach for impacts to biological resources. Briefly acknowledging that "capture and control devices could require the construction of new pilings and surface area", the Draft EA concludes that the "potential for adverse construction-related effects related to these activities on biological resources would mainly be limited to pile driving, installation of piping and staging areas associated with facility modifications." Draft EA, pp. 59-60. The Draft EA notes that construction impacts could temporarily affect special status coastal species (identifying only two species, the California Least Tern and California Brown Pelican); downplays as "unlikely" the adverse turbidity and water quality impacts on subtidal benthic species and communities from dredging activity; and minimizes biological impacts as limited to a few species that occur in industrially developed areas, concluding (without site-specific review) that affected areas are "all highly disturbed and not likely to be supportive of a large range of biological species." Draft EA, pp. 59-60, 63-64.

22.7z In limiting and downplaying its discussion of biological impacts, the Draft EA virtually disregards the setting in which most or all marine terminals are located, surrounded by estuaries, wetlands and other biologically rich coastal areas. Though the Draft EA names only two bird species, hundreds of species of animals and plants are associated with such habitats throughout California, including many protected species.[13] Migrating and breeding fish and marine mammals pass through the area at specific times of year, unmentioned by the Draft EA, although construction work is often confined to limited periods when the species are not present. For example, pile driving within San Francisco Bay is currently restricted to a period from June 1 and November 30 ("fish windows") to protect fisheries and accommodate fish breeding seasons. (Prohibition of construction for substantial parts of the year is another factor that contributing to the long timelines for construction completion as shown in Exhibit 6.)

22.7aa Indeed, the often lengthy duration of CEQA review and permitting for wharf projects is a function of the close oversight of impacts to coastal species and habitat among resource agencies such as California Coastal Commission, State Lands Commission, California Department of Fish & Wildlife, San Francisco Bay Conservation and Development Commission ("SFBCDC"), Regional Water Quality Control Boards, U.S. Fish and Wildlife Service and National Marine Fisheries Service (see, e.g., Exhibit 4, slide 6). Though landside facilities may be highly disturbed, many vessel berths are at the end of long structures projecting for thousands of feet out into marine and estuarine habitats; see Exhibits 4 and 5. Any baseline disturbance attributable to the presence of the existing structures is limited to the narrow footprints of the structures themselves. For example, many vessel berths operate in coastal areas which, by their nature, are located near endangered species habitat and wetlands. With little or no available deck space for installing new capture and control equipment, structural expansion of decking and new crane and electrical equipment support structures must be built out over undisturbed waterways and wetlands, with piles driven into undisturbed submerged lands. Moreover, some agencies such as SFBCDC treat permanent over-water shading as a significant environmental impact, which should recognized at the program level since it will have to be addressed by project-level lead or responsible agencies. Space constraints on the existing structures will also require barge-based construction work, which is slower than onshore work, resulting in longer construction impact periods which may extend over multiple seasons due to "fish window" constraints.

[13] Attachment A to the Draft EA, p. 17 notes that approximately 150 animal and 52 plant special-status species inhabit California coastal areas, wetlands, rivers and vernal pools.

22.7bb CARB's berth-by-berth assessment already contains some information on biological resource impacts, demonstrating that it would not be infeasible or speculative to provide additional analysis in the Draft EA. For example, for at least two tanker berths, CARB has already identified potential wetland impacts from installing land-based capture and control systems and cranes. See ISOR Appendix E, Crude and Tanker Product Vessels table, pp. 3, 5.

J. The Draft EA Ignores the Potential for Significant Land Use Plan Conflicts

22.7cc In assessing conflict with land use plans and policies adopted for the purpose of avoiding or mitigating environmental effects, the Draft EA (pp. 107-108) summarily asserts that *no impact* (not just a less than significant impact) will occur. Here, the Draft EA assumes that construction will take place within existing developed areas in or adjacent to port and terminal footprints, where industrial uses are allowable with existing zoning and conditional use permits, or where local land use authorities may grant variances. Yet elsewhere the Draft EA (p. 59) concedes that "capture and control devices could require the construction of new pilings and surface area" extending over the water. Again, the Draft EA ignores the fact that, though landside work may occur in developed and disturbed areas, many vessel berths are at the end of long structures projecting for thousands of feet out into marine and estuarine habitats; see Exhibits 4 and 5. There is no evaluation or even mention of potential conflicts with the policies and provisions in Local Coastal Programs ("LCPs"), General and Specific Plans (including those serving as LCPs), and regional plans such as SFBCDC's Bay Plan. A multitude of environmentally protective provisions and policies in these land use plans, adopted to avoid or mitigate effects on sensitive coastal areas and wetlands, will apply to compliance projects for the At Berth Regulations. Potential inconsistencies cannot be assumed away on a statewide program level, without any analysis of those plans and policies. Accordingly, land use plan conflicts must be considered an additional potentially significant and unavoidable impact which is not disclosed or analyzed in the Draft EA.

K. The Draft EA Fails to Analyze Relevant Cumulative Impacts

22.7dd The Draft EA must consider cumulative impacts. CEQA Guidelines § 15065, 17 CCR § 60004.2(a)(5). For purposes of cumulative analysis, a lead agency document may choose one of two methods of identifying past, present and reasonably foreseeable future projects whose impacts may combine, together with those of the proposed project, to cause a potentially significant impact. One option is the "list" method, compiling a list of projects in the vicinity of the proposed project or otherwise likely to contribute to impacts together with the proposed project. The other option is the "projections" method, considering the contribution of the proposed project together with projected levels of local or regional growth presented in an adopted planning document, such as a general plan or a regional transportation plan. CEQA Guidelines § 15130.In the Draft EA, CARB has chosen the projections method, relying on projections in a prior Environmental Analysis prepared for the 2016 State Implementation Plan ("SIP") Strategy. Draft EA, p. 139. This approach ignores the fact that compliance for the At Berth Regulations will be projects *at berths*. Rather than comparing to statewide projections developed for purposes of analyzing impacts of air quality improvement measures in the SIP Strategy EA, the Draft EA should have examined cumulative impacts from a project list or projections for projects whose effects could combine with those of this rule. For example, the Draft EA (again relying on the programmatic level of analysis) summarily concludes that cumulative impacts to biological resources may result from implementation of the State SIP Strategy recommended measures together with the At Berth Regulations. *See* Draft EA, pp. 148-149. The State SIP Strategy's recommended measures could, as the Draft EA notes, increase demand for biofuel feedstock production, affecting areas that support biological resources. But the Draft EA ignores much more

relevant contributions to cumulative biological resource impacts from coastal zone residential and industrial development that, together with At Berth Regulations compliance projects, would impact wetlands and other sensitive habitats. The Draft EA disregards projections of regional coastal growth, instead applying a narrow, parochial focused on CARB's air quality jurisdiction which ignores the CEQA mandate to consider the full range of environmental side-effects of the rulemaking.

L. The Draft EA Fails to Analyze Reasonable Alternatives

22.7ee The Draft EA must consider a reasonable range of alternatives to the At Berth Regulations as proposed, which could feasibly attain most of the project objectives but could avoid or substantially lessen significant environmental impacts. CEQA Guidelines § 15126.6, 17 CCR § 60004.2(a)(5). The Draft EA considers a limited set of alternatives, including Alternative 6 which would eliminate tankers from the scope of regulations; Alternative 6 is rejected because it would forego the air quality and GHG benefits to be obtained from regulating tanker emissions. Draft EA, pp. 175-181.

22.7ff However, the Draft EA fails to consider or even mention another reasonable and feasible alternative that has been brought to CARB's attention in the administrative rulemaking process: the "Alternative Proposal for Amendments to At-Berth Regulations" proposed by an industry coalition consisting of the California Association of Port Authorities, Cruise Lines International Association, Pacific Merchant Shipping Association, World Shipping Council and WSPA, by letter dated February 15, 2019 (the "Coalition Alternative"). This is all the more surprising because the Coalition Alternative is considered for non-CEQA purposes as Alternative 3 in the ISOR, pp. X-8 – X-10.

22.7gg With this comment, WSPA formally requests that the Coalition Alternative be addressed in the revised final EA as an alternative under CEQA. A lead agency must consider reasonable and feasible alternatives offered in public comments and must explain why an alternative does not satisfy the project's objectives, does not offer substantial environmental benefits or cannot feasibly be accomplished. *Center for Biological Diversity v. County of San Bernardino* (2010) 185 Cal.App.4th 866, 883.

22.7hh As described in the ISOR, the Coalition Alternative would require feasibility and cost effectiveness studies prior to expansion of existing regulatory requirements. "These feasibility studies would identify cost effective emissions control programs based on reasonable implementation deadlines, safety concerns associated with the use of potential emissions control strategies, infrastructure readiness, and technological feasibility." ISOR, p. X-8. In the ISOR, CARB rejects the Coalition Alternative for non-CEQA purposes, reasoning that it would delay At Berth Rule implementation and the outcome of the infeasibility study is uncertain, thus achieving fewer and less certain reductions in air pollutants and GHG emissions.

Had the Draft EA considered the Coalition Alternative, presumably it would have reached the same conclusion. However, that conclusion is based on a flawed premise: that the At Berth Rule would actually achieve emission reductions sooner and with greater certainty than the Coalition Alternative. As discussed and demonstrated in WSPA's comments herein and submitted previously, the deadlines in the At Berth Rule cannot feasibly be met, and the feasibility study is essential for evaluation and development of safe and effective new technology to comply with the rule. The ISOR's rejection of the Coalition Alternative in comparison to the At Berth Rule is based on a fictitious scenario of compliance timelines that *will not occur*. In considering the Coalition Alternative as a CEQA alternative, the revised final EA should not rely on that flawed premise.

M. CARB Should Utilize Reasonable Objectives in Evaluating Alternatives

22.7ii When evaluating alternatives under CEQA (including the no project alternative), a lead agency must consider whether the alternatives can feasibly satisfy most of the basic objectives of the project. CEQA Guidelines § 15126.6. However, CEQA prohibits framing objectives so narrowly as to preclude reasonable and feasible alternatives to the proposed project; see *In re Bay-Delta Programmatic Environmental Impact Report Coordinated Proceedings*, 43 Cal. 4th 1143, 1166 (2008) ("a lead agency may not give a project's purpose an artificially narrow definition"). Here, one of the project objectives included in the Draft EA refers to timing: "Assist in achieving CARB's proposed strategy to attain health-based federal air quality standards over the next fifteen years as part of nonattainment area Strategy Implementation Plans." Draft EA, p. 164. To the extent that CARB relies on consistency with that objective, it should not be read to preclude modifying the deadlines in the proposed At Berth Regulations to allow a reasonable and feasible period of time for compliance at tanker terminals.

22.7jj Another of the project objectives refers to safety: "Ensure all emission control technologies do not present any safety issues that cannot be addressed with a safety exemption provision." *Id.* For the reasons discussed in these comments, the proposed project itself contains compliance deadlines that do not satisfy this objective.

N. The Draft EA Should Be Revised and Recirculated

22.7kk Correcting the deficiencies discussed in these comments would require the addition of significant new information disclosing new or substantially more severe environmental impacts, thereby triggering recirculation under CEQA Guidelines § 15088.5. Accordingly, CARB must revise and recirculate the Draft EA for additional public disclosure and comment

IV. The Emissions Inventory Contains Incorrect Assumptions and Methodology

22.8

A. Staff's Tanker Emissions Growth Assumptions are Not Realistic and Contradict CARB's Own Regulatory Objectives Related to Fossil Fuel Use in California

Staff relies on two different sources to model the growth of emissions from tankers. For POLA and POLB, data were based on a report developed by Mercator in 2016 to identify long-term shipping trends and identify the risk of cargo diversion. *See* Mercator International LLC, San Pedro Bay Long-term Unconstrained Cargo Forecast (July 12, 2016). For the remaining areas, Staff relied on the Freight Analysis Framework ("FAF") developed by the Center for Transportation Analysis. Both reports present anticipated macroeconomic scenarios that lack sufficient detail to properly and specifically model expected future tanker emissions, because they do not consider any constraints particular to the tanker industry such as vessel draft limits and pipeline connection capacities. Secondly, Staff has applied expected growth in tanker activity across all the baseline 2016 tanker visits. This assumption misses the mark on real trends and even contradicts the stated goals of CARB's own policies related to fossil fuel (which generally seek to diminish fossil fuel use in California, not grow it). WSPA asks Staff to re-evaluate the results of their analysis and assume more realistic trends in the shipping industry, consistent with real-world data and CARB's own statewide fossil fuel regulatory policies and goals.

Staff also incorrectly applies inflated growth factors to expected future tanker traffic at POLA and POLB. In an attempt to identify long-term shipping trends and the risks of cargo diversion from POLA and POLB, Staff again relies on the Mercator Report. The Mercator Report forecasts

increases of roughly 50% in exports of ***non-crude oil*** (identified in the report as "refined products") between 2015 and 2040. *See* Mercator Report, pp. 17-18. Importantly, over that same period, the Report also forecasts modest ***declines*** in both crude oil and non-crude oil imports. *Id.*, pp. 17, 126. In the SRIA, Staff claims that these results support an estimated 57% growth in ***all*** "activity" at POLA and POLB between 2021 and 2032. *See* SRIA, p. 31.

Attempting to apply these numbers to anticipated future tanker traffic in California misapplies the Mercator Report and ignores real-world data. Based on 2016 data from the U.S. Energy Information Administration for Petroleum Administration for Defense District (PADD) 5, nearly 77% of all imports to the West Coast are crude oil. Even the Mercator Report reflects that, as recently as 2014, more than 68% of all liquid bulk volume at POLA and POLB was attributable to crude oil imports. *See* Mercator Report, p. 110. Given that tanker activity at the Ports predominantly represents crude oil imports, the Mercator Report does not support the notion that all tanker "activity" in California will grow by anything approaching 57% through 2032. Indeed, according to the Mercator Report, crude oil imports into POLA and POLB are forecasted to ***decline*** through 2032 and beyond. *See* Mercator Report, pp. 117-119.

The result of this incorrect reading of the Mercator Report is a dramatically overestimated growth rate for tanker emissions. Pumping emissions associated with tanker traffic should be generally declining as crude oil imports decline over time, not increasing at the rate Staff has asserted. This incorrect assumption is a fundamental flaw in Staff's analysis of claimed emissions savings associated with the At Berth Regulations.

B. Staff Incorrectly Assumes That No Tier III Vessels Will Be in Service By 2030

As one of its fundamental justifications for the At Berth Regulations, Staff assumes that no marine vessels meeting the International Maritime Organization's Tier III emissions standards will be calling at California terminals until 2030 at the soonest. Staff Report, App. H ("2019 Update to Inventory for Ocean-Going Vessels at Berth: Methodology and Results"), pp. H-6, H-36 to H-37. Comments submitted to CARB earlier in this rulemaking document that this assumption is incorrect and ignores real-world evidence to the contrary.

22.9

For example, Chevron's Richmond Long Wharf (RLW) acquired two Tier III-equivalent vessels in 2018. *See* Staff Report, Appx. H, p. H-25. Specifically, Chevron operates two Suezmax-sized tankers that lighter nearly 70% of the Richmond Refinery's deliveries of crude to RLW. These tankers use superheated steam auxiliary boilers and turbogenerators to generate electricity in low-emission mode, which yield no diesel particulate matter (DPM) and emit NOx emissions lower than those produced by Tier III-qualifying diesel engines (*i.e.*, on the order of 0.78 g/kWh, versus the Tier III 2.31 g/kWh NOx limit for a 900 rpm diesel generator). Chevron expects that fully one-third of Chevron's fleet will meet the Tier III standards by 2021 – more than nine years before Staff's assumed first date of Tier III vessel service at California terminals. Chevron anticipates that 55% of vessels visiting RLW will be Tier III compliant by 2030, and 80% will be compliant by 2035 – conclusions consistent with a separate third-party study estimating roughly 50% Tier III vessels visiting RLW by 2030. *See* Letter dated Feb. 15, 2019 from Henry T. Perea to Cynthia Marvin (attached hereto as Exhibit 8), p. 3 (Figure 1-1)

The available evidence contradicts Staff's assumption of zero Tier III vessel visits at terminals before 2030. Because Tier III-compliant vessels emit substantially less NOx per kilowatt-hour on average than Staff's assumed future vessel mix, Staff's assumption of future NOx emissions at terminals also is at odds with actual real-world experience. Indeed, based on these facts, the At

Berth Regulations would be relevant in meeting targeted emissions reductions for less than 5 years at most, before the influx of Tier III vessels will yield overall fleet NOx reductions that meet or exceed the reductions coming from the At Berth Regulations. Moreover, the types of on-board emission control associated with Tier III compliance would provide emissions reductions throughout the entire Emission Control Area (ECA) (i.e., during vessel transit and maneuvering), while the benefits anticipated by the At Berth Regulations would only accrue while vessels are at berth.[14]

Neither the ISOR nor the At Berth Regulations account for these facts. Were Staff to apply the correct assumptions consistent with real-world data, it would be forced to conclude that the cost-effectiveness of the At Berth Regulations is far less than that claimed in the Staff Report materials. It is also likely that alternatives to the At Berth Regulations would prove to be far more cost-effective in achieving real-world NOx emissions reductions.

C. Staff Overestimates Pumping Activity of Tankers At Berth at Terminals

22.10a

Staff's at berth emissions inventory is also unrealistically high because it overestimates actual tanker pumping activity at berth. Specifically, Staff makes the incorrect assumption that tankers that berth at marine terminals have the same activity mode profile as tankers that berth at POLA/POLB (*i.e.*, actively pumping product 85% to 100% of the time they are at berth). *See* Staff Report, Appx. H, pp. H-21 to H-25. This is contradicted by evidence Chevron submitted to staff concerning real-world experience at Richmond Long Wharf ("RLW"). *See* Exhibit 8, p. 4. This data shows that vessels at berth (particularly non-Suezmax vessels) actually spend significant periods of time either loading by gravity feed or idling – two modes with lower overall emission rates versus times of active pumping. Thus, rather than simply assuming only two operating modes for tankers at berth – "Discharging" and "Other/Loading" – Staff should gather additional information from the ports and terminals to account for the different emissions occurring during pumping, ballasting and idling/hoteling, and use this information to arrive at a more accurate estimate of actual at berth emissions.

While Staff acknowledges the RLW data, it apparently refuses to accept the data as illustrative of any terminal's operation besides RLW. *See* Staff Report, Appx. H, pp. H-24, H-25 (separately listing discharging/loading times and resulting boiler effective power for tankers for "Richmond" and for "Rest of CA (based on POLA/POLB)"). Rather, Staff simply assumes that vessels at all other California terminals will have the same effective power loads as vessels calling at POLA/POLB – i.e., pumping 85%-100% of the time. *See* Staff Report, Appx. H, p. H-21, H-24.

This assumption does not find support in real-world practice. The mix of vessel types and operations calling to service refineries varies. Due to draft limitations, the POLB has California's only deepwater berth that can accept Very Large Crude Carriers (VLCCs) and Ultra Large Crude Carriers (ULCCs), which Staff notes engage in discharge pumping 100% of the time while at berth. In contrast, most of California's other marine terminals cannot host VLCCs and ULCCs, and vessels that do call on the terminals typically spend less of their time at-berth in an active pumping mode. This real-world evidence belies Staff's assumption that the other California's marine terminals see identical vessel types and operations as those found at the POLA/POLB.

[14] Staff also ignores the effects of other emissions mitigation measures already routinely employed on tankers at berth, including the fact that tankers currently utilize boiler emissions for use as inert gas in cargo tanks, which reduced the risk of explosion of hydrocarbon vapor in those tanks. The use of this boiler gas as a cargo inerting gas serves to reduce boiler emissions by 25%.

22.10b Moreover, it appears that there is an error in Staff's adjustment of the emissions inventory to account for the two Chevron Tier III-equivalent ships that started service in 2018. *See* Staff Report, Appx. H, p. H-25. Staff refers to the vessel class of the two ships as "Seawaymax." This is incorrect; the vessel class introduced was actually Suezmax. Since it appears Staff estimated adjusted effective power incorrectly assuming these two vessels to be Seawaymax, Staff must correct their calculations to properly reflect that the two vessels are Suezmax.

D. Staff Overestimates Future Growth of Vessel Visits at Terminals

22.10c Staff also continues to assume unrealistically high future vessel traffic growth at California terminals, predicting that tanker visits will grow between 25.4% and 318.2% by 2050. WSPA requests Staff include a section of the inventory report illustrating why growth was applied as it was. First, real-world data simply does not support such extreme predictions in growth at California terminals. For example, actual vessel calls at RLW between 2007 and 2017 experienced net growth of closer to 1% over that ten-year period, with fairly cyclical growth and declines in vessel visits within that period year-to-year. *See* Exhibit 8, p. 8. Using this data as a guide, total vessel growth rate at RLW by 2050 would be expected to be around 4% in aggregate. This growth assumption is very different than that assumed by Staff and yields a much lower forecast of future growth at the terminals based on real-world data.

Moreover, it appears Staff have not considered the carrying capacity of a tanker when applying the growth factor. Equating growth in tanker vessel visits to growth in total tonnage throughput neglects the fact that different vessels carry a range of different volumes.

- To illustrate this issue, a 400,000-ton increase in freight throughput is a year could represent 1% growth in overall tonnage, but based on vessel DWT, it would be possible for just two Suezmax vessels to carry that additional volume. Applying a 1% growth factor to a baseline number of vessels as Staff has done could yield a higher number than 2 additional vessel visits (for example, for the Richmond Complex, which had 400 tanker visits in 2016, a 1% growth factor would assume four additional tanker trips per year).

- As Staff's proposed methodology is applied over a longer period (e.g., 10 years), the difference between the anticipated number of vessels and actual vessel calls could compound, as Staff continues to ignore the larger carrying capacities of each vessel. In the example of the Richmond Complex, applying Staff's proposed method would yield an estimate of 4,627 vessels needed to physically carry the anticipated volume between 2016 and 2026, rather than 4,510 vessels that would actually be required to physically carry the volume.

For these reasons, Staff's estimates of future terminal growth result in a gross overestimation of likely future baseline emissions at marine terminals.

V. Staff's Methodology for Estimating Health Impacts is Flawed

This section incorporates comments on technical flaws with the novel methodology utilized in the ISOR, as explained in a memorandum provided by air quality expert Gary Rubenstein of Foulweather Consulting, attached hereto as Exhibit 9.

22.11a

A. Staff's Assumption that DPM Health Values Can Be Assigned to Emissions from Marine Engines Operating on MGO, MDO or HFO is Inappropriate and Unfounded

In the Health Analyses document for the At Berth Regulations (Appendix G to the ISOR), Staff assumes that the cancer potency factor ("CPF") and chronic reference exposure level ("REL") for DPM are applicable to the particulate emissions from ocean-going vessel marine engines fueled with marine gas oil ("MGO"), marine diesel oil ("MDO"), and marine heavy fuel oil ("HFO"). *See* Staff Report, Appx. G, p. 3. This is inappropriate. The original DPM CPF and REL established by CARB were based largely on health effects studies looking at the exposure of railway workers to ***locomotive*** diesel engine exhaust from 1960s-vintage locomotives. Despite this limitation, Staff now seeks to apply the same CPF and REL to ***all*** modern compression ignition auxiliary engines using diesel fuel on ocean-going vessels, including those compression ignition engines equipped with diesel oxidation catalysts and diesel particulate filters – both of which have been documented to fundamentally change the chemical nature of DPM.[15]

Instead of extrapolating health-effects data based on 50-year-old technologies and fuels, Staff should assess the health impacts of modern auxiliary engines operated on fuels other than diesel fuel based on speciated composition of the exhaust for these engines, as CARB does in its risk assessments for engines using other fuels (such as gasoline, ethanol, and natural gas). The ISOR provides no explanation as to why Staff rely on such old and inapposite data, when more recent data from modern auxiliary engines is available and potentially more probative.

B. The Results of the Health Analyses Should be Placed Into Proper Context

In its 2015 Risk Management Guidance, CARB warns that changes to risk assessment methodologies have resulted in increased calculated risk values, even though a facility has not changed its operations in a way that actually negatively affects public health in the real world.

22.11b

> "One significant area of focus is how best to communicate what impact these methodology changes will have on health risk estimates, what those new risk estimates mean, and how best to manage sources and programs in a reasonable and health protective manner. The procedures in the new OEHHA Manual will typically result in a higher estimated cancer risk from a facility even though they [the facility] use control technology and are actually maintaining or reducing its emissions. As a result, it is a challenge to communicate the new information in a way that ensures the public's right to know but does not imply that the facility has changed its operations or emissions in a way that negatively affects public health."[16]

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[15] See, e.g., *Advanced Collaborative Emissions Study (ACES): Lifetime Cancer and Non-Cancer Assessment in Rats Exposed to New- Technology Diesel Exhaust*. Health Effects Institute. Research Report 184. (January 2015)

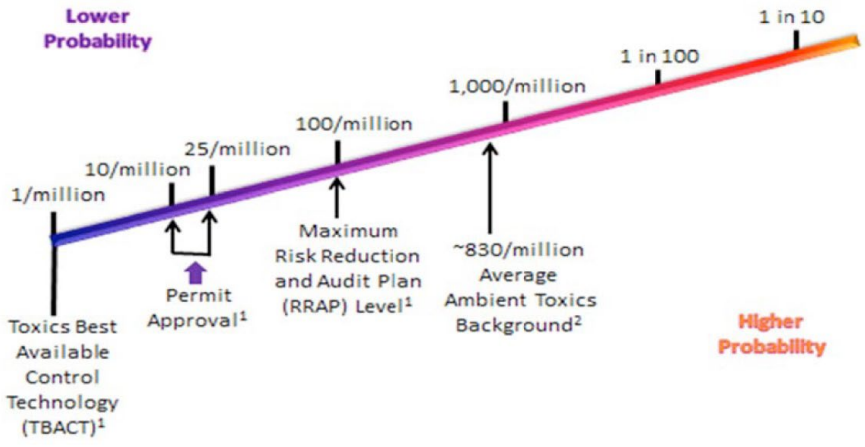
[16] *Risk Management Guidance for Stationary Sources of Air Toxics*, CARB and CAPCOA. July 23, 2015. pp. 2-3. https://www.arb.ca.gov/toxics/rma/rmgssat.pdf

The Health Analyses document does not present this background information to help the public understand the implications of the calculated risk values. This tends to mislead the average reader into thinking that the risk associated with vessels at-berth is significantly greater than normal, when the evidence actually supports the conclusion that incremental risks are far lower at the California Ports and terminals than those risks faces by an average individual living in California.

In contrast to the 2015 Risk Management Guidance, in the ISOR Staff concludes that "[e]missions from ocean-going vessels operating at berth are a significant and growing contributor to community air pollution and associated health impacts." ISOR, p. VI-1. However, nowhere does Staff compare the emissions or potential health impacts attributable to OGVs at-berth with other sources of criteria air pollutants or toxic air contaminants that Californians are exposed to each day. For example, the ISOR indicates that baseline (2016) maximum exposed individual incremental cancer risk (MEIR) attributable to ships at-berth is 74-in-a-million at the Ports of Los Angeles and Long Beach (POLA and POLB), and 16-in-a-million at the Richmond Complex (the Port of Richmond and the Chevron refinery berths). ISOR, p. V-14. While these incremental risks apply to individuals living within a relatively small distance from these two port complexes, CARB estimates that the average individual living in California is exposed to an incremental cancer risk attributable to diesel particulate matter (DPM) of approximately 520-in-a million.[17]

Furthermore, as the following graphic (from CARB's 2015 Risk Management Guidance) shows, CARB recommends development of a risk reduction plan if calculated risk levels exceed 100-in-a-million.[18] The At Berth Regulations ignore these guidelines by, in effect, imposing a risk reduction plan on a collection of sources (such as a port complex) at much lower levels, when such a plan would not be required for an individual stationary source with the same calculated risk level.

Figure II-2: Health Risk – A Relative Perspective



[17] https://ww2.arb.ca.gov/resources/overview-diesel-exhaust-and-health . Accessed 11/7/2019.
[18] *Risk Management Guidance for Stationary Sources of Air Toxics*, CARB and CAPCOA. July 23, 2015. p. 17. https://www.arb.ca.gov/toxics/rma/rmgssat.pdf

C. CARB's Claim That The At Berth Regulations Would Avoid $2.3 Billion in Health Impacts is Not Supported by Sound Science

22.11c

Staff's Health Analyses (ISOR Appx. G) ascribe a statewide benefit of $2.245 billion[19] to the avoided adverse health outcomes attributable to the proposed At Berth Regulations. Fully 99.8% of this benefit is claimed to be associated with avoided premature deaths, and 87% of the claimed reduction in avoided premature deaths is associated with reductions in oxides of nitrogen (NOx) emissions. These avoided premature deaths attributable to NOx reductions are, in turn, attributed to the formation of particulate ammonium nitrate in a photochemical reaction that CARB acknowledges occurs well downwind of the emission source (and only after the concentrations have been substantially reduced due to dispersion) – and hence, not in the communities nearest the ports.

Relatively little formation of ammonium nitrate occurs in close proximity to the emission source, where dispersion is relatively low. Formation of ammonium nitrate increases over time (and with distance from the source), as does dispersion. While Staff's analysis is not clearly presented, Staff does not appear to address these factors in calculating reduced ambient concentrations of ammonium nitrate particulates and the associated avoided adverse health outcomes. These factors must be properly accounted for in order to get a true picture of avoided premature deaths.

D. Staff's Assumptions as to Ambient Concentrations of PM2.5 are Unexplained and Unsupported

22.11d

In the Health Analyses (ISOR, Appx. G, p. G-15, G-51), Staff indicates that they used the AERMOD model to estimate reductions in ambient concentrations of $PM_{2.5}$. However, AERMOD does not contain algorithms that model the photochemical reactions that convert oxides of nitrogen emissions to secondary ammonium nitrate. While the Health Analyses document is silent as to exactly how Staff calculates the health benefits of NOx emission reductions, it appears (from the discussion at pp. G-53 to G-57) that Staff scaled the modeled $PM_{2.5}$ concentrations by the ratio of NOx emissions from sources subject to the proposed rule to modeled $PM_{2.5}$ emissions, with the further assumption that most, if not all, of the NOx emissions are converted into secondary ammonium nitrate because "[i]mpacts are assumed to take place over a wide geographic area." ISOR, Appx. G, p. G-56. If this was, in fact, Staff's assumption, it is inconsistent with both the physical science and with the approach used by both CARB and California air districts to model ambient $PM_{2.5}$ concentrations for State Implementation Plan purposes.

Moreover, Staff's assumption regarding the expected reduction in ambient nitrate concentrations attributed to the At Berth Regulations is not based on a methodology consistent with current USEPA guidance. USEPA guidance for addressing secondary nitrate formation in dispersion modeling analyses under the Prevention of Significant Deterioration (PSD) program[20] establishes a two-step process for evaluation:

[19] CARB's Initial Statement of Reasons asserts that "Total costs for all entities exceeding $2.2 billion through 2032, with a statewide valuation of avoided health impacts valued around $2.3 billion." In fact, the actual values reported in CARB's report are $2,245,207,000 for avoided health impacts, and $2,164,319,000 for net costs.

[20] Guidance on the Development of Modeled Emission Rates for Precursors (MERPs) as a Tier I Demonstration Tool for Ozone and $PM_{2.5}$ under the PSD Permitting Program (EPA 454/R-19-003). (April 2019)

- A simple screening tool based on the use of Modeled Emission Rates for Precursors (MERPs); or
- Direct analysis using a photochemical model such as CMAQ.

The fact that USEPA's guidance on this point applies to a specific regulatory program (i.e., the PSD permit program) does not undermine the fundamental science – the methodology is applicable both to individual point sources and to "a group of sources in the area." The ports assessed in CARB's Health Analysis clearly fall within that second category. However, CARB's analysis of the potential health benefits of NOx emission reductions attributable to the proposed rule is not consistent with either of the two steps EPA recommends.

VI. Implementation of the At Berth Regulations Will Be Far More Costly and Less Cost-Effective Than Staff Claims

22.12

As discussed above, California law requires CARB to document the anticipated costs and adverse economic impacts of the At Berth Regulations, and to show that the At Berth Regulations as proposed are cost-effective and "minimize[s] costs and maximize[s] the total benefits to California." *See* HSC §§ 38505, 38560, 38562, 39602.5, 43013, 43018; Cal. Gov. Code §§ 11346.3, 11346.5. CARB also must demonstrate that the At Berth Regulations will not force greenhouse gas-producing ship commerce to simply relocate their activities outside California. *See* HSC §§ 38505(j), 38562.

In addition, under California law CARB must complete a Standardized Regulatory Impact Assessment ("SRIA") if a proposed regulation will have an estimated economic impact on Californians of over $50 million. *See* Cal. Gov. Code § 11346.3(c), 11346.36; 1 CCR §§ 2000(g), 2002. The SRIA must address, at a minimum:

- The creation or elimination of jobs within the state.
- The creation of new businesses or the elimination of existing businesses within the state.
- The competitive advantages or disadvantages for businesses currently doing business within the state.
- The increase or decrease of investment in the state.
- The incentives for innovation in products, materials, or processes.
- The benefits of the regulations, including, but not limited to, benefits to the health, safety, and welfare of California residents, worker safety, and the state's environment and quality of life, among any other benefits identified by the agency.
- Identification of each regulatory alternative for addressing the stated need for the proposed major regulation, including each alternative that was provided by the public or another governmental agency and each alternative that the agency considered; all costs and all benefits of each regulatory alternative considered; and the reasons for rejecting each alternative.
- A description and explanation of:
    - The economic impact method and approach, including the underlying assumptions the agency used and the rationale and basis for those assumptions;
    - The specific categories of individuals and business enterprises who would be affected by the proposed major regulation;
    - The inputs into the assessment of the economic impact;
    - The outputs from the assessment of the economic impact; and
    - The agency's interpretation of the results of the assessment of the economic impact.

Cal. Gov. Code § 11346.3(c)(1); 1 CCR § 2002.

As proposed, the At Berth Regulations would impose significantly greater costs of compliance than the ISOR estimates, with less overall emissions benefit than Staff claims. Moreover, the SRIA for the At Berth Regulations (ISOR, App. C-1) fails to fully address the topics required by law, downplaying or ignoring key adverse impacts the At Berth Regulations are likely to have on the California economy and California residents.

A. Staff Systematically Understates or Ignores Key Categories of Compliance Costs Associated With the At Berth Regulation

While WSPA appreciates that Staff have incorporated many of the additional costs identified in WSPA's May 30, 2019 comment letter to CARB on the At Berth Regulations, WSPA remains concerned that Staff still systematically underestimates the costs of compliance with the At Berth Regulations.

Perhaps most fundamentally, in the absence of a feasibility study, cost conclusions in the ISOR and SRIA are speculative at best, if not totally unfounded. Staff starts with the premise that a shore-based emissions capture and control system will be feasible for use with tankers, yet neither the SRIA nor the ISOR identifies any evidence that such a system has been demonstrated in practice at scale for a tanker, whether that be at a public port or private marine terminal. All subsequent claims of costs, economic and fiscal impacts, benefits and cost savings in the ISOR and SRIA depend on that flawed assumption, and so they themselves are not sufficiently supported. That alone renders Staff's estimates of cost impacts inadequate under the applicable regulations because Staff fails to articulate supportable assumptions, inaccurately identifies the anticipated economic impacts, and undervalues the benefits of alternatives to the proposed regulation.

Moreover, Staff's assumed annual industry growth factors (*see* SRIA, Appx. C-1, p. 67) are based entirely on the FAF, and do not appear to account for any input from operators on real-world expected growth. The FAF provides a broad national overview of several sectors of freight transportation and is not uniquely designed to forecast specific industry growth between now and 2050 among ports and private marine terminals in California serving the marine vessels at issue. Staff also does not describe what adverse impacts it believes the At Berth Regulations ***itself*** will have on future industry growth, and the rationale for that assumption.

Staff also significantly underestimates the total and per-unit indirect costs of the At Berth Regulations and overestimates the percentage of those costs that are likely to be passed on to consumers. Staff characterizes indirect costs to consumers as a per-gallon cost equivalent to total annualized compliance costs in 2030 divided by estimated total gallons of gasoline purchased by California consumers in 2030. *See* Appx. C-1 (SRIA), p. 96. This is based on Staff's assumption that ***all*** costs imposed by the At Berth Regulations will be passed on to the ultimate consumer. See Appx. C-1 (SRIA), pp. 17, 96. Neither the ISOR nor the SRIA contains any articulated basis for this assumption – and actual experience at the Ports and terminals shows that not all regulatory compliance costs can be passed onto California consumers or represented on a simple per-gallon-of-transported-fuel basis. To the extent that consumers are unwilling to take on additional per-gallon fuel costs associated with this regulation, industry will be forced to absorb those costs, and Staff has done no analysis of what adverse impacts to industry and California's economy could occur as a result of industry having to shoulder these additional costs.

In addition, as discussed above, because estimates of real-world growth at ports and terminals (*see* Exhibit 8, p. 8 for example of actual vessel call trends between 2007 and 2017) are far lower than the extreme growth predictions advanced by Staff, indirect costs for individuals will be spread over far fewer gallons of throughput in the future than Staff claims, resulting in much higher per-unit indirect costs of the At Berth Regulations. Overstating anticipated future growth at ports and terminals tends to both overstate anticipated future emissions and exaggerate the product throughput over which regulated parties will have to attempt to recoup costs (if possible). The inflated growth estimates also exaggerate the amount of emission reductions Staff claims the At Berth Regulations will achieve. Thus, in both the ISOR and SRIA, Staff systematically inflate promised emissions benefits while understating future direct and indirect compliance costs, meaning that the At Berth Regulations will be far less cost effective than Staff claims.

Finally, it appears Staff has made a number of assumptions in the SRIA based on a 2017 baseline year, yet the emissions inventory consistently uses a baseline year of 2016. Compare SRIA, p. 26, 38-39, 65, 73, 88 & App. C (using 2017 as a baseline year) with ISOR, p. V-2 (noting use of 2016 as baseline year for modeling). The difference in the number of tanker visits between these two years is substantial. Vessel visits in 2016 totaled 1,628; in 2017, vessel visits totaled 1,272. The difference in these totals is significant. WSPA is concerned that by using the 2017 vessel count instead of a 2016 count, Staff may be assuming a lower cost of implementation than would otherwise result from using the 2016 baseline. We recommend that Staff set the Inventory and the SRIA in the same baseline year or explain why it must use different baseline years between the emission inventory and the SRIA.

B. Staff Fails to Discuss the Potential Negative Impacts of the At Berth Regulations on California Commerce and Competitiveness, or the Potential for Leakage Associated with Cargo Diversion

22.13 Neither the ISOR nor the SRIA discusses the potential for the At Berth Regulations to impede international and interstate commerce into California, which could easily lead to vessel traffic increasingly finding other ports of call outside California. Indeed, Staff in the SRIA all but abandon any effort to quantify adverse impacts to commerce or competitiveness. *See* Appx. C-1 (SRIA), p. 126 (claiming that, "[t]o date, the available data and research has been insufficient to quantify the impact on the competitive advantage or disadvantage of the Proposed Regulation as it relates to cargo diversion.")

California law requires Staff to do more than throw up its hands at the prospect of assessing potential adverse impacts to commerce and competitiveness. *See* 1 CCR 2002 (CARB is mandated to identify and analyze "competitive advantages or disadvantages for businesses currently doing business within the state"). Because real-world direct and indirect compliance costs likely will be significantly higher than Staff's estimates, more capital costs will be needed for At Berth Regulations compliance (instead of potential upgrades designed to keeping the ports and terminals market-competitive), future development and expansion of California ports and terminals could suffer, operation and transportation costs could increase, and cargo may seek other, less costly points of entry (and indeed, documentation presented to CARB to date shows that such diversion is likely to occur).

Regulated ports and terminals have articulated to Staff throughout this rulemaking process that the At Berth Regulations will substantially increase compliance costs for California ports and

terminals relative to other freight hubs and ports/terminals in other states. The natural tendency of any free market will be to seek out less expensive freight hubs and modes of transport. If marine vessels seek less expensive ports and terminals outside California, the At Berth Regulations will have resulted in greenhouse gas "leakage" (i.e., a reduction in California greenhouse gases at the cost of more-than-offsetting increases in greenhouse gases outside California.) Indeed, if and when marine vessels are diverted, the result would be a net ***increase*** in GHG emissions because of the greater distance vessels would need to travel to (a) get to a non-California port or terminal, and (b) get the commodity from that new state to the consumer. Neither the ISOR nor the SRIA have accounted for or assessed the potential for these adverse impacts on California commerce, or the potential for "leakage."

***

22.14 WSPA believes the Government Code, Health and Safety Code and other California laws and regulations require CARB to revise its current rulemaking timetable to allow for proper preparation and consideration of feasibility, cost effectiveness and timelines. *See*, *e.g.*, HSC §§ 38560, 39602.5, 39665, 43013; *see also* Gov. Code § 11346.36 & 1 C.C.R. §§ 2000-2004 (SRIA requirements to assess At Berth Regulations cost impact on public health and safety, fairness and social equity, state's economy and other criteria). We would request that, at the very least, CARB include in its proposed At Berth Regulations language that allows for a feasibility evaluation study and an appropriate delay in regulatory implementation in the event the feasibility evaluation study concludes that shore-based technologies and/or other elements of the At Berth Regulations are not feasible in the regulatory timeframes provided.

WSPA appreciates this opportunity comment on the Proposed At Berth Regulations. If you have any questions regarding this submittal, please contact me at this office or Tom Umenhofer of my staff at (805) 705-9142 or via email at tom@wspa.org.

Sincerely,



cc: Tom Umenhofer – WSPA
Richard Corey - CARB

Exhibit 1: WSPA Comment Letter (March 29, 2019)

WSPA

Thomas A. Umenhofer, CCM, REPA
Vice President

March 29, 2019

Ms. Cynthia Marvin
Chief, Transportation and Toxics Division
California Air Resources Board
1001 I Street
Sacramento, California 95812

Re: WSPA Comments on CARB Discussion Draft - Control Measure for Ocean-Going Vessels At Berth and At Anchor

Dear Cynthia,

Western States Petroleum Association (WSPA) appreciates this opportunity to provide initial feedback on the California Air Resources Board (CARB) Discussion Draft - Control Measure for Ocean-Going Vessels At Berth and At Anchor, dated February 22, 2019 and the CARB Staff Analysis of Potential Emission Reduction Strategies by Port/Terminal/Berth For (Crude and Product) Tanker Vessels, Dated February 22, 2019. WSPA is providing these comments as part of a continuing effort to provide feedback on the At-Berth At Anchor pre-regulatory process. WSPA is a non-profit trade association representing companies that explore for, produce, refine, transport and market petroleum, petroleum products, natural gas and other energy supplies in California and four other western states.

CARB staff recently provided three documents for stakeholder review:

- Discussion Draft - Control Measure for Ocean-Going Vessels At Berth and At Anchor (dated February 22, 2019),
- Updated Tanker Implementation Schedule – For Vessels Above Port/Port Complex and Terminal Thresholds (dated February 19, 2019).
- CARB Staff Analysis of Potential Emission Reduction Strategies by Port/Terminal/Berth for (Crude and Product) Tanker Vessels (dated February 22, 2019).

Provided below is WSPA's feedback on these documents.

Discussion Draft - Control Measure for Ocean-Going Vessels At Berth and At Anchor

I. Provision: every visit must use a CARB-approved emission strategy, with some limited exception

22.15

Table 3 (Compliance Responses for All Vessel Types Where Emissions are Not Controlled as Required During Vessel Visit) identifies compliance responsible parties for vessels and marine terminals. Based on the current status of control options for oil tankers, it is apparent that all oil tankers and tanker marine terminals would fall into one category: "Exception". This is due to the fact that no emission control technology currently identified is feasible for tanker operations. Specifically, the interface between any control strategy (barge-based emission capture, land-

based emission capture or electrification) and a tanker (in addition to the control device itself) have had no certifications and are not endorsed by a class society. Therefore for safety reasons alone (in the absence of class society certifications), the "Exemption" category is appropriate under the safety/emergency circumstance in Table 3.

II. Provision: CARB staff will conduct an interim evaluation of the At berth program and report to the Board

22.16

In this conceptual provision, CARB staff will review and report to the CARB Governing Board the status of at berth emission control technologies for Ro-Ros and tankers, progress in installing the land-side infrastructure required to support at berth control systems by 2023. This report to the Governing Board will advise the Governing Board as to whether there is a need to develop any amendments to the regulation.

WSPA agrees with this requirement for a report to the CARB Governing Board. However, the timing presents a significant challenge. Provided the infrastructure required to support the land-based capture system, if technology barriers exist into 2023, the four to six years between the review and compliance date for the southern and norther ports respectively is not sufficient to complete a project, and be in compliance.

WSPA does not believe the timeline should require an entity to design infrastructure for a technology while the technology is still in development. As the ongoing development to enable a capture device to function properly on tankers could change the infrastructure requirements to support the system.

As noted in the Industry Coalition Alternative Proposal[1], the report must include key elements such as:

- Reporting compliance methodologies and evaluation benchmarks consistent with the current staff proposal for Bulk vessels.
- Feasibility study to identify cost effective emission control programs for all vessel categories based on reasonable implementation deadlines, safety concerns, and technological feasibility.

The feasibility study aspect of the report to the CARB Governing Board should be conducted in cooperation with all industry stakeholders, and be based on data which is made publicly available during study development,

With regard the 2023 reporting date, WSPA believes that subsequent feasibility "check-in" dates with the CARB Governing Board be included (i.e., 2025, 2028, 2031) to assess whether the proposed implementation deadlines remain viable or can be accelerated through additional amendments to the rule.

[1] Industry Coalition Comment Letter, "Alternative Proposal for Amendments to At-Berth Regulations", to Cynthia Marvin, CARB, February 15, 2019.

Updated Tanker Implementation Schedule

22.17 This updated implementation table for tankers cites 2027 and 2029 as deadlines for the installation of control systems for DPM and NOx at POLA/LB and other marine terminals, respectively. It is understood that the two different dates was an attempt by CARB staff to stage implementation. Given that no technology has been design, demonstrated or certified by an international authoritative body, neither implementation date (2027 or 2029) allows sufficient time for development, design, approval, CEQA review, multiple agency permitting, procurement, construction, and commissioning of any emission reduction system, regardless if the marine terminal is located in a port or other locations.

As specified in the Industry Coalition Alternative Proposal, WSPA supports tankers to report in a similar fashion as bulk fleets along with Ports and Marine Terminal Operators serving currently unregulated fleets. If a date were to be retained in the Tanker Implementation Schedule, the proposed implementation date (subject to re-evaluation) should be no earlier than 10 years following the identification of a feasible technology.

CARB Staff Analysis of Potential Emission Reduction Strategies by Port/Terminal/Berth for (Crude and Product) Tanker Vessels

22.18 **Barge-Based Emission Control Systems**

The conclusion of the review by CARB for some tanker marine terminals should be able to rely on single or shared barge-based capture and control systems. As WSPA has clearly stated in previous documentation (Enclosure A) provided to CARB staff, there are significant safety concerns with barge-based capture and control systems as a strategy to reduce or eliminate emissions at berth. The following list highlights some significant concerns:

- Docking pilots indicate that environmental conditions (current, wind, etc.) combined with increased vessel activity in the limited maneuvering basin may raise risks (e.g. collision, allision, grounding, line failure, etc.) to higher than acceptable levels.
- The mooring system may not be adequate for handling additional loads created by mooring a barge alongside a tanker at berth. The current barge-based emission control systems operating in California are too small to process tanker boiler emissions. Thus, barge-based systems 3-4 times larger than exist today would need to be designed and constructed. A robust analysis of mooring loads will consequently need to take place.
- Currently available undersized barges have not been tested with large marine boilers.
- There are concerns on how a balanced combustion path will be maintained to prevent dangers like boiler explosions. Boiler manufacturers have indicated that it may be possible to connect a capture and control system **if proper modifications are carried out on board each ship, to include higher capacity blowers and modified control systems**. In practice, third-party internationally traded vessels will not upgrade on board systems for a call on a single port.

- Further, currently available barge-based systems are not built to any government standard relating to capture operations. They have no certifications and are not endorsed by a class society. There is no industry vetting standards for these barges. Until industry safety standards are developed, such vessels are not allowed by responsible operators to come alongside their tankers when combustible liquids are on board.

- Per 2 CCR 2340, a tanker must be able to depart berth within 30 minutes. Whether barges of this size can be safely moved a sufficient distance by tugs in time to allow safe tanker departure in emergency conditions will need to be tested and analyzed.

- The current design uses a crane and connection to the vessel's stack and has no emergency break away coupling. Further, there exists no engineered working safety margin for movement between vessels. All interfaces to tankers must be designed and regulated to a standard. There is no standard available.

- Emergency protocols and associated systems between the barge and tanker need to be developed.

Shore-Based Emission Control Systems

22.19 The conclusion of the review by CARB for some tanker marine terminals should be able to rely on land-based capture and control systems. As WSPA has clearly stated in previous documentation (Enclosure B) provided to CARB staff, there are significant safety concerns with land-based capture and control systems as a strategy to reduce or eliminate emissions at berth. The following list highlights some significant concerns:

- In most if not all cases, two cranes would be required at each berth, to allow vessels to berth port or starboard side to. These cranes would need to be very large to accommodate reach for all vessel designs.

- Similar to barge systems, the shore crane and connection to the vessel's stacks have no emergency break away coupling and no engineered working safety margin for movement between vessels. All interfaces to tankers must be designed and regulated to a standard. There is no standard available.

- As with the barge-based system, there are concerns on how a balanced combustion path will be maintained to prevent dangers like boiler explosions. Boiler manufacturers have indicated that it may be possible to connect a capture and control system **if proper modifications are carried out on board each ship, to include higher capacity blowers and modified control systems**. In practice, third-party internationally traded vessels will not upgrade on board systems for a call on a single port.

- Emergency protocols (and likely systems) between the shore and the tanker need to be developed.

Shore Power

22.20 The CARB Staff Analysis indicates in several instances that sufficient space may be available to accommodate shore power equipment. WSPA has been clear in past communications with

CARB (Enclosure C) on the many limitations and concerns related to electrification of tankers including:

- There are no broad tanker industry standards that exist for safe operation of electrification technology while transferring hazardous cargo.

- International trading tankers are not fit with shore power connections. These internationally regulated vessels will not be compelled to upgrade systems to call on a single port in the world.

Recommendation

Each method (whether barge-based emission capture, land-based emission capture, electrification) poses significant safety concerns, technology limitations, and critical compatibility constraints for tanker vessel applications. Regardless of alternative, the infrastructure requirements for a project at a marine terminal are tremendous, require significant lead time (including environmental review and other resource agency permitting) and will also take many years to design and construct.

WSPA strongly recommends that CARB seriously consider the Industry Coalition Alternative Proposal as it provides a logical and achievable approach to bringing tankers into the regulatory framework.

With regard to these comments and the attachments we have provided, please contact me at (805) 701-9142 or via email at tom@wspa.org if you have any questions.

Sincerely,

Enclosures

Cc: Catherine Reheis-Boyd – WSPA
Bonnie Soriano – CARB
Angela Csondes – CARB

Enclosure A

22.21

Proposed CARB At Berth At Anchor Regulation
Limitations and Issues Presented by Barge-based Emission Control

The following points represent dangers and complications identified that would be associated with the operation of a shore-side emissions control system. Regardless of the below points, any consideration of barge-based control mechanisms must operate within the existing system of safeguards and standards associated with the hazards of managing tanker cargoes. It is essential that a complete set of physical and operational standards for this category of technology be developed prior to more detailed discussions surrounding safety, siting, costs, implementation and regulatory parameters.

1. Safety

a. There are no broad tanker industry standards that exist for safe operation of barge-based emissions control technology while transferring hazardous cargo.

b. Significant safety concerns must be considered including the risks of attachment to another ship while offloading. Federal anchorage (33 CFR 110.215 (a)(2)(B)(iv)) and CA State Lands Commission (Article 5 §2340 (c)(28)) regulations enforced by the USCG require all tankers moored alongside an oil terminal to be capable of vacating the berth within 30 minutes.

- **i.** Significant time may be required to disconnect bonnet, stow bonnet arm, unmoor barge, connect tug, and secure the barge for sea if the vessel must vacate the berth under USCG orders or for the safety of the vessel and crew.
- **ii.** Potential for bonnet to ignite due to high exhaust gas temperatures
- **iii.** The hulls of the vessels are not flat at the longitudinal stack location – this creates a potential for the bonnet barge to be pinned underneath the vessel and rupture ship's fuel tanks.
- iv. Barge would sit within the containment boom area required for the transfer of persistent oils. Risk of fire and explosion is high in the event of spill.

c. Restricted evacuation; barge presents a barrier for vessel egress in case of emergency either on shore-side, the vessel, or on the barge itself. Above referenced regulations to vacate berth within 30 minutes must be complied with.

d. Safety standards related to any required manual operation of the control system must be considered, especially in relation to immediately dangerous to life or health (IDLH) environments and night-time operation.

e. As no technology has been proven in practice, the ability to control key connections of the shore-based emissions control to boilers is unknown. This includes the possible inability to adjust for changes in load and while controlled as well as the unknown effect of a control technology on boiler combustion space.

f. No tanker industry standards exist for safe operation of this technology while transferring hazardous cargo. Regardless of the dangers and complications identified

2. Path to Implementation

a. Design and permitting will take a significant amount of time and resources and can only be considered following the development of physical and operational industry standards for shore-based control technologies.

b. Should physical and operational standards be developed and accepted industry-wide, ships vary greatly in physical layout and capabilities that make it difficult to apply to one static barge-based emission control setup.

c. Third-party staffing for continuous (24 hours per day, 7 days per week) availability of tugs and barges. The implementation of a barge-based control system (whose feasibility for tanker applications has yet to be developed, much less deemed feasible) will require significant

resources including training and regulation of systems under standard operational procedures to be developed.

d. Given that no tanker industry standards exist for safe operation of this technology, industry will require time to examine and develop safe practices if possible.

3. Siting

a. Due to large variety in locations of terminals, barge-based controls are not available for all berths such as in area-restricted ports and within bays that are subject to waves and tides.

- **i.** Equipment operating window must be wide to account for motion on both barge and ship. Waves, wind and current limit barge operations alongside a loaded tanker including the potential for collision and damage to barge or ship with a possible subsequent pollution event and/or injury to personnel.
- **ii.** There is a probability of increased traffic and spacing concerns due to physical layout of some shore-side setups. Traffic and spacing concerns must be taken into account in development of physical and operational standards for this control technology.

4. Real Emissions Reductions

a. The additional time required for barge connections and disconnections will result in increased vessel port call duration.

- **i.** Bonnet barge delays could impact vessels' schedules and force them to wait at anchorage or alongside for 12+ hours when tide and current windows are missed.
- **ii.** This would increase hotel load emissions and could result in significant impacts to the logistics relative to supplies and/or products.

b. Additional emissions due to tug, barge, and control system operation.

c. Additional emissions (including GHGs) due to tug transit and maneuvering.

5. Costs

a. Retrofitting of ships to be compatible with barge-based controls as well as the implementation of the control technology will be costly.

b. Costs will be incurred by third party owners and operators of vessels who have the option to take their business elsewhere.

c. Additional personnel resources as well as training of personnel to operate new systems and interfaces will result in significant costs.

Enclosure B

22.22

Proposed CARB At Berth At Anchor Regulation
Limitations and Issues Presented by Shore-Based Emission Control

The following points represent dangers and complications identified that would be associated with the operation of a shore-side emissions control system. Regardless of the below points, any consideration of shore-side control mechanisms must operate within the existing system of safeguards and standards associated with the hazards of managing tanker cargoes. It is essential that a complete set of physical and operational standards for this category of technology be developed prior to more detailed discussions surrounding safety, siting, costs, implementation and regulatory parameters.

1. Safety

a. There are no broad tanker industry standards that exist for safe operation of shore-based emissions control technology while transferring hazardous cargo.

b. The additional time to respond, including the disconnection from power, engine start up, etc. in an emergency is a significant safety concern. Federal anchorage (33 CFR 110.215 (a)(2)(B)(iv)) and CA State Lands Commission (Article 5 §2340 (c)(28)) regulations enforced by the USCG (and included in local fire codes and ISGOTT standards) require all tankers moored alongside an oil terminal to be capable of vacating the berth within 30 minutes.

- **i.** Significant time may be required to disconnect bonnet, stow or remove bonnet arm, and remove shore-side equipment.
- **ii.** Emergency concerns and speed of vacating berth are increased for tankers due to flammable material on board and safety standards associated with operation within dangerous and hazardous areas.

c. Third-party owners and operators are not manned with crews and officers properly trained on how to safely operate shore-side control systems and facility operators do not have the legal authority to regulate crews aboard 3rd party vessels.

d. Safety evaluation of capture and control system, including but not limited to fire and explosion risk, must be conducted accounting for the collection, pressurization and transportation of gases in a crowded terminal.

e. A wide equipment operating window is required to account for vibrations and wind.

f. Safety standards related to any required manual operation of the control system must be considered, especially in relation to immediately dangerous to life or health (IDLH) environments and night-time operation.

g. As no technology has been proven in practice, the ability to control key connections of the shore-based emissions control to boilers is unknown. This includes the possible inability to adjust for changes in load and while controlled as well as the unknown effect of a control technology on boiler combustion space.

h. No tanker industry standards exist for the safe operation of this technology while transferring hazardous cargo.

2. Path to Implementation

a. Design and permitting will take a significant amount of time and resources and can only be considered following the development of physical and operational industry standards for shore-based control technologies.

b. Marine Terminals will not commit to this control option until physical and operational standards are developed and accepted industry wide and permits are acquired.

c. Space and utilities for shore-based systems in ports may be under the ownership and control of the port authorities.

Proposed CARB At Berth At Anchor Regulation
Limitations and Issues Presented by Shore-Based Emission Control

d. Should physical and operational standards be developed and accepted industry-wide, ships vary greatly in physical layout and capabilities, making it difficult to apply shore-based emission controls as shore-side controls must be configured for a specific setup.
  - **i.** This issue is compounded if all ports and terminals do not choose to implement exactly the same setup.
  - **ii.** Third-parties operate and own the vast majority of ships calling at California terminals and the retrofit of vessels to hook up to shore-side control is not under the control of any California-based stakeholder

e. Shore-side set ups vary widely (port based, open water berth, long wharf) causing available options for emissions control to vary greatly between situations.

f. Given that no broad tanker industry standards exist for safe operation of this technology, industry will require time to examine and develop safe practices if possible.

3. Compliance Determination and Regulatory Responsibility

a. It is currently unclear how a “compliant visit” will be determined.

b. Phased control percentage goals currently proposed do not assist in allowing for compliance with proposed implementation timelines as the shore-based control system (which will require a long lead time to develop will yield the same emission control level, regardless of when it is implemented.

c. If shore-based emissions control is unavailable or incompatible with a vessel, it is currently unclear who will bear the responsibility and possibility of enforcement action.

4. Siting and Function (without an interface standard)

a. The ability to install shore-based capture and control options may be significantly limited by plot space demands.
  - **i.** Infrastructure under the authority of ports (not marine terminals ot vessel operations)
  - **ii.** Infrastructure requirements including allocation or procurement of land (the natural consequence of increasing “project” scope) and facility (wharf, port) improvements including (bay in-fill, pile driving, land-use re-designation, etc.)

b. Additional electrical load to power shore-based control systems is not always available during demand response period times.

c. The capacity of Booster Pumps may be limited due to a number of factors including: available plot space, length of piping run, elevation change, pipe diameter and rating, pipe material and thickness, type of crude, etc.

d. Varying setup of ports versus open water berth and long wharf terminals present unique siting issues that are not “one size fits all”.

5. Real Emission Reductions

a. Booster pumps are driven by electricity or steam and will result in NOx and PM emissions. The quantity of these emissions must be taken into account when evaluating emissions reductions.

b. Booster pumps can help reduce, but will not eliminate, the amount of fuel burned on a ship.

Enclosure B

Proposed CARB At Berth At Anchor Regulation
Limitations and Issues Presented by Shore-Based Emission Control

6. Costs

a. Shore-based control options require significant up-front investment due to high capital cost of infrastructure development and land costs.

b. Costs of port will be passed onto tenants, making calling at California ports cost-prohibitive to international shipping companies.

c. Additional personnel resources as well as training of personnel to operate new systems and interfaces will result in significant costs.

Enclosure C

22.23

Proposed CARB At Berth At Anchor Regulation
Limitations and Issues Presented by Electrification of Tankers

The following points represent dangers and complications identified that would be associated with the operation of an electrification system for tankers. Regardless of the below points, any consideration of electrification systems must operate within the existing system of safeguards and standards associated with the hazards of managing tanker cargoes. It is essential that a complete set of physical and operational standards for this category of technology be developed prior to more detailed discussions surrounding safety, siting, costs, implementation and regulatory parameters.

1. Safety

a. There are no broad tanker industry standards that exist for safe operation of electrification technology while transferring hazardous cargo.

b. The additional time to respond, including the disconnection from power, engine start up, etc. in an emergency situation is a significant safety concern. Federal anchorage (33 CFR 110.215 (a)(2)(B)(iv)) and CA State Lands Commission (Article 5 §2340 (c)(28)) regulations enforced by the USCG (and included in local fire codes and ISGOTT standards) require all tankers moored alongside an oil terminal to be capable of vacating the berth within 30 minutes.

c. High voltage electrical connections and equipment required may not be suitable for hazardous zones:

- **i.** Hazardous zone concerns are unique to tankers as the same risks associated with cargo do not exist for container vessels or cruise ships.
- **ii.** In IMO evaluation of On-shore power supply safety standards, it was determined that there are "no unified technical requirements for high-voltage shore connection systems and no consideration is given to the electrical surge impact of cold ironing on power networks"[1].
- **iii.** International Safety Guide for Oil Tankers and Terminals (ISGOTT) Section 4.4 standards for the management of electrical equipment and installations in dangerous areas must be complied with in the implementation of any electrification system including the ability to isolate electrical equipment should a hazardous situation arise.

d. Third party owners and operators are not manned with crews and officers properly trained on how to safely operate a "Cold Ironing" or other shore-side electric power systems.

- **i.** Safety concerns regarding the expansion of CARB's OGV rule to include tankers were expressed by Intertanko in 2017 comments to CARB. Intertanko concerns included safety risk associated with electrification of tanker with hydrocarbon cargo and proximity to hydraulic pumps[2].

e. IMO safety evaluation of on-shore power determined that while shore-side power systems are grounded electrical systems, power systems for most ships are ungrounded. IMO concluded that without unified isolation, grounding and operational procedures, tanker hookups to shore-side power systems could lead to significant hazards for the power system.[3]

2. Path to Implementation

a. Given that no broad tanker industry standards exist for safe operation of this technology, industry will require time to examine and develop safe practices if possible.

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[1] IMO Maritime Safety Committee. 98th session. March 7, 2017. "Work Programme: Proposal for new output to develop safety standards for cold ironing of vessels and guidance on safe operation of On-shore Power Supply (OPS) in port"

[2] Weekly News in Detail: California Air Resources Board intends to expand use of shore power to all ship types. August 17, 2017. Retrieved on October 30, 2018 from http://www.intertanko.com/News-Desk/Weekly-News/Year-2018/No-33-2018---17-Aug/No-33-2018/#articlegen60408.

[3] IMO Maritime Safety Committee. 98th session. March 7, 2017. "Work Programme: Proposal for new output to develop safety standards for cold ironing of vessels and guidance on safe operation of On-shore Power Supply (OPS) in port"

b. Third parties own and operate the vast majority of the global tanker fleet and the retrofit of these vessels to utilize shore-side electricity systems is not under the control of California operators or ports. Unique issue to tankers due to global fleet composition.

3. Siting

a. Existing tanker shore power connections are designed only for shipyard electrification and for hotel sources. The vast majority of tankers are not designed to run pumps off shore power.

b. Tankers vary greatly in physical layout and capabilities that make it difficult to apply electrification to all ships as often the shore-side is configured for a specific setup.

c. Unlike cruise ships or container vessels, tankers do not dock at exact same berth point every time – poses issues in siting of electric connections.

d. Siting limitations due to available plot space, length of electric run, elevation change and others.

e. Substantial time and cost related to California Environmental Quality Act (CEQA) environmental impact assessment and permitting electrical infrastructure with local and state agencies.

4. Real Emission Reductions

a. The majority of oil tankers are fitted with steam driven cargo pumps. On these ships, "Cold Ironing" would only offset the house electrical loads.

b. Electrical losses over long distances to shore would decrease the effectiveness of this option as the unique situation to northern California remote marine terminals that cannot utilize port infrastructure.

5. Electricity Demand

a. Additional electrical load is not always available during demand response time periods.

b. Electricity infrastructure at ports will have to be upgraded to meet demand during peak hours, which is not under the control of the vessel owner or the company utilizing the vessel for transport.

6. CARB Authority

a. In direct conflict with existing safety regulations (see point 1.a.i.).

b. As demonstrated in *United States v. Locke, Governor of Washington, et al*, state legislation of "tanker personnel equipment and operations would cause inconsistency between the regulatory regime of the US Government and that of an individual State of the US"[4].The case law presents jurisdictional issues related to California's ability to regulate equipment for vessels engaged in interstate/international commerce.

c. Intertanko submitted comments to CARB in 2017 regarding the "possible conflict of responsibilities and liabilities in case of a shore power break during cargo operations which may result in a cargo spill event".[5]

7. Costs

a. Space constraints and required distance of electrical runs will result in significant costs to accomplish.

[4] United States v. Locke, Governor of Washington, et al. March 6, 2000. United States Ninth Circuit Court of Appeals. No 98-1701.

[5] Weekly News in Detail: California Air Resources Board intends to expand use of shore power to all ship types. August 17, 2017. Retrieved on October 30, 2018 from http://www.intertanko.com/News-Desk/Weekly-News/Year-2018/No-33-2018---17-Aug/No-33-2018/#articlegen60408.

b. Retrofitting of ships will be costly and costs will be incurred by third party owners and operators of vessels who have the option to take their business elsewhere.

22.24

Exhibit 2: Woodbridge Comment Letter (September 19, 2019)

WOODBRIDGE MARINE

191 Military East, Ste. A
Benicia, CA 94510
USA
Phone: (925) 687-1234
sfo@woodbridgemarine.com

19 September 2019

To whom it may concern.

Woodbridge Marine Inc is a California based marine consultancy specializing in the safety inspections on oil tanker vessels primarily. The company is made up of personnel that have served as senior officers on oil tankers both internationally and also in the domestic fleet.

We have been asked to comment on the possible effects of the proposed rule governing exhaust gas capture on oil tankers.

Safety and technological challenges

Section I: Overview of perceived safety issues likely to be encountered through the design and implementation of tanker vessel emission controls.

1. Whether alongside or ashore, all equipment must be certified as Class I, Div. I intrinsically safe if it is open to the atmosphere. Non-intrinsically safe equipment would need to be housed in enclosed structures.
2. There is a hazard of static electricity generation that could be caused by the exhaust gas capture system and vessel interface. The mishandling of static electricity on oil tankers can and has resulted in catastrophe. While the hazards of static electricity are well known with current technology typically in use on tank vessels. The introduction of new technology vis. a vis. exhaust gas capture has not been studied by the tank ship community and is not well understood at this time. Electrostatic hazards should therefore be studied and mitigation measures determined in order to avoid the possibly catastrophic consequences of an unexpected static discharge. (See ISGOTT Ch. 3 and CENELEC CLC/TR 50404:2003 "Electrostatics – code of practice for the avoidance of hazards due to static electricity")
3. The technology in use must include a means for emergency disconnection. In order for a tank ship to get underway in a minimum amount of time in an emergency, there should be a means to disconnect the system in a minimal time frame. (Noting that 2 CCR 2340 (c)(28)(A) calls for a tank vessel to be capable of moving away from a berth within 30 minutes.)
4. Oil tankers are required to maintain most cargoes in an inerted atmosphere. The use of inert gas is a key safety measure, and mandated by both U.S. regulations, and international standards. This is typically accomplished through the use of cleaning

exhaust gas and injecting it into the cargo tanks as the cargo is discharged. The inert gas by law must have less than 7% Oxygen by volume. Industry standards (OCIMF) call for 5% max O2.

a. Inert gas for vessels that use steam driven cargo pumps typically utilized exhaust gas from the boilers to produce inert gas. The gas is routed through a scrubber unit prior to being supplied to the cargo tanks. Not all of the gas is necessarily routed through the scrubber, and some of the gas may be released to the atmosphere in order to supply gas at a rate that matches the displacement of the cargo being pumped ashore. The boilers must be operated very carefully with a proper mix of fresh air in the combustion system in order to provide the right amount of Oxygen in the processed exhaust gas. Change of pressure in the exhaust stack would therefore affect this process and could negatively the oxygen content of the exhaust gas.
b. Boiler loads are not constant during a cargo discharge. Low loads are typical as cargo is started, with the load changing for tank switches aboard and ashore, during crude oil washing and whilst stripping (final emptying) of cargo tanks. The exhaust gas processing equipment must be able to keep up with the changes in a seamless manner in order to insure that the marine boiler is unaffected.
c. The boilers may also be used for cargo heating purposes, which can further affect the exhaust gas recovery process.
d. Inert gas can also be created through the use of an inert gas generator. IG generators are typically found on smaller vessels that do not utilize steam driven cargo pumps, and typically include burners and a scrubber unit in one combined installation.

5. The vessel / terminal interface has been intensively studied by OCIMF. The areas documented are cargo connections, mooring and personnel transfer. The use of an exhaust gas processing interface is a new concept, and has yet to be vetted from a safety aspect. Safety information and procedural guides are contained in various OCIMF publications. Chief amongst them are the International Safety Guide for Oil tankers and Terminals 5th Ed. (ISGOTT) and Mooring Equipment Guidelines 4th Ed. (MEG4). The use of ISGOTT as a basis for tank ship operations in port is recommended by The International Chamber of Shipping and the International Association of Ports and Harbors.
6. The transport of oils and chemicals in bulk via marine transportation has been de-facto regulated through the Oil Companies International Marine Forum's (OCIMF) SIRE program for over two decades, resulting in the oil tanker industry becoming the safest overall maritime sector. It is our understanding that OCIMF has not been consulted concerning the safety issues that may be encountered through the use of this new technology. Without OCIMF guidance, there is no universal set of safety guidelines available to the tanker industry for the safe use of the proposed equipment.

7. The proposed equipment should be suitable for nearly all tank vessels. It is unlikely that vessels would be modified strictly for use in California, as it is not uncommon for vessels to call once every few years, or even once in their useful life. Most tankers operate in the international spot market, and trade worldwide.
8. Exhaust streams to be accounted for would need to include up to three auxiliary generator engines, along with the possibility for one or two boilers, and / or additional small diesel engines utilized on some vessels with hydraulic cargo pump systems. Auxiliary engines are typically started and stopped as the load changes during the discharge operation.
9. There are two additional unique classes of vessel in the Alaska North Slope crude oil trade that are frequent visitors to California ports, and may require specific additional capabilities.
    a. The three vessels currently being operated by the Alaska Tanker Company (190 MDWT) utilize a diesel electric plant with four medium speed diesel powered generator engines producing 6.1MW each. Two are typically required for a cargo discharge operation. One of these vessels is currently configured for cold- ironing operations at Marathon's LB No. 121 berth.
    b. Polar Tankers Inc. operates five vessels (140 MDWT) that utilize a diesel electric system for discharging cargo. The electricity is provided by one of their two main propulsion engines along with auxiliary diesel generator engines capable of producing up to a total 3MW whilst alongside.

Section II. Additional issues specific to shore based installations.

The critical aspect that needs to be reviewed prior to any ruling on adding equipment to tanker terminals is a detailed and thorough feasibility study which would incorporate a very detailed risk assessment to ensure compliance with all international and domestic regulations.

It should be noted that OCIMF has instituted a program of Marine Terminal Inspections (Marine Terminal Information System) on a worldwide basis and they can and do refuse to moor ships to a terminal that does not meet specified standards if they believe it poses a risk to their vessel.

The state also has their own standards governing marine terminals, The Marine Oil Terminal Engineering and Maintenance Standards (MOTEMS) establish minimum engineering, inspection and maintenance criteria for all marine oil terminals in California, in order to prevent oil spills and protect public health, safety and the environment. Originally approved by the California Building Standards Commission on January 19, 2005, the MOTEMS were first published on August 10, 2005 and became effective on February 6, 2006. To ensure that the best achievable protection is provided, the Commission continuously updates the MOTEMS regulations through public and transparent rulemakings that allow abundant opportunities for public participation.

These comprehensive standards contain requirements for assessment of the structural, mechanical and electrical systems at marine oil terminals, including, but not limited to:

Audits and inspections, Structural evaluations, Seismic analyses, Berthing and mooring

Geotechnical assessments, Fire protection, Pipelines, Mechanical and electrical equipment

Electrical systems, LNG terminals

The basic safety issues have been discussed above and below are some specific operational concerns that will need to be addressed:

1. For existing marine oil terminals, all proposed new, substantially modified or re-designed structural, berthing and mooring (including Terminal Operating Limits [TOLs]), fire, piping/pipeline, mechanical or electrical systems or components are also subject to MOTEMS compliant review by the Commission, and shall be MOTEMS compliant prior to use or reuse. "As-built" re-verification may be required.
2. The location of a tanker's manifold (cargo piping termination) determines the location of a vessel alongside a berth. A shore-based system must therefore be capable of a relatively wide range of longitudinal motion along the berth.
3. Bridge wing to manifold distance range as follows:
    a. MR 50 MDWT) - 55m
    b. Panamax (75 MDWT) - 75m
    c. Aframax (105 MDTW) – 85m
    d. Suezmax (150 MDWT) 95m
    e. VLCC (320 MDWT) 120m (Berth LB 121 only).
4. Similarly, the vessel's draft during discharge will have to be safely taken into account. Drafts can typically change for vessels from fully loaded to empty of cargo (and at "normal" ballast condition) as follows:
    a. MR – 3.5m
    b. Panamax – 6.5m.
    c. Aframax – 7m.
    d. Suezmax – 9m.
    e. VLCC – 11m.
5. The full range of tides would need to be accounted for in addition to the above.
6. Unlike typical dry goods and container terminals, tank ship terminals often utilize a relatively short wharf (or "apron") combined with mooring dolphins. For those terminals, new structures would be required in order to install the equipment. The structures would have to be able to account for the differences in vessel size in order to be able to connect to the different size vessels (as detailed above), and would in most cases be required on both ends of the berth, as vessels could be docked either port or starboard side to the wharf. In addition to the engineering challenges, there would be environmental challenges to ensure wetlands safety.

Conclusion:

It is critical that before implementing the proposed rule that industry be allowed to conduct a detailed and thorough feasibility study covering the wide range of terminals in use State wide. This should ensure that the equipment is available and that it would meet the safety requirements to be installed at the marine terminal / vessel interface without creating a hazardous consequence that could result in significantly increasing the risk involved in the transfer operation. This must involve MOTEMS compliance and the possible consequences of moving forward without complete confidence from the primary partners in the transportation of petroleum / chemical and liquefied gas could include any of the following:

1. Increased risk to the operation and also the terminal and vessel directly, including fire, explosion, loss of life and significant pollution events.
2. Regulatory compliance issues.
3. Significantly longer operations which also increases the risk of an accident.
4. Owner / operators deciding the risk to utilize these terminals is unacceptable.

Yours Sincerely



Capt Andrew Lott

President

Woodbridge Marine

Exhibit 3: WSPA Comment Letter (August 15, 2019)

Thomas A. Umenhofer
Vice President

August 15, 2019

Ms. Cynthia Marvin
Division Chief, Transportation and Toxics
California Air Resources Board
1001 I Street
Sacramento, California 95812

sent via e-mail to: Cynthia.Marvin@arb.ca.gov

Re: Additional WSPA Comments on CARB Proposed At Berth Regulation Working Draft

Dear Cynthia,

Western States Petroleum Association (WSPA) appreciates the continuing opportunity to provide additional feedback on the California Air Resources Board (CARB) proposed California Code of Regulations, Title 17, Division 3, Chapter 1, Subchapter 7.5, Sections 93130-93134.14 (At Berth Regulation) Working Draft, dated May 8, 2019. WSPA is a non-profit trade association representing companies that explore for, produce, refine, transport and market petroleum, petroleum products, natural gas and other energy supplies in California and four other western states.

This letter follows up on our conversation with you and your staff on July 18, 2019 and provides additional information regarding the need for a comprehensive feasibility evaluation study before any At Berth Regulation is adopted. Enclosed with this letter is a general outline of the contents of such a study and additional information to explain why the current compliance deadlines of 2027 and 2029 on the At Berth Regulation Working Draft are not achievable.

WSPA and many other stakeholders share CARB's strong desire to see regulations that are legally supportable, can be feasibly implemented, and are likely to achieve real-world air quality goals. In our view, the key to meeting these goals is to set a realistic rulemaking schedule to obtain the necessary information, then to work openly with stakeholders and the public to carefully assess and incorporate that information as required to ensure workable regulations. Failure to properly account for the real-world feasibility of the At Berth Regulation, we believe, could lead to adopting requirements that simply cannot be met safely and in a cost-effective manner, or that are impossible to meet at all.

Evaluation of the Feasibility of Shore-Based Emission Control for Tankers

22.25

As we discussed with you and CARB staff, WSPA continues to have serious concerns that no version of the At Berth Regulation can succeed without ensuring that it can be technically, feasibly, cost-effectively, and, as important, safely implemented within the timeline that CARB is proposing. To that end, WSPA acknowledges CARB's engagement with stakeholders to date, but believes that it is critical to first conduct a study to evaluate the technical feasibility of the proposed control option (shore-based emission capture and control) for tankers before any compliance date can be set. This is because the technology, as proposed in the regulatory analysis, has never been implemented on tankers; assuming the technology is available when it has not been proven to succeed on a tanker is a flawed approach. There are several technical differences between tankers and cargo vessels, such as managing boiler pressures when exhaust is captured, and

the possibility of vapors from tanker cargo finding their way into the capture system. At a high level, this evaluation study should assess the safety, reliability, operability, and availability of the proposed control option as well as the ability of the proposed control option to meet the regulatory requirements within the proposed timelines.

WSPA believes that participation from CARB, as well as the numerous other regulatory agencies involved in permitting and evaluation of large-scale projects such as those proposed by the At Berth Regulation, is critical for the success of the study. Such participation is especially critical in that, not only are the technical and safety issues important, but the review and permitting timelines of local and state regulatory agencies for projects of this scope are crucial for everyone to understand and factor into any given regulatory time deadline. WSPA is proposing that this effort be undertaken collaboratively between WSPA, CARB, and other local and state permitting agencies with the goal of completing the study within 3 years from the adoption of the At Berth Regulation. Upon completion of the study, WSPA proposes that a detailed evaluation report be produced, and that CARB convene additional public workshops as necessary to adequately address the findings in the report and make any necessary revisions to the proposed Regulation.

To that end, attached is a proposed report outline for an Evaluation of At Berth Shore-Based Emission Control for Tankers at California Ports. This outline provides a basic framework for an evaluation study to assess technical feasibility that we believe will address critical questions that must be answered for the At Berth Regulation to satisfy legal criteria and ultimately accomplish the goals the At Berth Regulation set out to achieve.

The following is a list of critical questions that we believe must be answered, at a minimum, by the study:

- Is the type of shore-based emission control system envisioned by the proposed At Berth Regulation technologically feasible at this time? If not currently feasible, is there a reasonable basis, supported by significant evidence, to expect that such a system will become technologically feasible in the timeframes set forth in the proposed At Berth Regulation for tankers?

- What potential safety, reliability, and operability concerns need to be resolved before the type of shore-based emission control system and vessel interface envisioned by the At Berth Regulation could be installed and operated?

- Do any of the safety, reliability, or operability concerns identified create a significant risk to human health, safety or the environment?

- Can the type of shore-based emission control system envisioned by the At Berth Regulation meet the 80% reduction in NOx, Particulate Matter, and Diesel Particulate Matter required by the At Berth Regulation?

- Can the type of shore-based emission control system envisioned by the At Berth Regulation operate in compliance with all other applicable laws and regulations, including those related to interstate and international commerce?

- Is there room for the type of shore-based emission control system envisioned by the At Berth Regulation within the existing developed footprints of marine terminal facilities? If not, would installation of the systems require new construction in expanded onshore

footprints and/or installation of new facilities on fill or pilings in wetlands, tidelands and/or submerged lands, with significant impacts on coastal onshore and offshore habitat and other sensitive areas and resources? Will new tideland leases or lease amendments from the State Lands Commission be necessary?

- Will modifications to equipment on tankers be required? Boilers and auxiliary engine connections and controls should be considered.

- What potential safety, reliability and operability concerns needs to be addressed by ship owners, manufacturers, classification societies, USCG before such a modification is applied to vessels? How will CARB ensure third party vessels are modified to comply with shore-based emission control system before calling?

- If the type of shore-based emission control system envisioned by the At Berth Regulation can be feasibly built and operated, what timeframes would be required for such construction and operation, considering timeframes required for permitting and approvals by regulatory oversight agencies and local jurisdictions with land use authority, and including delays due to potential litigation?

- If the type of shore-based emission control system envisioned by the proposed regulation can be feasibly built and operated, what would be the costs to the regulated industry?

Timeline for Implementation of the At Berth Regulation for Tankers

22.26 Even under ideal conditions, WSPA does not believe that any marine terminal can meet the proposed compliance deadlines of 2027 for the Port of Long Beach (POLB) and Port of Los Angeles (POLA), or 2029 for all other marine terminals where tankers are berthed. Based on information received from WSPA member companies, we believe that the earliest a marine terminal could comply with the proposed regulatory requirements is 2033. Additional time would be needed, at least up to two years, for larger and more complex terminals requiring a compliance date no sooner than 2035 for those facilities due to in-water work window limitations and operational construction constraints.

As was discussed and requested by CARB during our meeting on July 18, 2019, enclosed with this letter are the aggregated results from our member companies showing the estimated timelines to meet compliance with the proposed regulatory requirements. Included in the enclosure is a chart showing how long (as a range) each major step is expected to take and what timeframe (as a range) that each of those steps is expected to occur within. In general, larger and more complex terminals will need more time to complete each step due to the larger scale of the engineering, design and construction effort and because additional time needed to complete each individual step compounds over the life of the project. Also included is a table which describes in more detail what activities are include in each major step.

The major steps for any facility to meet compliance with the proposed regulation are as follows:

- General and Site-specific Feasibility Evaluation Study
- Site-Specific Design
- Engineering
- CEQA Review
- Permitting and Other Approvals

- Contracting
- Construction (Crane, Emission Control System, and Support Systems)
- Commissioning

While there are several factors that drive a longer timeline for facilities than the timeline that CARB has proposed, the single largest factor is that, at present, the technology proposed is untested and unproven as safe for tankers. This means that significantly more work is needed up front to assess the risks and ensure that the project is feasible. If there existed a proven, off-the-shelf technology that was safe for use on tankers and boilers, many of the early steps could be bypassed or the timeline shortened. But that is not the case, as was communicated by vendors during the CARB vendor meeting held on April 16, 2019, as well as in the WSPA comment letter of June 14, 2019.

Based on our conversations with you and CARB staff, WSPA also believes that CARB has underestimated the time it takes to complete many of the steps needed to meet compliance with the proposed regulation. For example, WSPA believes that CARB has significantly underestimated the time it will take a facility to apply for and receive all the required permits for a project of this nature.

At a minimum, facilities will need to receive permits or regulatory and land use approvals from the local air quality control/management district, the California State Lands Commission, the San Francisco Bay Conservation and Development Commission (for northern Californian terminals), the United States Army Corps of Engineers, the local Regional Water Quality Control Board, the California Department of Fish and Wildlife and the U.S. Fish and Wildlife Service (if protected species are affected), the National Marine Fisheries Service (where marine mammals may be present), the United States Coast Guard, building permits and/or coastal development permits from the local city/county, and (if not delegated to the local city/county) coastal development permits from the California Coastal Commission, in addition to going through the California Environmental Quality Act (CEQA) environmental review process prior to receiving any permits and approvals.

Note that, separate from WSPA's timeline, many facilities are also in the process of updating terminals to comply with the Marine Oil Terminal Engineering and Maintenance Standards (MOTEMS) -- projects that have been in permitting, design and construction for many years. Due to the large variety of timelines for each terminal, WSPA has not included ongoing and proposed MOTEMS construction projects in our timeline.

While many of the activities can occur in parallel, those that must occur in series often will dictate the timeline. The most basic example of this occurs during permitting and construction. Construction cannot begin until permitting is complete, and permits cannot be issued until the CEQA review is complete. Construction and installation of any equipment on terminal cannot begin until such time that the support structure (foundation) is complete.

The nature of the proposed equipment, weights and locations can result in a terminal having to complete a seismic retrofit, which would extend well beyond the actual footprint of the equipment foundations. As you may recall, during our meeting WSPA members provided examples of how long it has taken to obtain permits and implement construction on marine terminal projects, such as MOTEMS. For one of our member companies, the MOTEMS initial audit was conducted in 2009 and, after design, California State Lands Commission peer review, and CEQA review and

resource agency permitting, construction was able to begin in 2018 – nine years later -- for a project that is much smaller than the size and scope proposed in the At Berth Regulation.

Below are other examples of steps that will hinder further progress on the project until completed:

- For any pilot test of the equipment installed at a port or Marine Terminal, permitting, design and construction will require additional time.

- Detailed engineering cannot begin until the feasibility evaluation study is completed, and the risks associated with the control technology are well understood, to allow for design of appropriate mitigation.

Duplicate info

22.4i - 22.4n

- CEQA review cannot begin until a lead agency is assigned and at least 30-60% of the design is complete, in order to provide an accurate and stable project description as the basis for review.

- Building and other permits are dependent on completing the CEQA analysis and certifying a final Environmental Impact Report (EIR) or Negative Declaration. Many responsible agencies with permit or approval authority will not begin processing applications before the CEQA document is approved.

- Contracting for construction and installation cannot be finalized until the permits and approvals are received; before that time, the conditions under which construction will occur remain yet unknown. Additionally, construction cannot commence until contracting is complete.

- CEQA lead agencies and responsible regulatory agencies may require completion of some mitigation measures before construction commences.

- In some cases, commissioning of individual pieces of equipment can occur in parallel with the construction; however, overall commissioning cannot begin until all construction is completed.

- And of course, no construction or installation can occur without first obtaining applicable permits.

It is important to note that the aggregated timeline that WSPA has attached to this communication is only an estimate. The results of the feasibility evaluation study will be necessary to refine the estimated timeline.

WSPA believes the Government Code, Health and Safety Code and other California laws and regulations require CARB to revise its current rulemaking timetable to allow for proper preparation and consideration of feasibility, cost effectiveness and timelines. See, e.g., Cal. Health & Safety Code §§ 38560, 39602.5, 39665, 43013; *see also* Gov. Code § 11346.36 & 1 C.C.R. §§ 2000-2004 (SRIA requirements to assess proposed regulation's cost impact on public health and safety, fairness and social equity, state's economy and other criteria). We would request that, at the very least, CARB include in its proposed At Berth Regulation language that allows for a feasibility evaluation study and an appropriate delay in regulatory implementation in the event the feasibility evaluation study concludes that shore-based technologies and/or other elements of the At Berth Regulation are not feasible in the regulatory timeframes provided.

22.27 WSPA also believes that the At Berth Regulation should include "off-ramp" scenarios that provide next steps for facilities that demonstrate an inability to implement all the required elements in the default timelines provided under the At Berth Regulation. In summary, WSPA requests that CARB:

1. Incorporate the feasibility evaluation study and the details included in the outline attached into the proposed regulatory language,

2. Include language in the At Berth Regulation that will provide an off-ramp or adjust the compliance deadlines based on the results of the feasibility evaluation study, and

3. Revise the proposed compliance deadlines in the At Beth Regulation to 2033 for typical terminals and 2035 for complex terminals where tankers berth.

WSPA appreciates this opportunity comment on the At Berth Regulation Working Draft. If you have any questions regarding this submittal, please contact me at (805) 705-9142 or via email at tom@wspa.org.

Sincerely,



Cc: Catherine Reheis-Boyd – WSPA
Richard Corey - CARB

Evaluation of At Berth Shore-Based Emission Control for Tankers at California Ports Report Outline

The evaluation study of Tankers At Berth Shore-Based Emission Control will be documented in a report that reflects the approach taken by California Air Resources Board (CARB) in the development of the document Evaluation of Cold-Ironing Ocean-Going Vessels at California Ports, dated March 2006.

The new study, to be entitled Evaluation of At Berth Shore-Based Emission Control for Tankers at California Ports will contain the following elements:

Executive Summary
I. Introduction
II. General Description of Tankers and Marine Terminals
III. Tanker Emission Inventory
IV. Technical, Safety, and Operational Review
V. Cost-Effectiveness and Economic Impact Review
VI. Conclusions
VII. References

An overview of the Sections I through VI is presented below.

Introduction

- Statement of purpose and objectives.
- Identify focus of analysis of the feasibility and cost effectiveness of shore-based emission control for tankers.
- Define shore-based emission control for tankers as capture of NO_X and PM emissions from boiler and auxiliary engines on tankers pursuant to § 93130.5 and § 93130.7 of CARB At Berth Regulation (currently Working Draft).

General Description of Tankers and Marine Terminals

- Identify unique characteristics of affected ports and marine terminals, while protecting any individual company competitively sensitive or proprietary information.
- Identify tanker classes, frequency of visits, ownership.
- Summarize tanker visit and duration information.

Tanker Emission Inventory

- Summarize updated CARB tanker sector NO_X and PM emission inventory taking into account the IMO regulations regarding Tier 3 ships and their predicted penetration into California.
- Assess by emission source types for NO_X and PM emissions.
- Review in context of overall California emission inventory.

Evaluation of At Berth Shore-Based Emission Control
for Tankers at California Ports
Report Outline

Technical, Safety, and Operational Review

Methodology

- Identify regulatory/legal requirements applicable to proposed regulations, including but not limited to:
    - Health & Safety Code (H&SC).
        - Technological and operational feasibility
        - Safety, reliability and effectiveness
        - Necessary to attain Ambient Air Quality Standards
        - Articulate potential adverse health, safety and environmental impacts
        - Show reductions are real, permanent, quantifiable, verifiable and enforceable
    - CEQA.
        - Identification of significant adverse impacts of regulations
        - Identification of reasonably foreseeable compliance alternatives/mitigation
    - U.S. Coast Guard Regulations (33 CFR)
    - PSM Regulations (e.g. 8 CCR 5189.1, 19 CCR 2762, RISO)
    - Marine Oil Terminal Engineering and Maintenance Standards (24 CCR)
- Identify regulatory agencies, local jurisdictions with land use authority, other agencies with permitting or approval authority and certification entities. Include them as stakeholders.
- Set criteria for demonstration of technical and operational acceptability (including consideration of site-specific limitations).
- Set criteria for demonstration of safety acceptability.

Analysis

The technical assessment will be prepared consistent with the criteria established through the methodology:

- Determine whether the installation of systems required to comply with the proposed regulation would satisfy or conflict with the safety, reliability, operability and effectiveness of vessels, marine terminals, the emissions control system, and supporting shoreside infrastructure, as required by regulations identified in the Methodology section.
    - Assess the effectiveness, reliability and safety of proposed methods of compliance.
    - Assess ability to attain ambient air quality standards and technological feasibility and adaptability, and potential preemption by federal law.
    - Assess whether the proposed methods of compliance are designed to achieve levels of exposure consistent with no significant adverse health impacts; identify risks of the toxic air containments (TACs) at issue and explain how the proposed ATCM will reduce risks; demonstrate the need and appropriate degree of regulation for the

identified TACs; and potential adverse health, safety and/or environmental impacts that may result from implementation.

- Assess reasonable and feasible mitigation measures and alternatives to reduce or avoid significant environmental impacts, identify permitting requirements and timeline for implementation of such mitigation measures and alternatives.

- If possible, identify applicable design standards that would comply with MOTEMS and other existing regulations that can foster vendor competition.

- Identify what changes to technology may be necessary to ensure feasibility for use in marine terminal application, safety, and/or operability.

- Conduct Risk Assessment/HAZOP for a shore-based design.

- Prepare anticipated timeline from planning through implementation, including timeline for obtaining all permits and approvals and potential litigation delay.

- Determine where, if any, a physical demonstration is required to validate the safety, reliability, operability, and effectiveness of vessels, marine oil terminals, the emissions control system, or supporting shore-side infrastructure.

Cost-Effectiveness and Economic Impact Review

Methodology

- Set economic/cost-effectiveness requirements pursuant to regulatory/legal requirements.

- Identify Standardized Regulatory Impact Assessment (SRIA) Requirements.

- Establish process for collection, de-identifying and aggregating individual company estimated capital, design, construction, CEQA review, permitting, and operational costs.

Analysis

- Determine whether systems required by proposed regulation would meet the criteria in the H&SC for cost-effectiveness.

  - Assess cost-effectiveness, relative to reliability and safety of proposed methods of compliance and ensure that the rule will result in a cost-effective combination of control measures.

  - Assess cost-effectiveness, relative to economic and noneconomic costs and public health benefits (including potential impacts on small businesses).

- Assess whether proposed regulation would meet SRIA requirements.

- True-up cost-effectiveness of achievable design and implementation schedule.

Conclusions

- Summarize findings and recommendations (including need for physical demonstration).

Evaluation of At Berth Shore-Based Emission Control
for Tankers at California Ports
Report Outline

Key Stakeholders including but not necessarily limited to the following:

- American Bureau of Shipping for class society and can perform HazOps (also involved in Cold Ironing Feasibility Evaluation Study.
- Maritime safety expertise (i.e., DNV GL, Bureau Veritas).
- Marine boiler, engine and exhaust gas cleaning system manufacturers who understand tankers (including but not limited to, Alfa Laval – familiar with ship-side issues, classification areas and largest provider of tanker boilers in the world), SAACKE – boilermaker, GmbH, Harris Pye – boiler retrofit, MAN and Wartsila - propulsion and auxiliary engine manufacturers).
- Emission abatement industry (i.e., existing technology vendors).
- OCIMF (Oil Companies International Marine Forum)
- U.S. Coast Guard
- California State Lands Commission - Marine Environmental Protection Division
- CARB, BAAQMD, SCAQMD, USEPA
- SF Bay Coastal Development Commission (BCDC)
- International Maritime Organization (IMO) - Marine Safety Committee (MSC), Marine Environment Protection Committee (MEPC) and supporting sub-committees
- Federal non-regulatory agencies: U.S. Navy, U.S. Maritime Administration (MARAD)
- University of California - Riverside
- California Maritime Academy
- International Association of Independent Tanker Ownership (INTERTANKO).

Estimated Timeline - CARB At Berth Regulation
Shore-Based Emission Control System

Major Tasks	Estimated Time (Years)	2020		2021		2022		2023		2024		2025		2026		2027		2028		2029		2030		2031		2032		2033		2034		2035	
		Year 1		Year 2		Year 3		Year 4		Year 5		Year 6		Year 7		Year 8		Year 9		Year 10		Year 11		Year 12		Year 13		Year 14		Year 15		Year 16	
		1H	2H	1H	2H	1H	2H	1H	2H	1H	2H	1H	2H	1H	2H	1H	2H	1H	2H	1H	2H	1H	2H	1H	2H	1H	2H	1H	2H	1H	2H
General & Site-Specific Studies	3.5 to 4																														
Site-Specific Design	3.5 to 5.5																														
Engineering	3 to 4.5																														
CEQA Analysis	3 to 5.5																														
Permits	2.5 to 3.5																														
Contracting	2.5 to 3.5																														
Crane Construction	3 to 5.5																														
Facility Construction	4.5 to 7.5																														
Commissioning	1 to 1.5																														

Legend

Anticipated average time needed to complete each task

Additional time needed for complex installations to complete the task

NOTES

1. The shaded areas of the bar chart which may be longer in duration than the expected time for a task as the start date of a task may vary from installation to installation.
2. The General and Site-Specific Studies are critical to evaluate the feasibility of various elements of compliance requirements to each installation (technological, safety, efficiency, cost-effectiveness etc).
3. The results of General and Site-Specific Studies may necessitate further refinement of the anticipated compliance options and timeline.
4. With unknown permitting timelines and delays, contracting and vendor timelines, the earliest compliance demonstration for most facilities is estimated to not occur before 2033.
5. For complex installations, this date could be further out; there could also be unexpected delays that are beyond operator control.

Timeline Survey Summary

Major Tasks (note tasks that can be run concurrently to help determine total lapse time from project design to commissioning)	Additional Information (provide sufficient information to break down the activity so that it is clear what it includes and its expected duration)	Estimated Years							
		Average	Min	Max	Range (Min to Max)	Range (Average to Max)	Begin Year	End Year (Avg)	End Year (Max)
General & Site-Specific Studies	General Evaluation Study	2.0	2.0	2.0	2.0	2.0	2020	2021	2021
	Site-specific Study including Safety review and possible field test	1.6	0.8	2.0	0.8 - 2	1.6 - 2	2022	2023	2023
Site-Specific Design (preliminary and final, includes assessments on utilities, siting for egress and safety as well as infrastructure)	Front End Engineering Design, Preliminary and Detailed Design, Crane, Scrubber, Electrical Design, Shipside Modification Design, Determine footprint, electrical calssification and unit supply requirements, Coordinate with engineering, construction and technology companies, Review of utilities and existing infrastructure to support future terminal projects, Requirements for and consideration of MOTEMS.	3.5	1.0	5.5	1 - 5.5	3.5 - 5.5	2022	2025	2027
Engineering (engineering drafts for construction ex. built-for purpose, ship-to-berth variable height for loading and unloading operations, utility and infrastructure details)	Marine analysis of current and future vessels (MOTEMS Review), Detailed engineering calculations for process, energy and structural integrity, Coordination with utility providers that supply electricity, water and natural gas to the facility, Engineering Design Issued for Permit, Engineering Design Issued for Construction, Engage Classification Society to Develop Standards for Shipside Modifications	2.9	1.8	4.5	1.8 - 4.5	2.9 - 4.5	2023	2026	2027
CEQA Analysis (engineering and site-specific details will be evaluated under CEQA to determine whether additional mitigations are required including preparation of an EIR, public comment periods, hearings, review of the EIR until a final adopted EIR results with specific mitigations for impacts if any)	Initiate Multi-Agency Process, Prepare applications, Initiate EIR, Develop EIR, Develop Mitigation Strategy, Finalize and Approve Mitigation Strategy, Public comment review, possible re-engineering of design to meet public concerns, Re-evaluation of both Site specific design and engineering (as needed), Purchase Mitigation Credits	2.9	1.2	5.5	1.2 - 5.5	2.9 - 5.5	2024	2026	2028
Permits (local, state, federal – CSLC, Bay Conservation and Development Commission, ACOE, CF&W, RWQCB, National Marine Fisheries Service, Air Districts, Port permits includes: preparation, review by agency, approval, development of mitigation plans and other recommendations made by agency.)	Coordination with multiple permitting agencies, at various locations within the state, Includes time for review, comments and any necessary requested changes which may require some re-design and engineering, Submit Environmental Applications, Environmental Applications Approved, Submit Building Applications, Building Applications Approved	2.5	1.1	3.5	1.1 - 3.5	2.5 - 3.5	2025	2027	2029
Contracting (bid process, selection, procurement)	Multiple RFPs (General Engineering, Specialty Engineering, Marine Engineering, Emissions Control Equipment, Pumps/Blowers, Crane and Scrubbers Design and Fabrication, Construction RFPs including general, marine, electrical, crane installation), Contractor vetting and selection, Insurance and procurement of long lead items such as steel, pre-fab materials	2.2	0.6	3.5	0.6 - 3.5	2.2 - 3.5	2026	2028	2030

Timeline Survey Summary

Major Tasks (note tasks that can be run concurrently to help determine total lapse time from project design to commissioning)	Additional Information (provide sufficient information to break down the activity so that it is clear what it includes and its expected duration)	Estimated Years							
		Average	Min	Max	Range (Min to Max)	Range (Average to Max)	Begin Year	End Year (Avg)	End Year (Max)
Crane Construction / Installation	Install Crane Foundations and Cranes - Consider extensive lead times, Multiple locations, Limited availability of construction equipment, Delays when ships at berth	2.7	0.7	5.5	0.7 - 5.5	2.7 - 5.5	2028	2031	2033
Facility Construction (including deck modifications, pilings, gangway construction, additional/new ducting, piping, , seismic retrofit, new power infrastructure)	Multiple phases of construction at various locations (Limited ability to overlap construction at different locations, constrained by contractor availability and safety oversight and continuation of business, Assumes construction at one facility at a time), Consider extensive lead times, Piling, foundation, civil/structural steel works, electrical upgrades, Fabrication and Transport of Cranes & Scrubber, Procurement of Other Materials, Prep and Demo Work, Install Central Gas Collection System, Scrubbers, Support Systems (Piping/Electrical), Shipside Modifications, Consider confined construction activity for few months per year (power supply, threatened species protection)	4.5	0.7	7.5	0.7 - 7.5	4.5 - 7.5	2029	2033	2035
Commissioning and Compliance Demonstration (verification of CARB compliance along with other federal and state requirements)	Consider longer commissioning durations for new technology, Commissioning for Terminal Operations and Operator-owned ships, Operator training and oversight, modifications to ensure proper operation to achieve compliance, Multiple agencies would either witness compliance testing or perform their own (CARB, local Air District, etc.)	0.9	0.2	1.5	0.2 - 1.5	0.9 - 1.5	2033	2034	2035

22.29

Exhibit 4: Chevron Presentation: At-Berth Costs Q&A (June 10, 2019)



Chevron

human energy®

At-Berth Costs Q&A

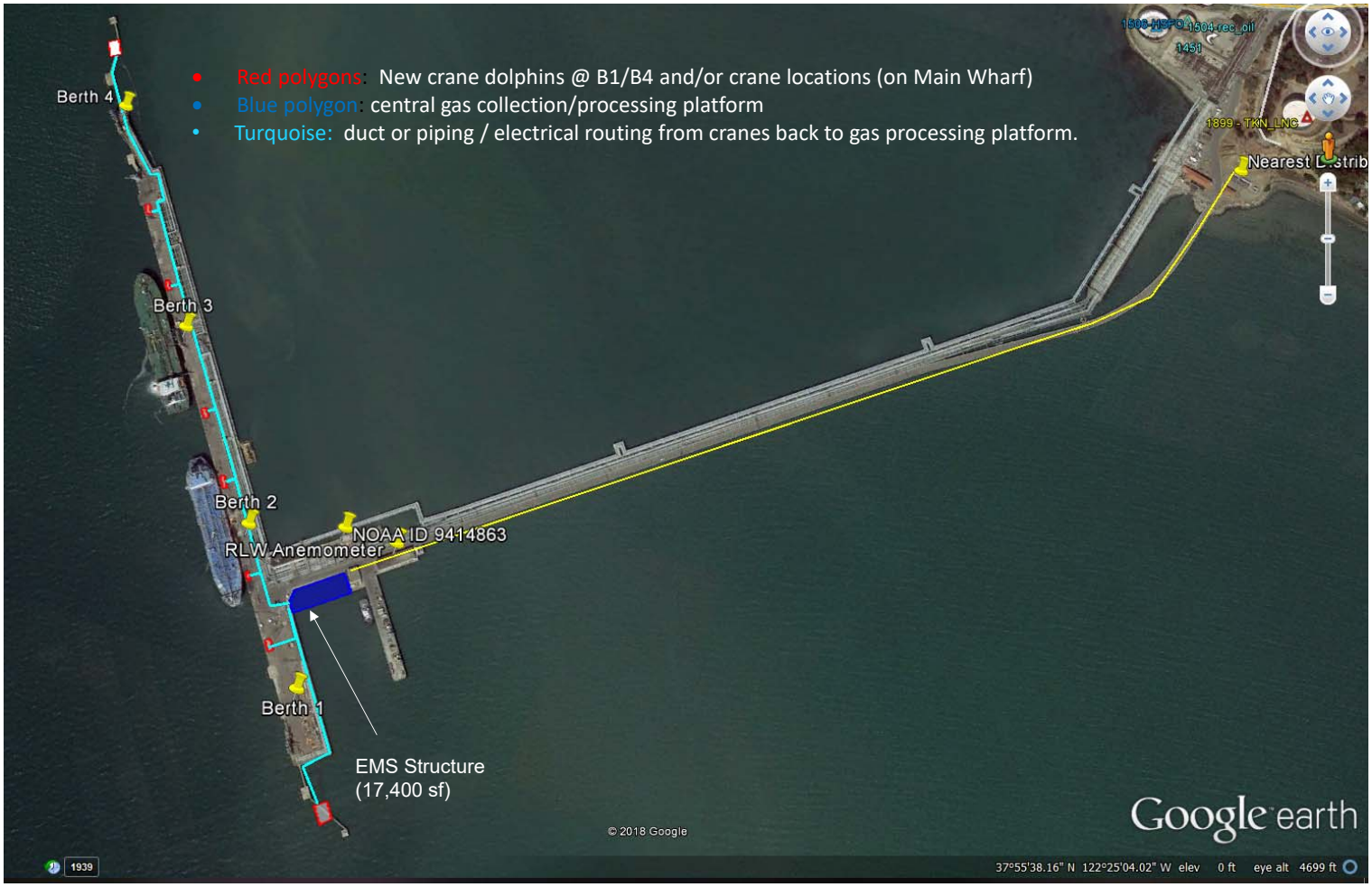
2019 June 10

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Overview

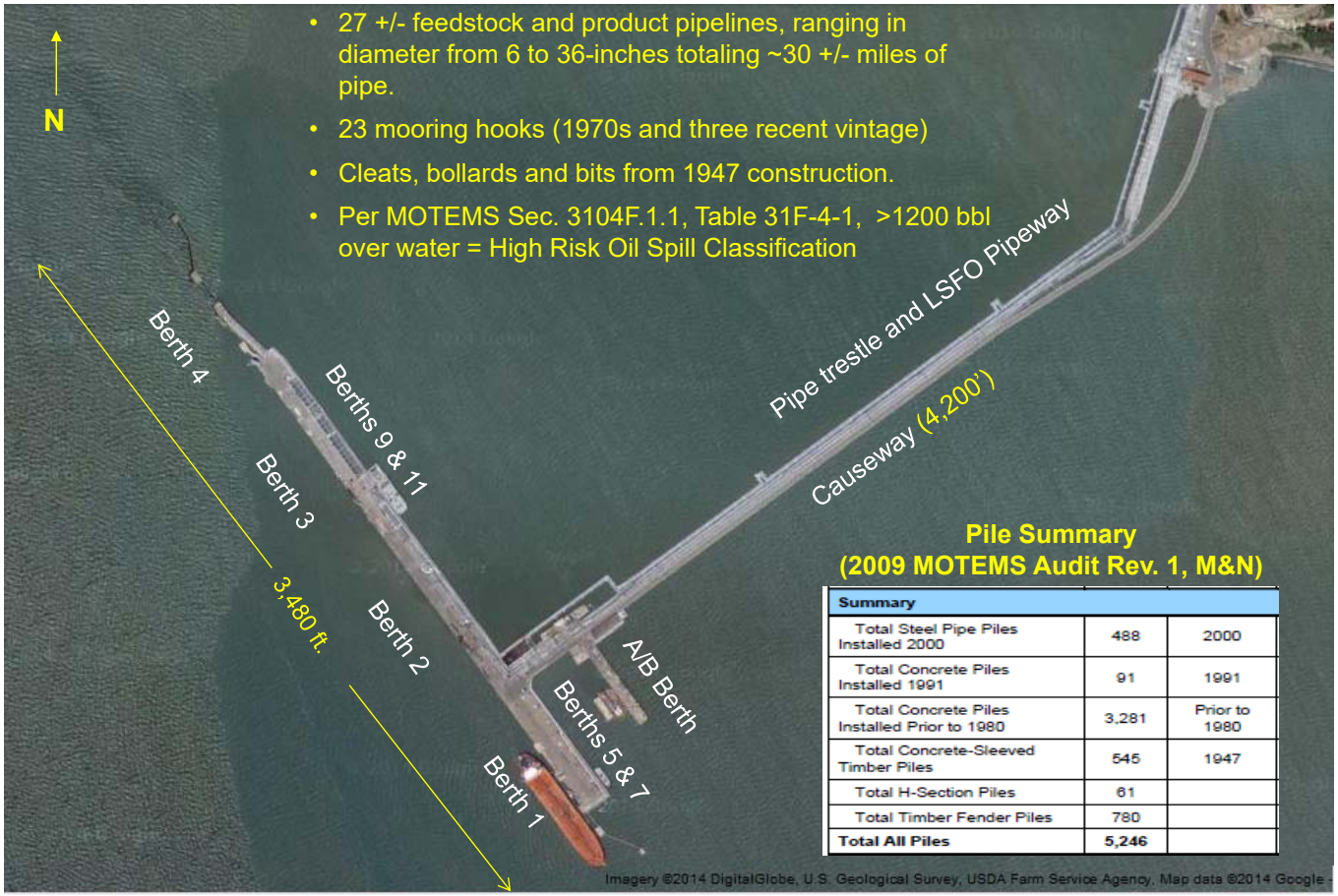
Estimated required infrastructure at Wharf:

- **23,600 ft² (0.5 ac)** of new deck/structure.
  - EMS platform
  - B1/B4 crane dolphins (3000 sf)
  - Estimated ~700-800 24" concrete piles
- **8** new cranes for stack-based controls.
  - At least 4 piles per crane foundation.
  - Replace decking
  - Relocate piping/under-deck obstructions.
- **4,000-6,000 ft** of new ducting to EMS platform at Main Wharf
  - Pipe supports
  - Conduit supports



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Richmond Long Wharf Today



- 27 +/- feedstock and product pipelines, ranging in diameter from 6 to 36-inches totaling ~30 +/- miles of pipe.
- 23 mooring hooks (1970s and three recent vintage)
- Cleats, bollards and bits from 1947 construction.
- Per MOTEMS Sec. 3104F.1.1, Table 31F-4-1, >1200 bbl over water = High Risk Oil Spill Classification

Pile Summary
(2009 MOTEMS Audit Rev. 1, M&N)

Summary		
Total Steel Pipe Piles Installed 2000	488	2000
Total Concrete Piles Installed 1991	91	1991
Total Concrete Piles Installed Prior to 1980	3,281	Prior to 1980
Total Concrete-Sleeved Timber Piles	545	1947
Total H-Section Piles	61	
Total Timber Fender Piles	780	
Total All Piles	**5,246**	

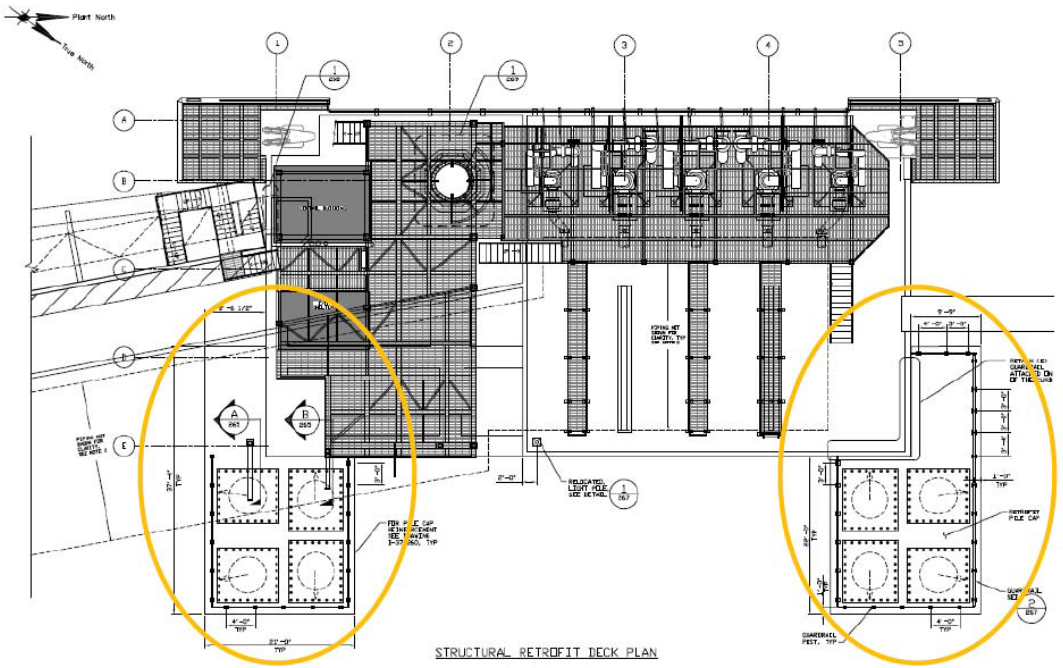
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MOT Structural Design driven by MOTEMS



Berth 4 Seismic Retrofit

(8 new 60-in diameter steel batter piles)



© 2014 Chevron

46

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RLW Construction for Pile Supported Foundation

B4 Gangway



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Construction Methods – Driving concrete pile through deck

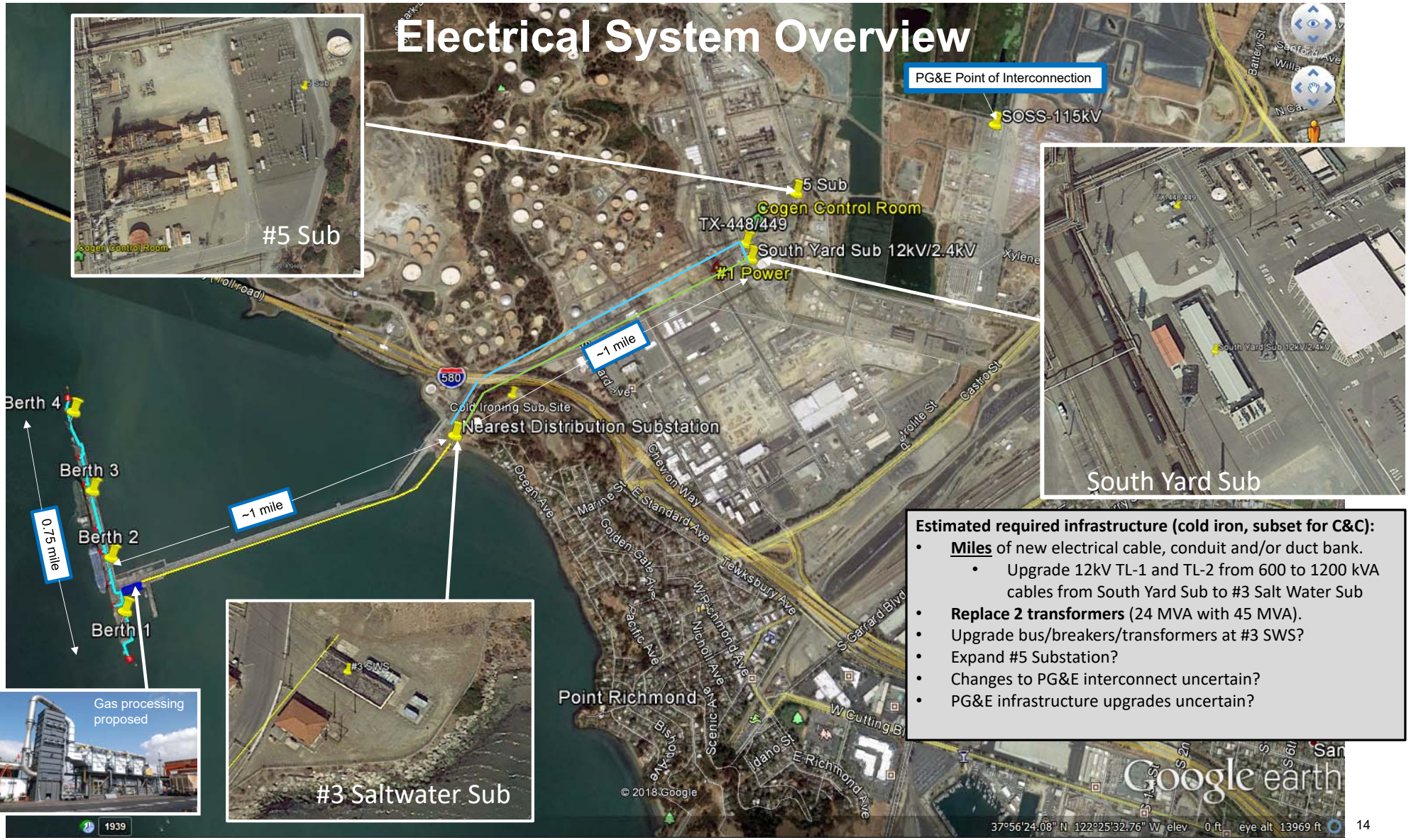




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Electrical System Overview



Estimated required infrastructure (cold iron, subset for C&C):

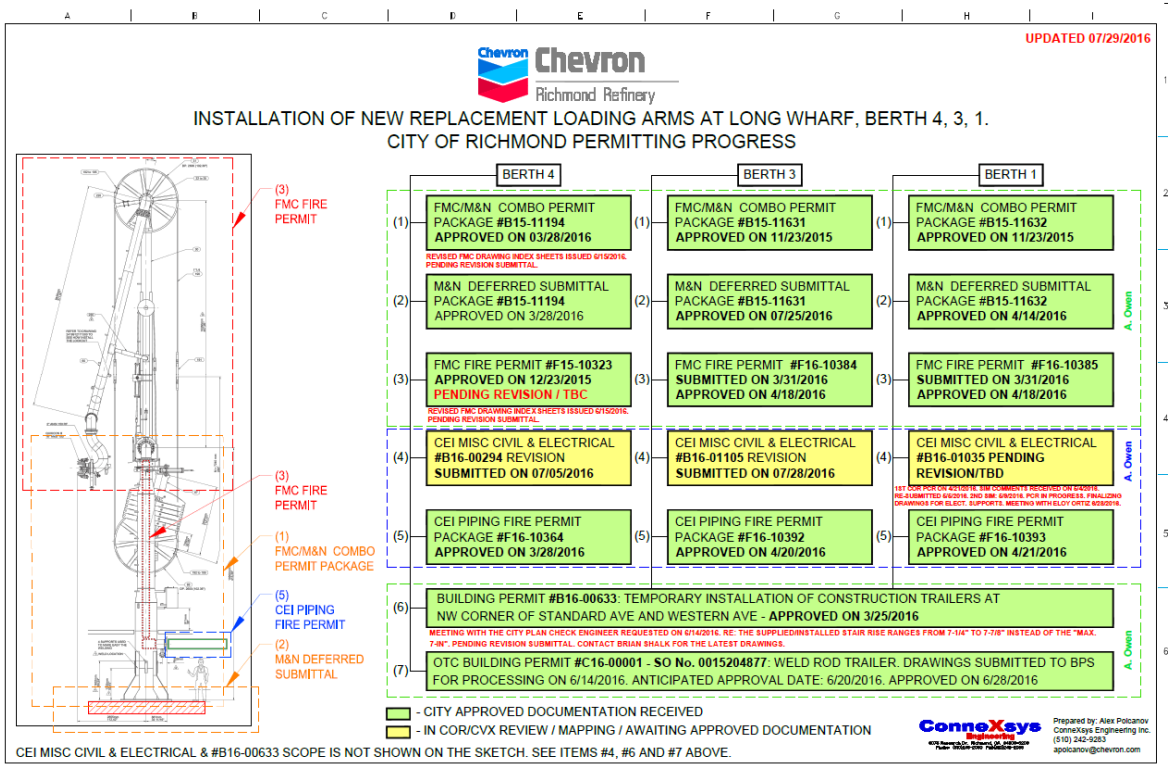
- **Miles** of new electrical cable, conduit and/or duct bank.
  - Upgrade 12kV TL-1 and TL-2 from 600 to 1200 kVA cables from South Yard Sub to #3 Salt Water Sub
- **Replace 2 transformers** (24 MVA with 45 MVA).
- Upgrade bus/breakers/transformers at #3 SWS?
- Expand #5 Substation?
- Changes to PG&E interconnect uncertain?
- PG&E infrastructure upgrades uncertain?

PERMIT REQUIREMENTS – WMEP

Agencies with discretionary permits:

Permitting Agency		Anticipated Approvals/Regulatory Requirements
Local	City of Richmond	Ministerial Building Permits in accordance with the California Building Code and City of Richmond Zoning Ordinance
State	California State Lands Commission (CEQA lead agency)	Environmental review and project approval pursuant to an existing lease
	California Department of Fish and Wildlife (CDFW)	California Endangered Species Act Fish Section 2081
	San Francisco Bay Regional Water Quality Control Board (SFBRWQCB)	Clean Water Act Section 401 Water Quality Certification
	San Francisco Bay Conservation and Development Commission (BCDC)	Amendment to Refinery Long Wharf Permit No. M1987.015
Federal	U.S. Army Corps of Engineers (USACE)	Clean Water Act (CWA) Section 404 (under Nationwide Permit No. 3)
	U.S. Fish and Wildlife Service (USFWS) National Marine Fisheries Service (NMFS)	Section 7 Consultation under federal Endangered Species Act (if necessary) Marine Mammal Protection Act – Incidental Harassment Authorization

Local ministerial building permits:

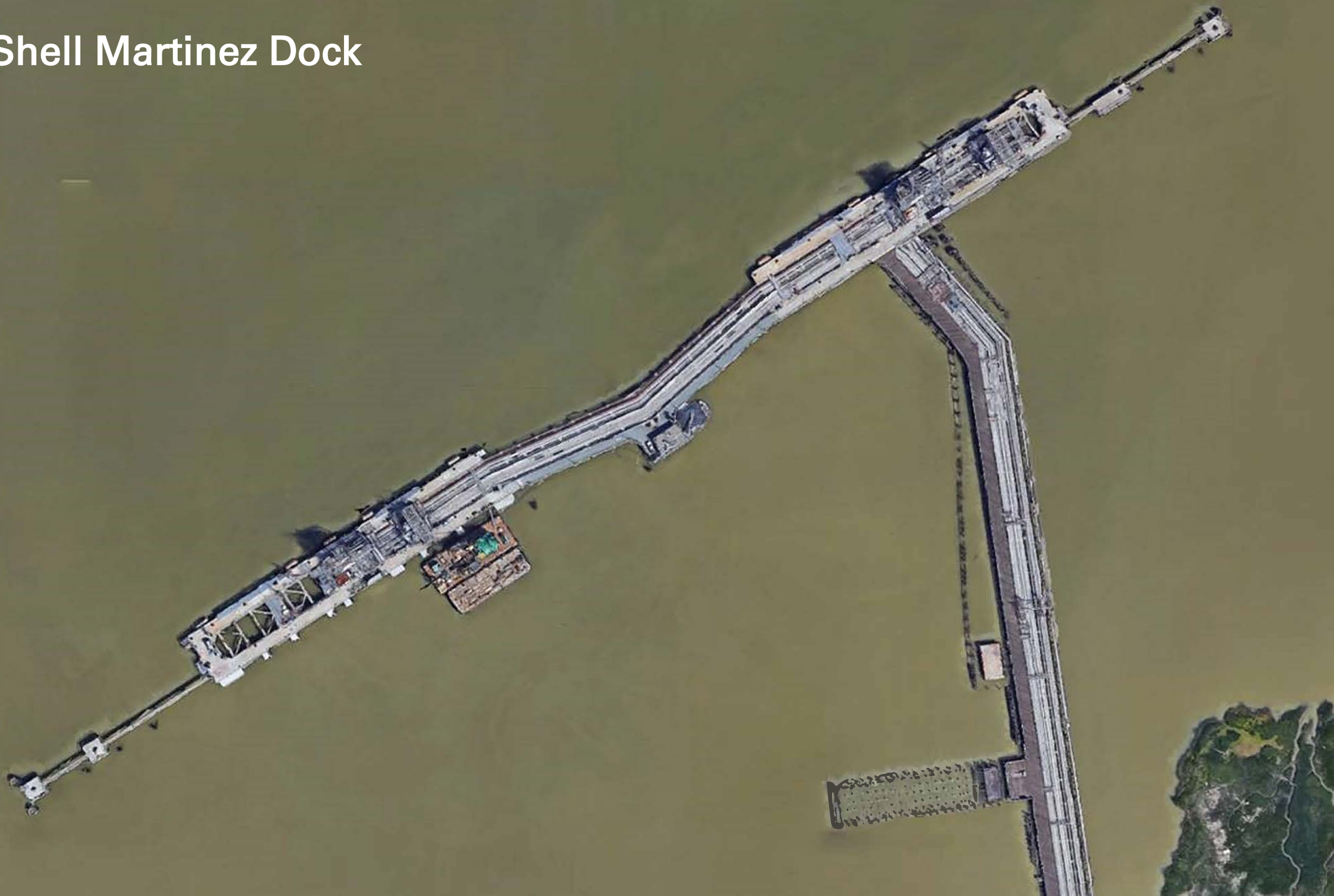


Plus mitigation costs for impacts to marine habitat (WMEP): 2017 = ~$2.5MM/acre ($250K/0.11ac impact)

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Exhibit 5: Aerial Photographs of Marine Terminals

Shell Martinez Dock



Martinez – Amorco Wharf



Martinez – Avon Wharf



POLB – Terminal 2




Los Angeles Berth 164
Pipelines
Access ramp
Pipelines
Access ramp
Pump house
Pipelines
Terminal buildings
Pipelines
Truck turning lot
Pipelines
Pipelines
Access ramp
Vapor Unit

Exhibit 6: Wharf Improvement Project Timelines

Timelines for Projects Involving Substantial New Wharf Infrastructure Comparable to At Berth Rule Compliance Projects

ISOR Reported: Average 5.2 Years, Range 3 - 9 Years[1]

Actual: Average 11.6 Years, Range 7 - 15 Years

Project	Start and Completion Dates and description, as reported in ISOR, pp. III-19 – 21	Actual Timeline with Start and Completion Dates	Timelines Comparison
Chevron Richmond Wharf Maintenance and Efficiency Project (WMEP)	Project "started from 2014 and is estimated for completion by 2023…. The project's initial design, permit submittal and approval phase lasted from 2014 to 2017. The construction phase for the one of the berth improvements began in 2018 and estimated for completion by 2022. The construction phase for the other berth improvements began in 2018 and estimated for completion by 2023. There will be a 2 month period after construction for operation evaluation of the new components."	**October 2008:** Project inception and scope development incorporating MOTEMS audit findings **January 2010-September 2014:** Project design and planning process, including required technical studies **April 2014:** Initial permit applications submitted **October 2016**: Mitigated Negative Declaration (MND) **June 2017** MND Addendum **July 2017:** Permits received from State Lands Commission, San Francisco Bay Conservation and Development Commission, Cal. Dept of Fish & Wildlife, Regional Water Quality Control Board, Army Corps of Engineers, National Marine Fisheries Service **2018:** Construction commenced. **April 2022**: Estimated completion of Berth 4 seismic retrofit	CARB: 9 years Actual: 15 years if completed on schedule

[1] Project durations reported in the ISOR include two projects – the Chevron Richmond Long Wharf MOTEMS compliance project and Green Omni Terminal ShoreKat Demonstration Project – that were limited to repairs of existing structures and minor equipment installation. Those two projects are excluded from this chart as not properly comparable with the timelines for planning, permitting and construction of substantial new wharf infrastructure to achieve compliance with the At Berth rule, i.e., new cranes and other major equipment installation on new or expanded wharf decking with new supporting piles. If those projects were included, with timelines reported in the ISOR, the average project duration for projects in the ISOR would be 4.6 years, range 3-9 years.

		construction **February 2023**: Estimated completion of Berth 4 fender replacement construction *Source: Information provided by 10/8 and 10/9/18 emails from K. Boven, Chevron, to N. Light, CARB*	
Port of Richmond IMTT Terminal Warf Modification Project	"Based on the available information, CARB staff assessed that the project started in late 2011 and was completed by early 2015."	**2008**: Project planning initiated **Fourth quarter 2011:** Basis of design and concept layout **Third quarter 2012 – end of 2013**: Permitting **Second quarter 2014:** Construction commenced **First quarter 2015:** Estimated completion of construction from 2014 summary **October 2015:** Actual construction completion *Source: California State Lands Commission, International-Matex Tank Terminals, IMTT Wharf Modification Project Prevention First 2014 (October 7, 2014)* (https://www.slc.ca.gov/wp-content/uploads/2018/08/PF2014_MOTEMS-IMTT.pdf), *updated by N. Lucas, IMTT, personal communication*	CARB: 3.5 years Actual: 7 years
Berths 167-169 Shell MOTEMS Wharf Improvement Projects (POLA)	"The construction for this project began in 2017 and scheduled to be completed in 2020."	**2010:** MOTEMS audit **July 2015**: Notice of Preparation of Environmental Impact Report (EIR) **March 2018:** Draft EIR **July 2018**: Final EIR	CARB: 3 years Actual: 13 years if completed on schedule

		August 2023: Estimated completion of construction from EIR *Source: Berths 167-169 [Shell] Marine Oil Terminal Wharf Improvement Project Final EIR (July 2018), p. 1-5 (https://kentico.portoflosangeles.org/getmedia/3a7e6ce5-41ab-4d09-9e6f-c9b2f6d63559/Shell-MOTEMS_FEIR)*	
Tesoro Avon Terminal MOTEMS update	Not included in ISOR; modifications include construction of new vessel loading/unloading platform and mooring dolphin on new steel pilings, and construction of associated facility structures, electrical, mechanical and piping systems	**March 2008**: MOTEMS audit **April 2014:** EIR Notice of Preparation **September 2014:** Draft EIR **January 2015**: Final EIR **2016:** Estimated completion of construction from EIR **February 2017**: Actual construction completion *Source: Tesoro Avon Marine Oil Terminal Lease Consideration Final EIR (Jan. 2015), p. 2-8 (https://www.slc.ca.gov/wp-content/uploads/2018/09/2.0_PD.pdf); updated by B. McDonald, Marathon Petroleum, personal communication*	CARB: Not included in ISOR Schedule in CEQA document: 8 years Actual: 9 years
Berths 238-239 [PBF Energy] Marine Oil Terminal Wharf Improvements Project	Not included in ISOR; modifications include construction of new marine platforms and associated mooring and breasting dolphins at both berths	**2008:** MOTEMS audit **March 2018**: Draft MND **June 2018**: Final MND **March 2020**: Estimated completion of construction from MND **December 2022**: Expected completion of construction based on current information *Source: Berths 238-239 [PBF Energy] Marine Oil Terminal Wharf Improvements Project, Final Initial Study/Mitigated*	CARB: Not included in ISOR Schedule in CEQA document: 12 years Actual: 14 years if completed on schedule

		Negative Declaration (June 2018), p. 2-10 (*https://kentico.portoflosangeles.org/getmedia/4db8b80c-7101-4158-b656-00664f9c04df/PBF_Energy_ISMND_Final*); *updated by M. Kajioka, PBF Energy, personal communication*)	

Exhibit 7: Power Engineering Construction Co. Comment Letter (November 6, 2019)

Duplicate of Comment
Letter 3 - Mik, David,
Power Engineering
Construction Co.

November 6, 2019

Duplicate See Comment Letter 3

Clerk's Office
California Air Resources Board (CARB)
1001 "I" Street
Sacramento, CA 95814

Subj: Comments on Proposed Control Measure for Ocean-Going Vessels at Berth

To CARB Staff:

I am writing to provide commentary on the proposed timeline for the design, permitting, construction, and testing of an At-Berth Shore Based Emission Control Program for Tankers at California Ports. As an Oakland, CA resident and business owner, I share CARB's desire to implement regulations that achieve real world air quality goals.

My goal in writing is to share my experience as a California marine contractor – specifically as it applies to the lengthy project timelines of most marine projects in California and the reality of how difficult it is to move quickly through the phases of marine work. Marine projects routinely face regulatory hurdles and engineering constraints not found in land-based construction. These hurdles and constraints translate into long program schedules. I believe the timeline being considered for the Proposed Control Measure is unrealistically short and doesn't consider the unique nature of designing, entitling, and constructing over-water structures and facilities.

As background, I am the President and Principle owner of Power Engineering Construction Co. We are a marine contractor based in Alameda, CA. The company has been in business for 33 years and I've been here for 27 of those years. Our business focuses on building and repairing in-water structures. Our slogan is "Engineering Construction near, on, and under the water". We routinely get involved in up-front preconstruction, design, and entitlement of marine structures and systems as part of the service we offer our clients. Our customer base is diverse and includes most major oil companies, a variety of municipal clients including SFPUC, the Port of San Francisco, WETA, and a range of private business owners working along the waterfront. For a small snapshot of projects we've completed throughout California, the attached graphic **(Exhibit A)** shows our recent San Francisco waterfront projects.

The range and breadth of our marine construction experience affords us a unique perspective in how long it takes for a successful project to go from concept to operation. In general, we advise clients to expect a full project timeline of 8-10 years for a standard over-water marine facility; this timeline includes work from concept, through entitlement, to construction and operation.

One can quibble with the durations of individual tasks including site studies, engineering, the CEQA process, contracting, etc. However, empirically, all but the most basic marine construction projects prove to track into an 8 to 10-year timeline. The attached spreadsheet **(Exhibit B)** shows three example projects *outside* of the marine oil terminal industry that

support this assertion. Each of these projects was considered publicly desirable, faced little opposition, and each was managed by a very motivated team. Regardless, each example project followed a decadal life cycle due to the complexity of regulatory review, the challenges of over-water design, and the limitations and work windows imposed during construction.

While the three example projects demonstrate only a small sample size, these projects provide similarities to the work required to implement an At-Berth Emission Capture program. In a sense, the example projects provide a lower bound for the anticipated project duration as none was completed in an active marine terminal. An active marine fuel terminal imposes additional safety and scheduling constraints that generally result in longer construction durations.

Also, the projects selected as examples do not consider one key element of the proposed new regulation: issues surrounding the technical feasibility of an At-Berth Shore Based Emission Control System. The Emission Capture equipment and supporting machinery will add to the overall project timeline through both feasibility testing and extended equipment procurement. The attached spreadsheet **(Exhibit C)** shows a sampling of recent heavy over-water equipment purchases (cranes and fuel loading arms) and demonstrates the additional timeline that may be required. One can assume the required emission control equipment, or the expansion of required electrical infrastructure, will follow a similar (if not longer) procurement cycle to these example purchases.

Overall, I ask the CARB staff to consider proposing on an 8-10 year timeline for design, entitlement, and construction of an At-Berth Emission Control program in California Marine Terminals. This timeline should begin once a feasibility study is completed and appropriate emission control technology is proven to be readily available.

Should you have any questions, please contact me at 415-559-0097.

Sincerely;

Power Engineering Construction Co.

David Mik
President

Enclosed:
Exhibit A – Power Engineering Construction Co. example projects
Exhibit B - examples of three relevant marine project timelines.
Exhibit C - examples of equipment procurement and installation timelines.

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- Diving Services
- Rock Rip Rap
- Sheetpile Shoring and Cofferdams
- Outfalls & Intakes
- Marinas

Civil

- Steel and Concrete Structures
- Flood and Erosion Control
- Water and Wastewater
- Creek/Wetland/Habitat Restoration
- Slope Stabilization and Rock Bolting
- Concrete Rehabilitation

Design-Build

Power has established a reputation for understanding the needs of Owners and Engineers on design-build projects. Through coordination of project team members, Power Engineering has demonstrated the ability to inspire the Owner, Permitting Agencies, Engineers, Subcontractors, and its staff to work together in taking design-build projects from concept to completion.

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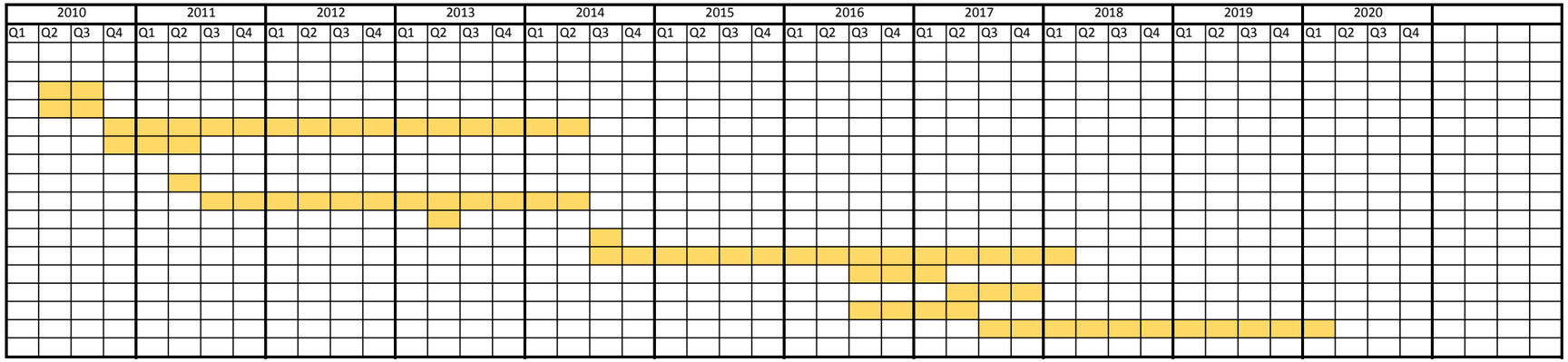
Example Marine Construction Projects in Northern California
Timeline Summary

Project Lifecycle Duration	Number of Years
WETA SF DFTX, SF, CA	10.0
SFFD Fire Station 35, SF, CA	8.5
Exploratorium Museum at Pier 15	10.5

WETA - SF Downtown Ferry Terminal, SF, CA

($76M over-water ferry terminal)

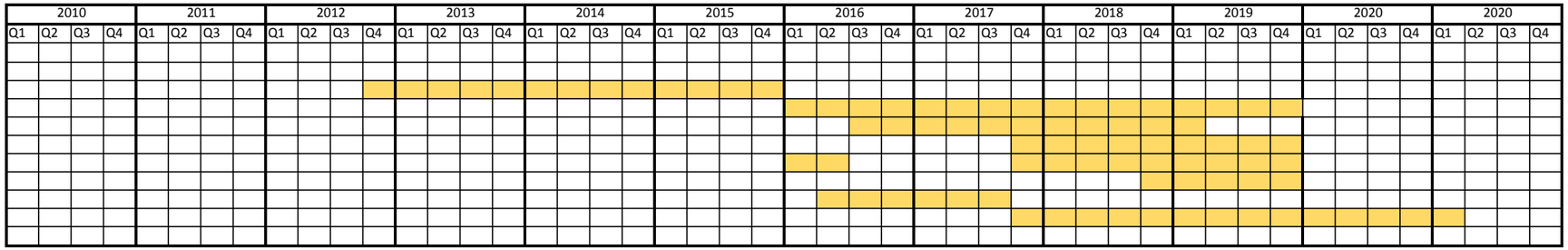
Hire Design Consultants
Hire Environmental Consultants
Design
Environmental Preparation
Environmental (NEPA/CEQA):
NOI/NOP
EIR Development
Draft EIR
Final EIR/Final Determination
Permitting
Contracting - Section 1
Construction - Section 1
Contracting - Section 2
Construction - Section 2



SFFD Fire Station 35 - New Floating Fire Station, SF, CA

($31M new-build floating fire station)

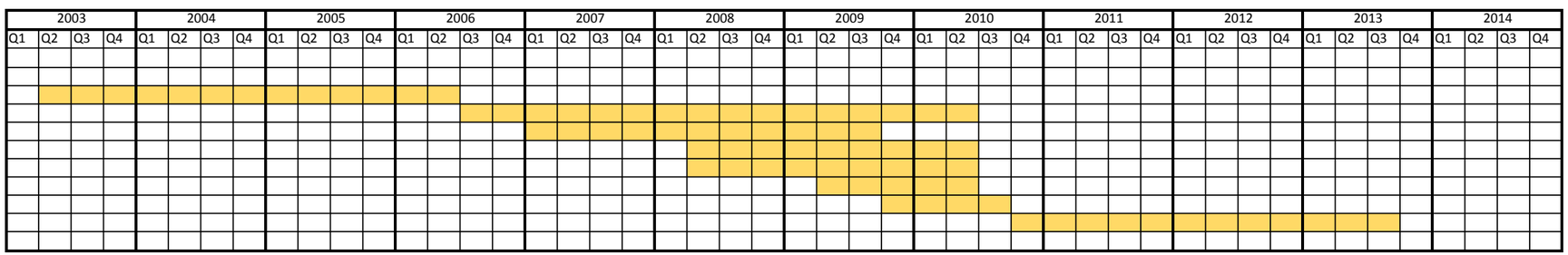
Site Determination, Massing, Funding, Initial Contact with Regulators
Regulatory/Entitlement Process
CEQA Process (Project received a Neg. Dec.)
Requlatory Approvals
Design
Permitting
Contracting
Construction



Exploratorium Museum at Pier 15, SF, CA

($51M in-water/$300M total construction of new museum space)

Site Determination, Massing, Funding, Initial Contact with Regulators
Regulatory/Entitlement Process (over 30 AHJ's involved)
CEQA Process
Requlatory Approvals
Design
Permitting
Contracting
Construction



Heavy Equipment
Procurement & Installation Duration

Large Container Cranes (source, Shanghai Zhenhua Heavy Industries/ZPMC/Liftech Consultants, Inc.)

	Average	Min	Max	
Duration for Standard Cranes:	33.0	30.0	36.0	

(for non-standard, add "several quarters" to duration)

	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Procurement/Vendor Selection												
Design												
Fabrication												
Delivery												
Installation & Testing												
(install duration is for one berth)												

Conventional Dock Mounted Marine Hydraulic Cranes (source, Rapp Marine NW, LLC - see WETA Central Bay Maintenance Terminal, Chevron RLW Berth 2, etc.)

	Average	Min	Max	
Duration for Hydraulic Cranes:	17.0	15.0	19.0	

	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Procurement/Vendor Selection												
Design												
Fabrication												
Delivery												
Installation & Testing												
(install duration is for one berth)												

Rotary or Dual Counterweight Fuel Loading Arms (source, FMC/PEC - see Chevron RLW Loading Arm Replacement Project

	Average	Min	Max	
Duration for Fuel Loading Arms:	23.5	22.0	25.0	

	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Procurement/Vendor Selection												
Design												
Fabrication												
Delivery												
Installation & Testing												
(install duration is for one berth)												

Exhibit 8: Chevron Comments (February 15, 2019)

Henry T. Perea
Manager, CA/OR/WA Government Affairs

February 15, 2019

Ms. Cynthia Marvin
California Air Resources Board
1001 I Street
Sacramento, California 95814

via e-mail at cynthia.marvin@arb.ca.gov

Re: Chevron Comments to Proposed At Berth and At Anchor Regulation Emission Inventory and Preliminary Health Analyses

Dear Ms. Marvin,

Chevron Products Company and Chevron Shipping Company (collectively, "Chevron") have prepared comments in response to the release of data related to the *DRAFT: 2018/2019 Update to Inventory for Ocean-Going Vessels: Methodology and Results* and *Preliminary Health Analyses: Control Measure for Ocean-Going Vessels (OGV) At Berth and At Anchor ("HRA")*.

After close review of the Inventory, Chevron contends that some of the data and assumptions used when calculating the inventory dramatically overestimate emissions from tankers at Richmond Long Wharf (RLW). Specifically, the areas of major concern are:

- Substantial underestimation of the impact of Tier III tankers which will significantly reduce emissions from vessels at berth as early as 2030.
- Overestimation of activities of tankers at berth, resulting in significantly inflated emissions inventory for tankers.
- Application of highly incompatible data from POLB/POLA to operations at RLW, resulting in a significantly inflated inventory.
- Forecasts of future vessel traffic growth that significantly exceed historical data and Chevron's own forecast for tanker traffic at RLW.
- Potential misinterpretation of the HRA model as currently depicted. Chevron recommends minor changes in the presentation of the HRA data to provide a better representation of the actual situation.

We recognize that CARB has spent considerable time and effort on this analysis, and we offer the following comments in an effort to provide greater accuracy. Chevron looks forward to continuing discussions on how to proactively and practically reduce emissions from our facilities in support of on-going CARB efforts.

22-.30

1. Introduction of Tier III Compliant Vessels prior to 2030

- Delayed expected introduction of Tier 3 marine engines to 2030 or later, based on a study by Starcrest and Ports of LA/LB

At the core of CARB's proposed regulation is the assumption that there will be zero Tier III-compliant vessels in service before 2030, and consequently, CARB asserts the only mechanism to achieve emission reductions by OGVs is through regulation of OGV at berth emissions. CARB cites a study by Starcrest (2017), which concludes that there will be no Tier III vessels in service in the world's fleet, and Starcrest's study is based on vessels with the potential to call at the Port of Long Beach (POLB) and Port of Los Angles (POLA).

Chevron Government Affairs
1201 K Street, Suite 1910, Sacramento, CA 95814
Tel 916 325 3000 Fax 916 441 5031
henryperea@chevron.com

As a marine terminal, Chevron RLW receives a distinctly different population of tanker vessels than POLA/POLB. In short, marine terminals operations and the vessels that call at them are distinctly different than port operations. In particular, the RLW and other Northern California marine terminals lack the capability to accommodate ULCC and VLCC vessels.

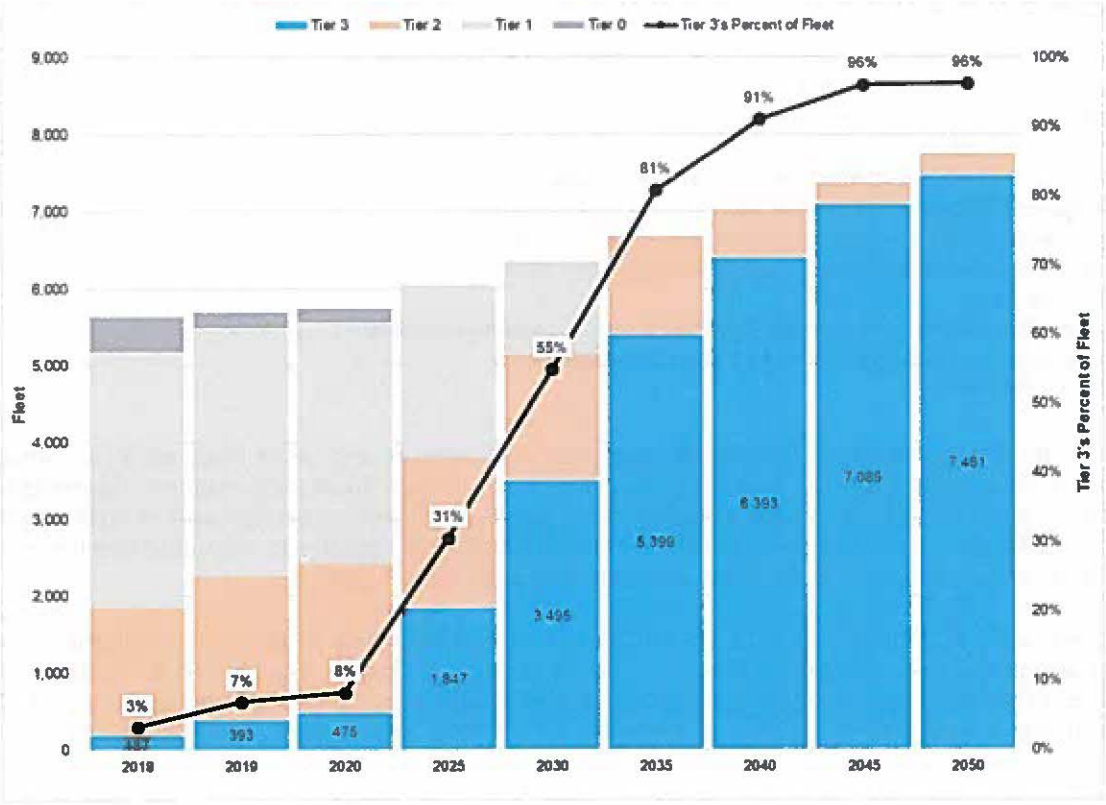
Further, Chevron implements vessel clearance procedures to ensure that all vessels calling at RLW are suitable to fit our fender spacing at berth, and meet our operational, health and safety standards or "OE" standards. Consequently, our vessel vetting criteria effectively prohibits foreign-flagged tankers older than 18 years to call at RLW. There may be other vessel types with a longer useful life up to 25 years, such as chemical carriers that carry only clean refined products, or US-flagged Jones Act vessels. Nevertheless, the vast majority of ships that can call at RLW, and that meet our vessel clearance standards, will be 18 years of age or younger. These age guidelines for vessels calling at marine terminals are common to the industry.

Using an industry vessel database purchased from Clarksons, Chevron Shipping assessed the portion of the world's fleet that has the capability to call RLW. For existing vessels, one can estimate the keel laid date and determine what engine tier level was installed in the ship. As of 2018, 1-2% of the world fleet meets Tier III requirements. In fact, Chevron took delivery of 2 Tier III vessels in 2018, and one third of our total fleet will be Tier III by 2021. This is significant because there are currently more than zero Tier III vessels, indicating large errors in Starcrest's forecast that Tier III tanker vessels will not exist until 2031 at the earliest (Figure 3.8, Starcrest 2017).

More specifically, Chevron built two Suezmax-sized tankers that are used to lighter nearly 70% of Richmond Refinery's crude deliveries to the RLW. These two lightering vessels have keel-laid dates in 2013 but were designed to be able to operate their electrical generation at RLW in low-emission mode by using superheated steam auxiliary boilers and turbogenerators, which do not produce diesel particulate matter (DPM) and have a much lower NOx emissions than Tier III diesel engines. In fact, according to a boiler burner maker, marine boiler NOx emissions are 0.78g/kWh, significantly lower than the Tier III limit for a 900 rpm diesel generator which is 2.31g/kWh www.volcano.co.jp/english/pdf/Volcano_TCS_Bulletin_004PB.pdf. As of 2018, these vessels, with NOx emissions below Tier III levels, represent a considerable amount of our annual at berth emissions (70% of our crude deliveries are via Suezmax-sized vessels).

Our study concluded that 55% of vessels calling at RLW would be expected to be Tier III compliant by 2030, and 80% of vessels would be Tier III compliant by 2035. In addition to our analysis, an independent 3rd party conducted a similar analysis and demonstrated similar results – about 50% of vessels by 2030. With two independent data evaluations, we believe the Starcrest (2017) report is erroneous and calls into question the entire purpose of the proposed at berth regulation. If nearly 80% of vessels calling at Northern California Marine Terminal Complexes owned/operated by major oil companies will be Tier III-compliant by 2035, then this regulation will have less than 5 years of relevance toward achieving its target emission reductions before vessel-side technologies meet or exceed the 80% control factor. Further, on-board emission controls will exceed the magnitude of reductions capable with at berth controls, because on-board controls will benefit the entire Emission Control Area (ECA) during transit and maneuvering. Consequently, the cost-effectiveness of this proposed at berth regulation appears to be very low.

Figure 1-1: Forecast of percentage of Tier III vessels capable of calling at RLW by year
(*Source: Chevron forecast using Clarkson's commercially available fleet database, factoring in vessel clearance procedures*)



Key Assumptions

- 2018 global fleet data from Clarksons Research
  - Data as of December 2018
- Ships built after 2020 assumed Tier 3
  - 50% assumed Tier 3 in 2019
  - 50% assumed Tier 3 in 2020
- Useful life per industry standards
  - Crude and Product – 18 years
  - Chemical – 25 years
- Fleet growth assumed to be 1% per year

2. Vessel Parameters and Activities at Berth

3. **General Emissions Inventory Methodology and Sources**

Broadly, the following steps describe the inventory process, with more detail included later in the report, along with the source data:

22.31a

1. Vessel broadcasting data along with GIS mapping determines the number of vessel visits for each port in California (grouped by vessel type and vessel size)
2. Vessel broadcasting data also determines the average length of stay for all vessel visits (by vessel type, size and port)
3. Information on average engine effective power (based on the Starcrest Vessel Boarding Program) is combined with vessel visit and duration information
4. Future years are forecasted by applying a growth rate (specific to port, vessel type, and in some cases vessel size) and assuming an equivalent age distribution of vessel visits in the future
5. Compliance data from CARB's Enforcement Divisions is used to determine reduced engine activity time – and therefore reduced emissions – resulting from CARB's At Berth Regulation

The table below (Table 2-1) summarizes the vessel categories and auxiliary and boiler loads as a percentage of pumping load for pumping, loading and idle activities. Using this methodology, Table 2-2 compares the energy used per vessel type for vessels calling at RLW against CARB's calculated energy per vessel type assuming POLA/POLB engine loads, and corresponding emissions. CARB's current methodology appears to over-estimate the at berth emissions at RLW by at least a factor of two or more, depending upon vessel type.

As mentioned previously, VLCCs and ULCCs do not call at marine terminals in Northern California. For the remaining vessel categories, there are distinct differences between the load factors seen in POLA/POLB and those at RLW. In addition to the load factors, the actual activities performed by the vessels calling at RLW and, likely, other marine terminals are significantly different than the way CARB has represented the activities in their calculations.

The largest difference appears to be that CARB's calculation of "Average Engine Effective Power" assumes vessels are pumping 100% of the time that they are at berth, when in fact, at RLW, vessels except Suezmax spend significant amount of their time at berth loading by gravity feed. The pumping rates/discharge rates are generally higher than the gravity-fed loading rates. Vessels are also idle for a substantial period while at berth, when they are neither pumping nor loading. Consequently, the assumption that the vessels are pumping continuously leads to over estimating emissions at berth.

22.31b

Vessels at berth pump to two primary destinations within Chevron Richmond Refinery:

1. Crude deliveries are pumped directly to low-elevation crude tanks,
2. Non-crude deliveries are pumped to the base of the RLW causeway, whre electric booster pumps move delivered products to tanks higher in the refinery tank field.

The non-crude ships discharging feedstocks or blendstocks use only enough energy to push the product from the cargo hold and fill the pipeline, but not to move the product up hill. Using electric pumps in the refinery pump stations is a low-emission means of offloading vessels and distributing product to the refinery tankage.

To achieve a more accurate estimate of actual at berth emissions, CARB should follow the calculation methodology proposed below by ship type to reflect that vessels at berth are performing different activities during their visit, namely pumping to discharge feedstocks, and then loading to take refined product which is at the vessel "idle" or "hoteling" load:

1. [Average Pumping Duration] x [Average Pumping Load] x [Emission Factor] = Pumping Emissions
2. [Average Ballasting Duration] x [Average Ballasting Load] x [Emission Factor] = Ballasting Emissions

3. [Average Hoteling Duration] x [Average Hoteling Load] x [Emission Factor] = Hoteling Emissions
4. Total Vessel at Berth Emissions = [Pumping Emissions] + [Ballasting Emissions] + [Hoteling Emissions]

NOTE: The pumping load is correlated to the pumping rates by vessel type at RLW. The pumping rates at each terminal are unique to the piping and tank configuration, geography and operational constraints of each terminal.

Table 2-1: RLW Vessel Type, Activities and Associated Loads Represented as % of Pumping Load.

Vessel Type	Pump Type	Percent of Calls	Average Hotel Time (hrs)	% of Hotel Time			% of Auxiliary Load during pumping			% of Boiler Load during pumping			
				Loading	Discharge	Idle	Loading	Discharge	Idle	Loading	Discharge	Idle	
SeaWayMax	Diesel	54%	42.70	43%	37%	20%	70%	100%	55%	100%	100%	100%	
	Steam	2%	54.96	64%	0%	36%	100%	100%	80%	100%	100%	100%	Steam pumpers at RLW only load
PanaMax	Diesel	3%	69.47	0%	75%	25%	55%	100%	36%	100%	100%	100%	
	Steam	4%	58.98	9%	59%	32%	100%	100%	64%	45%	100%	45%	
AfraMax	Steam	7%	57.37	31%	38%	31%	100%	100%	63%	33%	100%	33%	
SuezMax	Steam	30%	28.09	0%	63%	37%	100%	100%	69%	45%	100%	37%	
Averages		100%	40.90	27%	46%	27%	82%	100%	60%	77%	100%	74%	

Table 2-2: Emission Inventory Comparison for RLW – Chevron vs. CARB values.

Vessel Type	Engine Type	Energy Used (kWh)		NOx (tpy)		PM10 (tpy)		PM2.5 (tpy)		DPM (tpy)		SOx (tpy)		CO2eq (tpy)	
		Chevron	ARB	Chevron	ARB	Chevron	ARB	Chevron	ARB	Chevron	ARB	Chevron	ARB	Chevron	ARB
SeaWayMax	Auxiliary	7,088,183	10,003,056	98.84	138.07	2.03	2.01	1.88	1.85	2.03	2.01	3.91	4.68	5,429.0	7,451.4
	Boiler	1,360,426	32,994,774	2.98	72.56	0.21	5.96	0.19	5.49	-	-	0.90	21.33	1,409.5	33,978.7
PanaMax	Auxiliary	1,144,086	1,175,238	15.39	15.81	0.33	0.24	0.30	0.22	0.33	0.71	0.63	0.55	876.3	875.5
	Boiler	1,084,622	6,147,537	2.33	13.52	0.16	1.11	0.15	1.02	-	-	0.70	3.97	1,098.5	6,330.9
AfraMax	Auxiliary	956,242	1,046,180	12.36	13.69	0.27	0.21	0.25	0.19	0.27	0.21	0.53	0.49	732.4	779.3
	Boiler	951,820	7,268,350	1.84	15.98	0.13	1.31	0.12	1.21	-	-	0.55	4.70	867.5	7,485.1
SuezMax	Auxiliary	1,411,786	5,702,957	19.53	69.76	0.40	1.15	0.37	1.05	0.40	1.15	0.78	2.67	1,080.4	4,248.1
	Boiler	6,909,414	13,281,139	11.42	29.21	0.80	2.40	0.74	2.21	-	-	3.43	8.59	5,394.6	13,677.2

Chevron will transmit the underlying data and calculations to CARB as confidential business information, however, the main drivers for the differences are likely due to the following:

a. Chevron's estimate is based upon (discharge pumping rate) x (discharge time plus hoteling load) x (hoteling time plus ballasting load) x (ballasting time) because vessels are not continuously pumping, sometimes they are simply idle, and some vessels load via gravity feed from shore tankage for a longer duration than they pump while at berth.
b. ARB uses same boiler and auxiliary loads for steam and diesel pumpers which were most likely measured (or determined through interviews) on steam pumpers at berth in Starcrest's Vessel Boarding Program while pumping. Almost all SeawayMax vessels and a large portion of PanaMax vessels that stop at RLW are diesel pumpers.
c. The ratio of crude versus product carriers is incorrect for SeawayMax and PanaMax vessel types.
d. Boiler emissions are lower because the vessels are not pumping the entire time at berth.
e. SuezMax auxiliary engine emissions are lower because of Chevron-owned lightering vessels, which use the boilers and turbogenerators to deliver electricity and account for 70% of refinery crude feedstock deliveries. No DPM is emitted and NOx emissions are lower than Tier III diesel auxiliaries.
f. For all crude carriers, 25% of boiler exhaust is pumped into cargo tanks as inert gas and not released at berth during discharge. When these vessels lighter with the VLCC in Southern California, they vapor balance with the VLCC ship. The inert gas in the SuezMax vessel is pumped into the VLCC as inert gas.

Vessel Activity Databases

San Francisco Marine Exchange is a suitable database and would use assumptions/processes consistent with those employed in South Coast area, but it needs supplemental data from Chevron to estimate at berth activities. Chevron will transmit its operational summary tables as confidential information for at berth activity as an output from our proprietary database.

3.1. Base Year Vessel Visits and Time At Berth

The inventory updates for vessel visits and time at berth are based on:

- 2016 IHS-Markit Vessel Registry data for vessels that visited California
- 2016 IHS-Markit at berth times for California
- 2016 South Coast Marine Exchange Arrival and Departure Data

The IHS-Markit data is used for the majority of California territorial waters, and the South Coast Marine Exchange is used specifically for the Ports of LA/LB.

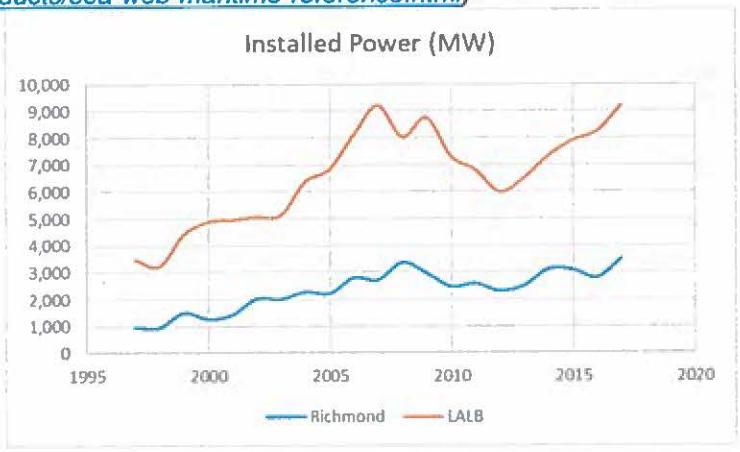
3. Comparison of POLA/POLB to RLW

As discussed on January 24, 2019 with CARB, there are significant differences between the vessels calling at POLA/POLB and those calling at RLW. Because of the significant differences in vessel particulars and operations,
22.32 the data from POLA/POLB cannot be used to accurately represent operations or emissions at RLW and other Northern California marine terminals.

a. Installed Power

The installed power (determined from the U.S. Army Corps of Engineers Foreign Vessel Entrances and Clearances data as calls time propulsion power in MW) for vessels calling at POLA/POLB is nearly a factor of 3 greater than RLW.

Figure 3-1: Installed power comparison between vessels calling at RLW and POLA/POLB 1997-2017
(Source: U.S. Army Corps of Engineers Entrances and Clearances data from 1997 to 2017 (https://publibrary.planusace.us/#/series/vessel%entrances) and IHS Sea-Web data on ship characteristics (https://ihsmarkit.com/products/sea-web-maritime-reference.html)



b. The Vessel Distribution at POLA/POLB is Significantly Different than RLW

Table 3-1: Summary comparison of POLA/POLB to RLW vessel characteristics and calls
[Source: 2014 LA/LB Marine Exchange Data vs. 2016 RLW San Francisco Marine Exchange – previously purchased data sets]

	Calls		Percent Steam		Ave Hotel (hrs)	
Ship Type	LALB	RLW	LALB	RLW	LALB	RLW
SeaWayMax	205	212	9%	3%	39.7	43.0
PanaMax	221	27	77%	63%	51.4	62.9
AfraMax	96	25	100%	100%	62.2	57.4
SuezMax	83	114	100%	100%	82.1	28.1
VLCC	47	0	100%		71.5	
ULCC	12	0	100%		95.6	

The key points to recognize are:

1. Suezmax spend 3 times longer at POLA/POLB than they do at RLW.
2. RLW receives nearly 90% fewer Panamax vessels than POLA/POLB, and nearly 75% fewer Aframax.
3. The percent of vessels with steam auxiliaries is different at POLA/POLB for both SeaWayMax and Panamax.
4. Unlike POLA/POLB, RLW and other Bay Area marine terminals, are not physically configured to accept VLCCs and ULCCs.

4. Freight Analysis Framework (FAF) Forecast for Future Vessel Traffic Growth is Unrealistic

22.33

As mentioned during the January 24, 2019 in person meeting, Chevron stated that a 46.5% growth rate by 2050 is not feasible and does not reflect the mass balance and operational constraints that exist for Richmond Refinery.

Any small growth in marine traffic is likely to be in way of product leaving the facility which does not require vessels to pump, so additional at berth emissions would be limited to hotel and ballast water treatment loads, significantly less than pumping loads.

Table 4-1: Richmond Forecasted Vessel Growth Rates per CARB Emission Inventory (from FAF, 2017), Emission Inventory Appendix C

Richmond

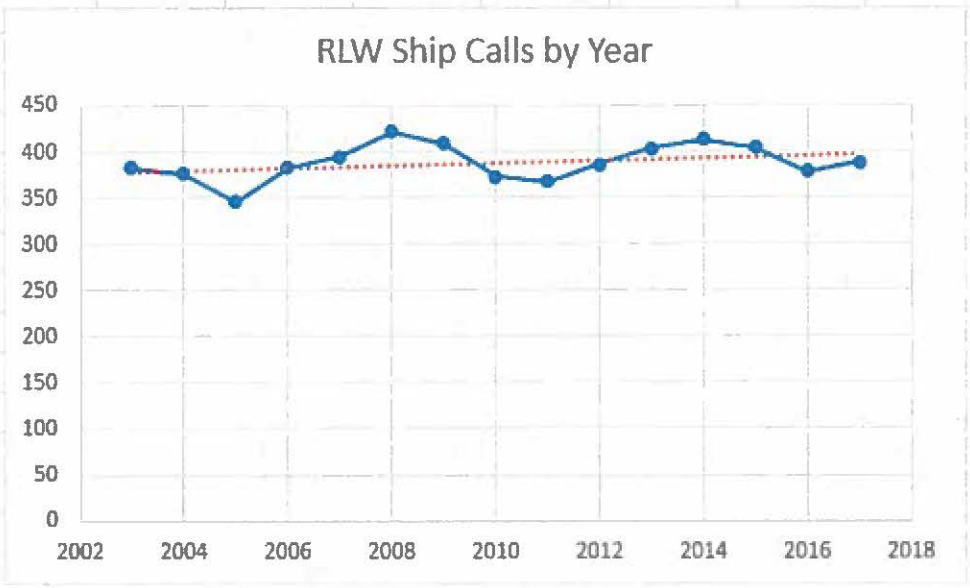
Vessel Type	Vessel Size	2016	2017	2018	2019	2020	2025	2030	2035	2040	2045	2050
Auto		1.000	1.033	1.067	1.103	1.139	1.289	1.458	1.663	1.929	2.192	2.491
Bulk		1.000	1.010	1.021	1.031	1.042	1.164	1.282	1.422	1.618	1.807	2.018
Tanker	Seawaymax	1.000	0.993	0.987	0.980	0.973	1.006	1.077	1.162	1.258	1.357	1.465
Tanker	Panamax	1.000	0.993	0.987	0.980	0.973	1.006	1.077	1.162	1.258	1.357	1.465
Tanker	Aframax	1.000	0.993	0.987	0.980	0.973	1.006	1.077	1.162	1.258	1.357	1.465
Tanker	Suezmax	1.000	0.993	0.987	0.980	0.973	1.006	1.077	1.162	1.258	1.357	1.465

Figure 4-1, below, demonstrates that RLW historical 2007-2017 vessel calls did not escalate continuously, but rather are cyclical, and primarily driven by operational and maintenance activities within the refinery itself.

Consequently, CARB should not rely upon the FAF Report as a future forecast for vessel activity for RLW and the Richmond Refinery. Based on our past 10 years operation, we would not expect greater than 1% growth over a 10-year period. Forecasting it to 2040, that would equate to a vessel growth rate of 1.03 (3% relative to 2016).

Chevron will transmit the underlying historical vessel call data to CARB as confidential information.

Figure 4-1: Richmond Actual Vessel Calls By Year, 2007-2017



5. Health Risk Assessment Comments

22.34 Although the HRA methodology appears sound, the underlying emissions data inputs are incorrect. This results in incorrect estimates of health risks.

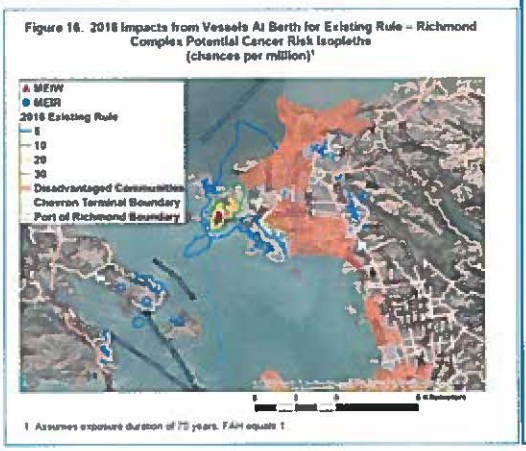


Figure 16. 2018 Impacts from Vessels At Berth for Existing Rule – Richmond Complex Potential Cancer Risk Isopleths (chances per million)[1]

1 Assumes exposure duration of 70 years. FAH equals 1

Figure 17 shows the risk isopleth for both the existing rule and Concept in 2025. The isopleth for the existing rule would continue to expand if the Concept was not implemented. Under the existing rule, the highest risk isopleth is 30 chances per million. With the Concept, the isopleth becomes smaller and the 20 chances per million isopleth and 30 chances per million isopleths would be eliminated. This is due to the emissions control requirement for vessel types that visit the Richmond Complex beginning in 2025.

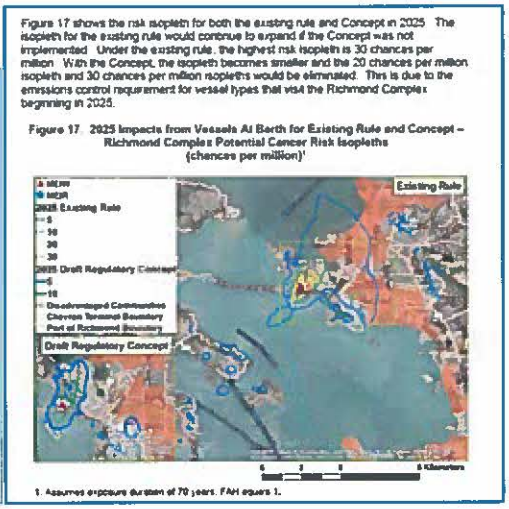


Figure 17. 2025 Impacts from Vessels At Berth for Existing Rule and Concept – Richmond Complex Potential Cancer Risk Isopleths (chances per million)[1]

1. Assumes exposure duration of 70 years. FAH equals 1.

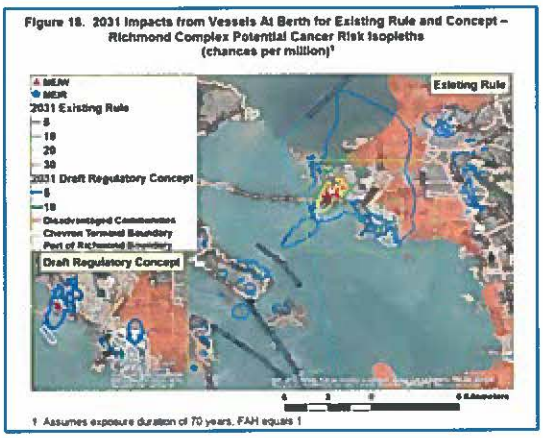


Figure 18. 2031 Impacts from Vessels At Berth for Existing Rule and Concept – Richmond Complex Potential Cancer Risk Isopleths (chances per million)[1]

1 Assumes exposure duration of 70 years. FAH equals 1

a. *Misrepresentation of Residential Cancer Risk Isopleths*

Health Risk Assessment Figures 16 through 18 illustrate the locations of the MEIR (based on a 30-Year exposure duration) and the MEIW (based on a 25-year exposure duration). The isopleth illustrating the extent of the cancer risks are based only on a 70-year exposure duration. This mixed presentation can be misleading to the general public. Using the 70-year exposure duration assumes that all populations would be living in this same location for 70 years. Although the Risk Management Plan Guidance (CAPCOA, 2015) states that for the population-based cancer risk calculations one should use a 70-year exposure duration, it also states that "studies show that a 30-year exposure duration is a reasonable estimate of the 90th and 95th percentile of residency duration in the population." A 30-year exposure duration isopleth figure should also be included to represent a more realistic spatial estimate of cancer risk. It is also recommended that separate isopleth figures be added to represent a 9-year exposure period and a 25-year worker exposure duration.

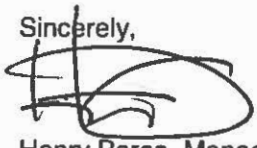
b. *Display the Chevron Industrial Facility Property Boundary*

The Chevron property boundary is not delineated on Figures 16 through 18. The Chevron RLW only serves activities for use explicitly by the Richmond Refinery. Chevron recommends that the refinery property boundary

be illustrated on these figures along with the RLW boundary as the RLW is part of the facility itself, which is an industrial facility and does not contain residential receptors. As such, risks should not be calculated within property boundaries of the facility sources.

Chevron appreciates this opportunity to provide comments relating to the CARB At Berth and At Anchor Regulation draft emission inventory and health risk assessment methodologies and results. Separately, we will transmit supporting data as Confidential Business Information.

Sincerely,



Henry Perea, Manager
CA/OR/WA Government Affairs
Chevron Corporation

cc:

Chris Brown, Chevron Shipping
Brian Hubinger, Chevron PGPA

Technical Appendix

(Supporting data to be transmitted separately as Confidential Business Information)

References:

CAPCOA, 2015. Risk Management Guidance for Stationary Sources of Air Toxics.

OEHHA, 2015. Risk Assessment Guidelines Guidance Manual for Preparation of Health Risk Assessments. Air Toxics Hot Spot Program.

Starcrest, 2014. 2014 Port of LA/LB Vessel Boarding Program – Auxiliary and Boiler engine power

Starcrest, 2017. POLA/POLB Bay Wide Ocean-Going Vessel International Maritime Organization Tier Forecast 2015-2050. San Pedro Bay Ports Clean Air Action Plan.

Exhibit 9: Memo from Gary Rubenstein to WSPA Re: Review of CARB Health Analyses (November 26, 2019)

Foulweather Consulting
Sacramento, CA
916.802.1375

November 26, 2019

To: Tom Umenhofer, Vice-President
Western States Petroleum Association

From: Gary Rubenstein

Subject: Review of CARB Health Analyses in Support of Proposed Modifications to the At-Berth Regulation

This is in response to your request for a review of the methodology used by the California Air Resources Board (CARB) to calculate the health benefits ascribed to the proposed modifications to CARB's Control Measure for Ocean-Going Vessels at Berth. My review, presented below, is based on CARB's Health Analyses document, which is included as Appendix G to CARB's Staff Report/Initial Statement of Reasons for the rulemaking.[1]

1. CARB's assumption that DPM health values can be assigned to emissions from marine engines operating on MGO, MDO, or HFO is inappropriate and unfounded.

22.35

At page 3 of the Health Analyses document (Appendix G), CARB assumes that the cancer potency factor (CPF) and chronic reference exposure level (REL) for Diesel Particulate Matter (DPM) are applicable to the particulate emissions from ocean-going vessel marine engines fueled with marine gas oil (MGO), marine diesel oil (MDO) and marine heavy fuel oil (HFO). The original DPM CPF and REL established by CARB were based largely on health effects studies looking at the exposure of railway workers to locomotive Diesel engine exhaust in the 1960s. Despite this limitation, CARB applies the same CPF and REL to all compression ignition engines using Diesel fuel, including those compression ignition engines equipped with Diesel oxidation catalysts and Diesel particulate filters – both of which have been documented to fundamentally change the chemical nature of DPM.[2] In the instant rulemaking, CARB assumes that the same CPF and REL that were developed based on DPM emissions from 1960s vintage locomotives operating on Diesel fuel are now applicable to modern-day Diesel engines operated on demonstrably different fuels (MGO, MDO and HFO) when used in auxiliary engines on ocean going vessels. Instead of continuing to expand the applicability of health-effects data based on 50-year-old technologies and fuels, ARB should assess the health impacts of auxiliary engines operated on fuels other than Diesel fuel based on speciated composition of the exhaust for these engines, as CARB does in its risk assessments for engines using other fuels (such as gasoline, ethanol, and natural gas).

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[1] https://ww3.arb.ca.gov/regact/2019/ogvatberth2019/appg.pdf

[2] See, e.g., *Advanced Collaborative Emissions Study (ACES): Lifetime Cancer and Non-Cancer Assessment in Rats Exposed to New- Technology Diesel Exhaust*. Health Effects Institute. Research Report 184. (January 2015)

2. The results of the Health Analyses should be properly placed into context.

In ARB's 2015 Risk Management Guidance, ARB warns that changes to risk assessment methodologies have resulted in increased calculated risk values, even though a facility has not changed its operations in a way that negatively affects public health.

> "One significant area of focus is how best to communicate what impact these methodology changes will have on health risk estimates, what those new risk estimates mean, and how best to manage sources and programs in a reasonable and health protective manner. The procedures in the new OEHHA Manual will typically result in a higher estimated cancer risk from a facility even though they [the facility] use control technology and are actually maintaining or reducing its emissions. As a result, it is a challenge to communicate the new information in a way that ensures the public's right to know but does not imply that the facility has changed its operations or emissions in a way that negatively affects public health."[3]

22.36

The Health Analyses document does not present this background information to help the public understand the implications of the calculated risk values.

In contrast to the 2015 Risk Management Guidance, at page VI-1 of the Initial Statement of Reasons (ISOR), ARB concludes that "Emissions from ocean-going vessels operating at berth and at anchor are a significant and growing contributor to community air pollution and the associated health impacts." However, nowhere does ARB compare the emissions, or potential health impacts, attributable to ocean-going vessels (OGVs) at-berth with other sources of criteria air pollutants or toxic air contaminants that Californians are exposed to each day. For example, the PRA indicates that baseline (2020) maximum exposed individual incremental cancer risk (MEIR) attributable to ships at-berth is 54-in-a-million at the Ports of Los Angeles and Long Beach (POLA and POLB), and 14-in-a-million at the Richmond Complex (the Port of Richmond and the Chevron refinery berths). While these incremental risks apply to individuals living within a relatively small distance from these two port complexes, ARB estimates that the average individual living in California is exposed to an incremental cancer risk attributable to diesel particulate matter (DPM) of approximately 520-in-a million.[4]

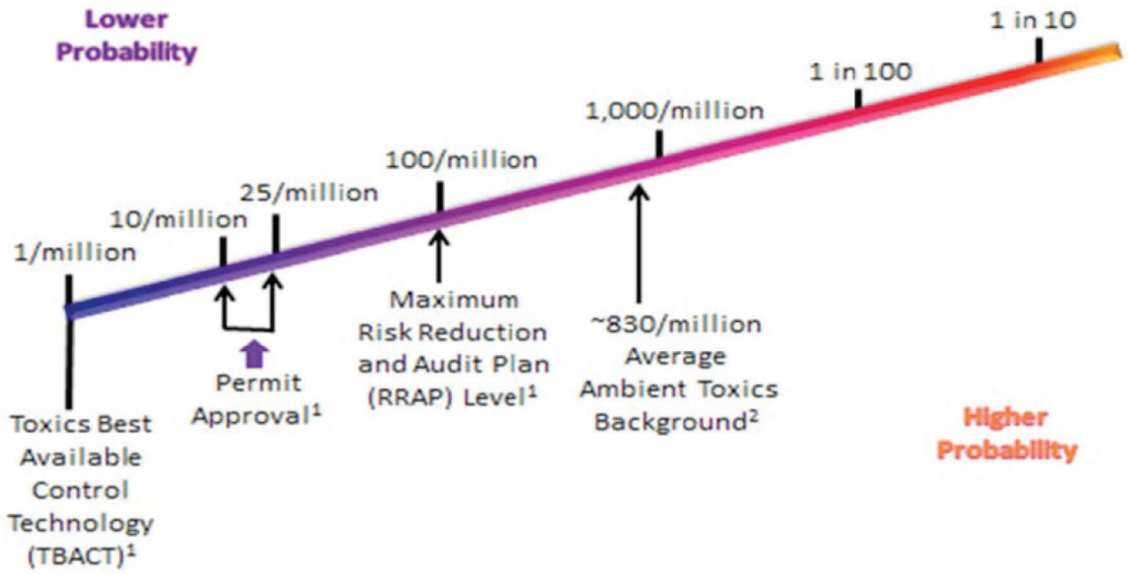
Furthermore, as the following graphic (from ARB's 2015 Risk Management Guidance) shows, ARB recommends development of a risk reduction plan if calculated risk levels exceed 100-in-a-million. The proposed rule amendment is inconsistent with these guidelines in that, in effect, it imposes a risk reduction plan on a collection of sources (such as a port complex) at much lower levels, when such a plan would not be required for an individual stationary source with the same calculated risk level.

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[3] *Risk Management Guidance for Stationary Sources of Air Toxics*, ARB and CAPCOA. July 23, 2015. pp. 2-3. https://www.arb.ca.gov/toxics/rma/rmgssat.pdf

[4] https://ww2.arb.ca.gov/resources/overview-diesel-exhaust-and-health . Accessed 11/7/2019.

Figure II-2: Health Risk – A Relative Perspective



3. CARB's assertion that the proposed regulation would avoid "health impacts valued around $2.3 billion"[5] is not supported by sound science.

22.37 The Health Analyses ascribe a statewide benefit of $2.245 billion to the avoided adverse health outcomes attributable to the proposed regulatory program. 99.8 percent of this benefit is associated with avoided premature deaths, and 87 percent of the reduction in avoided premature deaths is associated with reductions in oxides of nitrogen (NOx) emissions. These avoided premature deaths attributable to NOx reductions are, in turn, attributed to the formation of particulate ammonium nitrate in a photochemical reaction that ARB acknowledges occurs well downwind of the emission source – and hence not in the communities nearest the ports, and only after the concentrations have been substantially reduced due to dispersion. Relatively little formation of ammonium nitrate occurs in close proximity to the emission source, where dispersion is relatively low. Formation of ammonium nitrate increases over time (and distance from the source), as does dispersion. CARB's analysis is not clearly presented, however CARB does not appear to address these factors in calculating reduced ambient concentrations of ammonium nitrate particulates and the associated avoided adverse health outcomes.

[5] CARB's Initial Statement of Rulemaking asserts that "Total costs for all entities exceeding $2.2 billion through 2032, with a statewide valuation of avoided health impacts valued around $2.3 billion." In fact, the actual values reported in CARB's report are $2,245,207,000 for avoided health impacts, and $2,164,319,000 for net costs.

4. CARB does not explain how they calculated they calculated the health benefits attributed to NOx emission reductions in the South Coast Air Basin.

22.38 At p. G-53, CARB indicates that they used the AERMOD model to estimate reductions in ambient concentrations of $PM_{2.5}$. However, AERMOD does not contain algorithms that model the photochemical reactions that convert oxides of nitrogen emissions to secondary ammonium nitrate. While the rulemaking document is silent as to exactly how CARB calculates the health benefits of NOx emission reductions, it appears (from the discussion at pp. G-53 to G-57) that CARB scaled the modeled $PM_{2.5}$ concentrations by the ratio of NOx emissions from sources subject to the proposed rule to modeled $PM_{2.5}$ emissions, with the further assumption that most, if not all, of the NOx emissions are converted into secondary ammonium nitrate because "[i]mpacts are assumed to take place over a wide geographic area". If this was, in fact, CARB's assumption, it is inconsistent with both the physical science and with the approach used by both CARB and California air districts to model ambient $PM_{2.5}$ concentrations for State Implementation Plan purposes.

5. CARB's assumption regarding the expected reduction in ambient nitrate concentrations attributed to the proposed rule is not based on a methodology consistent with current EPA guidance.

22.39 EPA guidance for addressing secondary nitrate formation in dispersion modeling analyses under the Prevention of Significant Deterioration (PSD) program[6] establishes a two-step process for evaluation:

- A simple screening tool based on the use of Modeled Emission Rates for Precursors (MERPs); or
- Direct analysis using a photochemical model such as CMAQ.

The fact that EPA's guidance on this point applies to a specific regulatory program (i.e., the PSD permit program) does not undermine the fundamental science – the methodology is applicable both to individual point sources and to "a group of sources in the area". The ports assessed in CARB's Health Analysis clearly fall within that second category. However, CARB's analysis of the potential health benefits of NOx emission reductions attributable to the proposed rule is not consistent with either of the two steps EPA recommends.

[6] Guidance on the Development of Modeled Emission Rates for Precursors (MERPs) as a Tier I Demonstration Tool for Ozone and $PM_{2.5}$ under the PSD Permitting Program (EPA 454/R-19-003). (April 2019)

December 3, 2019

Richard Corey
California Air Resources Board
Clerks' Office
1001 I Street
Sacramento, CA 95814

Dear Mr. Corey:

SUBJECT: PORT OF LOS ANGELES AND PORT OF LONG BEACH COMMENTS ON THE PROPOSED REGULATION ORDER, "AIRBORNE TOXIC CONTROL MEASURE FOR AUXILIARY DIESEL ENGINES OPERATED ON OCEAN-GOING VESSELS AT-BERTH IN A CALIFORNIA PORT"

The Port of Long Beach and Port of Los Angeles (Ports) appreciate this opportunity to provide comments on the California Air Resources Board (CARB) proposed regulation order, "Airborne Toxic Control Measure for Auxiliary Diesel Engines Operated on Ocean-Going Vessels At-Berth in a California Port" released in the Initial Statement of Reasons (ISOR) on October 15, 2019. The Ports also appreciate you and your staff's willingness to meet with us throughout the rulemaking process. We found those meetings productive and helpful, and we hope to continue this cooperative relationship going forward.

The Ports support the changes incorporated into the latest regulatory proposal, specifically:

23.1 • The new rule would go into effect in 2021, but additional emission reduction requirements of the regulated fleet would be delayed until January 1, 2025.

23.2 • Bifurcating the cruise vessels into two categories, one for vessels which carry less than 1,500 combined passengers and crew, and one for vessels which carry more than 1,500 combined passengers and crew, and providing different hourly remediation fees for each.

23.3 • Tier III ships would have lower remediation fees than other Tier 0 to Tier II ships.

The Ports remain concerned with the following key elements of the proposed regulation:

23.4 • Future compliance with the timelines remains too difficult for the Roll-on/roll-off (RoRo) vessels and tanker vessels, which are currently proposed to comply with a

90% control requirement in 2025 and 2027, respectively. Given the technology to control emissions from RoRos and tanker vessels does not exist today, and the significant safety concerns associated with tanker vessels, we request at a minimum two additional years with each category. RoRos should be required to comply in 2027 at the earliest, and tankers at the San Pedro Bay Port should be required to comply in 2029 at the earliest.

- The industry has raised significant concerns regarding the potential alternative emission capture and control technologies upon which this regulation depends, including cost, operational viability, safety,and the reality that utilizing these technologies will increase greenhouse gas emissions. The technology for controlling at-berth emissions for RoRo vessels or tanker vessels has never been demonstrated and a prototype does not exist. The technology feasibility assessment proposed for 2023 should require CARB staff assess the state of technology, the readiness to deploy it at each port, safety considerations, and cost-effectiveness. The rule should specifically call out these elements as required components of the feasibility assessment. In addition, there should be a mechanism for staff, without returning to the CARB Board for approval, to make the necessary changes to the implementation timeline should the feasibility assessment demonstrate the technology is not feasible or the costs too great per ton of emissions reduction.

23.5

- CARB previously provided funding on the scale of hundreds of millions of dollars through Prop 1B to support shorepower investment for the currently regulated fleet. The ISOR estimates compliance under the proposed regulation will cost the shipping industry $2.2 billion. To reduce the likelihood of cargo diversion, which could result in greater emissions overall, and to support the development and deployment of the requisite alternative emission capture and control technologies for tanker and RoRo vessels, the Ports request CARB allocate at least $200 million for tanker and RoRo emission capture and control technology or shore power statewide.

23.6

23.7

- The Ports support including Alternative Compliance Plans for the currently unregulated fleet including Tankers and RoRos in the regulation.

- Lastly, the Ports recommend that the Air Districts maintain responsibility for implementation of the remediation fund. Our local air district, the South Coast Air Quality Management District, has the greatest local experience in evaluating technology, developing solicitations, and building air quality programs.

23.8

This regulation sets an important precedent not only for California, but also for ports worldwide. Success will be dependent upon reasonable timelines, feasible technology, and public and private funds, which drive technology commercialization. The Ports appreciate the opportunity to work with CARB on this important effort to develop an effective regulation to reduce air emissions from vessels and public health impacts in our communities.

Please feel free to reach out to Teresa Pisano, Port of Los Angeles Marine Environmental Supervisor at (310) 732-3057 or via email at teresa.pisano@portla.org, or Morgan Caswell, Port of Long Beach Manager of Air Quality Practices at (562) 283-7138 or via email at morgan.caswell@polb.com with any specific questions.

Sincerely,

EUGENE SEROKA
Executive Director
Port of Los Angeles

MARIO CORDERO
Executive Director
Port of Long Beach

cc: Bonnie Soriano, CARB (via email Bonnie.Soriano@arb.ca.gov)
Angela Csondes, CARB (via email Angela.Csondes@arb.ca.gov)
Nicole Light, CARB (via email Nicole.Light@arb.ca.gov)

YTI YUSEN TERMINALS LLC

701 New Dock Street
Terminal Island, California 90731-7535
TEL: (310) 548-8000 FAX: (310) 548-8290
kfletcher@yti.com

12/3/2019

The Honorable Mary D. Nichols, Chair
California Air Resources Board
1001 I Street
Sacramento, CA 95814

Subject: Proposed Control Measure for Ocean-Going Vessels at Berth

Yusen Terminals LLC (Yusen) appreciates the opportunity to comment on the proposed amendment to the Airborne Toxic Control Measures for Auxiliary Diesel Engines Operated on Ocean-Going Vessels At Berth in a California Port – also known as the "At-Berth Rule". Yusen is a marine terminal operator in the Port of Los Angeles. Yusen services over 144 vessel calls every year, providing a vital link in the global supply chain, while employing workers with good paying jobs for California families. At the same time, Yusen is committed to environmental stewardship and goes to great lengths to comply with a whole host of federal, state, and local regulations.

Yusen, working through the Pacific Merchant Shipping Association, has been a dedicated partner with CARB to reduce vessel emissions since the inception of at berth shore power usage. While our commitment to coordinate vessel usage of at berth shore power remains as high as ever, we do have concerns regarding the language of the draft rule amendment.

24.1 1. Defining "Ready to Work". We feel this definition is narrow in scope. Simply because a vessel has been cleared, by a government entity, to board does not necessarily demonstrate that a vessel is "ready to work". Other variables must be considered for a ready to work definition: labor and cargo handling equipment availability, environmental/weather factors, no work holidays, etc. This definition must capture all aspects of being "ready to work". Also, the vast majority of vessels use AMP containers that are stored on terminal and are required to be loaded onto vessels prior to shore power utilization. A vessel is not ready to plug in until the AMP container is in position and ship's crew making the necessary preparations.

24.2 2. Repetitive/duplication of work. There is no need for a carrier, marine terminal operator, port authority to all supply the same data submittals to CARB. Yusen simply does not have the staff available to compile data and report to CARB for 144 vessel calls per year. We suggest that port authorities compile data and report to CARB quarterly. The administrative burden proposed by the draft regulatory reporting language is onerous.

24.3 3. Liability and Responsibility. As a marine terminal operator, Yusen acts as a coordinator for shore power connections/disconnections. Yusen only employs its labor to physically perform plug/unplug work and loading/unloading of AMP units. The Port of Los Angeles is responsible for AMP vault installation, maintenance, and initiating the flow of electricity to AMP equipped vessels. Vessel agents schedule with Port of Los Angeles electricians to energize and de-energize electricity flows. Port authorities must take on more responsibility in the draft language. The port has numerous responsibilities to ensure a successful AMP connection is made and a marine terminal operator should not be responsible for a technical issue outside of its control. Unless the marine terminal operator is negligent by not ordering labor to assist with shore power connections and not performing the proper coordination between port authorities, arriving vessels, etc then terminals should rarely be at fault

YTI YUSEN TERMINALS LLC

701 New Dock Street
Terminal Island, California 90731-7535
TEL: (310) 548-8000 FAX: (310) 548-8290
kfletcher@yti.com

for a failure to use shore power. It appears that marine terminal operators are being targeted for non-compliance for factors outside our span of control.

24.4 4. a. TIEs/VIEs. Some non-compliant scenarios split responsibility between carriers, port authorities, and marine terminal operators. Who decides how to split a TIE or VIE? Will CARB put arbitration machinery in place to hear arguments when disagreements occur between regulated entities? This is a recipe for endless claims, legal cost, and wasted money.

24.5 b. Marine terminal operators that perform highly with coordinating shore power usage should be able to retain TIEs for at least 3 years. This is an incentive for the hard work by terminal management and labor to comply with the at berth regulation and can be used in situations where terminals experience uncontrollable issues prohibiting the use of shore power connections. Let's reward terminal operators for their efforts to reduce emissions.

24.6 5. Remediation fund. How was the $1,900/hour amount calculated? Who will administer this fund? Who decides what emissions projects will receive funds. What is the appeals process? The draft language should be updated with remediation fund specifics and appeals processes.

24.7 6. Who is at fault if shore power or alternative compliance technology options are not available? The marine terminal operator is not the source of vessel emissions and should not be held liable for unsuccessful shore power connections due to circumstances beyond our control. If we comply with the proposed check list and make every reasonable effort to execute a shore power connection/use of alternative technology, with no malintent, how can the terminal operator be held responsible?

Yusen is fully committed to reducing emissions and our past and current actions reflect this. We work collaboratively with ocean carriers, the Port of Los Angeles, and longshore labor to maximize shore power utilization. We look forward to working with CARB on refinements to improve the proposed control measure.

Sincerely,



Ken Fletcher
General Manager – SSE & Facilities
Facility Security Officer
Yusen Terminals LLC

VIA ONLINE SUBMISSION

December 3, 2019

Transportation and Toxics Division
California Air Resources Board
1001 I Street
Sacramento, CA 95814

RE: Comments on ocean-going vessels at berth regulation

Environmental Defense Fund (EDF) respectfully submit these comments in support of the California Air Resources Board's new Ocean-Going Vessels At Berth Regulation. EDF is an environmental advocacy organization with more than two million members and expert staff working across multiple disciplines and sectors. We work to reduce air pollution from the goods movement sector, and we support communities impacted by emissions from marine ports' operations in California and Texas. Most recently, EDF served on the Steering Committee for the West Oakland Community Action Plan.

EDF strongly supports the new at-berth vessel regulation proposed by CARB staff. EDF commends CARB's proposal to include additional vessel types, as well as ports and terminals, not currently covered by the existing regulation. Additionally, the proposed new rule to regulate at-berth emissions on individual vessel visits will be a much more robust, effective and more readily enforceable approach than the current fleet-based regulation. We believe the proposal will provide greater benefits to communities most impacted by vessel emissions.

We urge CARB to take into account the following:

1. Adopt and implement the proposed new rule expediently and without further delay. While the proposed implementation timeline of nine years (2021-29) is ambitious, it is hugely important for public health protection, as well as an important means for achieving the State's climate goal of the necessary GHG reduction by 2030. Additionally, the staggered implementation schedule provides for different practical needs of the range of OGVs to comply, as well as the infrastructure differences among the marine ports statewide.

2. This proposed regulation responds directly to a mitigation strategy included in the West Oakland Community Action Plan -- the first community-led plan aimed at reducing local air

pollution following the directive of Assembly Bill 617. The West Oakland Plan proposes that "The California Air Resources Board develops amendments to the At-Berth Air Toxics Control Measure to further reduce ship emissions at berth by strengthening the regulation to cover more vessel visits and types of ships."[1] Estimates from the community-scale modeling show that OGV berthing is the largest localized source of Diesel PM (4.3 tons per year), the third largest source of PM2.5 emissions (7.8 tons per year), and the largest contributor to cancer risk-weighted toxic air contaminants (~3,200).[2] This new regulation will be an important mechanism by which the community will achieve the emission reduction goal set out in the plan.

3. The proposed regulation requiring greater use of shore power or alternative emissions capture and control systems will accelerate the further development and growth of these technologies, and will bring down costs over time. This will make these technologies more affordable and familiar to vessel operators and ports, incentivizing adoption beyond California. EDF, for example, is aware of interest from facilities in the Houston Ship Channel in Texas for control systems for ocean going tankers.

4. The proposed regulation provides for a remediation fund[3] that will allow those who cannot immediately comply with the new regulation to mitigate their emissions whereby the fund must be spent on projects that reduce emissions in the communities impacted by the uncontrolled vessel emissions. This option provides a potential solution to the uncertainties and constraints faced by operators. However, it is critical that this provision does not become a substitute for compliance efforts, so there should be an escalation factor (applied to the fees) and/or time limitation to discourage overuse of this provision.

25.1

5. Concurrent with implementing robust regulations to address vessel emissions at berth and protect community health, CARB should also continue its work to streamline the process for approving and verifying emissions control technologies that can be used for compliance. CARB should coordinate with other key agencies, like EPA, as well as standards organizations that can help create industry-wide standards and protocols to help accelerate the commercialization for these clean technologies.

25.2

EDF greatly appreciates CARB's effort in developing this regulation, which will provide real and significant emission reductions that will benefit many at-risk communities around California ports. This proposed regulation has been discussed for decades and we urge CARB to approve it without any further delay.

Sincerely,

Fern Uennatornwaranggoon
Manager, Air Quality Projects, EDF
T 415-293-6162, FernU@edf.org

---

[1] http://www.baaqmd.gov/~/media/files/ab617-community-health/west-oakland/100219-files/final-plan-vol-1-100219-pdf.pdf?la=en Page 6-28, Strategy #60
[2] Ibid Page 5-7
[3] https://ww3.arb.ca.gov/regact/2019/ogvatberth2019/isor.pdf, Page III-31

December 2, 2019

Clerks' Office
California Air Resources Board
1001 I Street,
Sacramento, California 95814
Via Electronic submittal: http://www.arb.ca.gov/lispub/comm/bclist.php

Re: PROPOSED CONTROL MEASURE FOR OCEAN-GOING VESSELS AT BERTH

We are excited to submit these comments in support of the California Air Resources Board's proposed Control Measure for Ocean-Going Vessels ("OGVs") At Berth ("At Berth Regulation"). The OGVs cause immense amounts of air pollution globally and particularly when in port when they are closest to people who live near, and work at, California's ports. OGVs are sources of both nitrogen oxide ("NOx") and particulate matter ("PM") emissions, both of which cause grave health impacts in people. Further, California is in non-attainment of NOx reduction goals under the federal Clean Air Act. Air Districts across the state are working to reduce NOx and other criteria pollutants

from stationary sources. Moving OGVs from using diesel auxiliary engines, sources of both NOx and PM, in port to alternatives such as plugging into electrical power or using a capture-and-control technology will go a long way to reducing air pollution, improving public health and reducing dangerous pollutants in our air. As a result, we urge the California Air Resources Board ("ARB") to adopt this regulation and move forward with its implementation as soon as possible.

I. Public Health Benefits of At Berth Regulation Are Obvious and Relevant

One of the main goals for us is to protect public health, and the At Berth regulation will do so. As stated in the ARB Staff Report: Initial Statement of Reasons ("SOR," released October 15, 2019), OGV emissions include criteria pollutants, air toxic contaminants, and greenhouse gases. (SOR, ES-2; see also SOR p. I-10.) As stated above, one of the main pollutants from an OGV is NOx. Exposure to NOx can cause respiratory irritation, aggravation of respiratory diseases, especially asthma, causing coughing, wheezing and difficulty breathing, all of which can lead to emergency room visits and hospital admissions for those people affected. (Id.) Negative public health impacts from NOx emissions are some of the main reasons we so strongly support adoption of this regulation. "California's combination of unique geography and robust freight contributes to our state experiencing some of the worst air quality in the nation." (SOR, ES-4.)

Another harmful emission from OGV operations is particulate matter ("PM") that can be inhaled into upper airways and lungs, creating respiratory ailments leading to still more public health concerns.

> Exposure can increase premature mortality, hospital admissions for cardiopulmonary causes, acute and chronic bronchitis, asthma attacks, and respiratory symptoms, and the health effects are of particular concern for sensitive groups such as infants, children, the elderly, and those with preexisting heart of lung disease. (SOR, ES-3; see also SOR p. V-15-19, and ARB, "Inhalable Particulate Matter and Health [PM2.5 and PM10]", August 10, 2017, https//ww3.arb.ca.gov/research/aags/common-pollutants/pm/pm.htm.)

As recently as November 13, 2019, new health impacts are being identified related to particles produced by fuel-burning, especially diesel fuel. The Guardian published an article that date, highlighting research conducted by McGill University in Canada and following over a million adult Canadians in Toronto and Montreal and their medical records from 1991 to 2016. Specifically, the studies found:

> New research has linked air pollution nanoparticles to brain cancer for the first time. The ultra-fine particles (UFPs) are produced by fuel burning,

> particularly in diesel vehicles, and higher exposures significantly increase people's chances of getting the deadly cancer. Previous work has shown that nanoparticles can get into the brain and that they can carry carcinogenic chemicals. (The Guardian, Air Pollution Nanoparticles Linked to Brain Cancer for First Time, November 13, 2019 (accessed November 18, 2019), https://www.theguardian.com/environment/2019/nov/13/air-pollution-particles-linked-to-brain-cancer-in-new-research.)

The article further documented:

> The discovery of abundant toxic nanoparticles from air pollution in human brains was made in 2016. A comprehensive global review earlier in 2019 concluded that air pollution may be damaging every organ and virtually every cell in the human body. Toxic air has been linked to other effects on the brain, including huge reductions in intelligence, dementia and mental health problems in both adults and children. The World Health Organization says air pollution is a "silent public health emergency". (Id.)

Even more important is the need to protect public health in areas near ports, most of which have been identified as "disadvantaged communities," or those most impacted by environmental injustice, over a period of years or even decades. These areas tend to be comprised of the working poor and people of color who have to contend daily with all the various and cumulative pollution burdens of goods movement, such as proximity to heavy duty trucks, locomotives, cargo handling equipment and OGVs. (SOR p. II-1,2, p. V-9 and V-15; see also Office of Environmental Health Hazard Assessment, CalEnviroScreen 3.0, June 25, 2018, https://oehha.ca.gov/calenviroscreen/report/calenviroscreen-30.)

We are aware that the Proposed At Berth Regulation applies to more OGVs than the existing At Berth Regulation. We are supportive of this change in the regulation, as it ensures that public health benefits are applicable to all ships that visit California ports statewide 20 or more times annually. To continue to apply a regulation to only selected ships would also continue to allow poor air quality to result from those ship visits.

As a result, because of the public health benefits of implementing this Proposed At Berth Regulation, We support this Regulation whole-heartedly and urge the ARB to implement the regulation as suggested by staff, beginning on January 1, 2021.

II. Proposed At Berth Regulation Is a Cost Effective Way to Reduce Emissions and Protect Health

The Proposed At Berth regulation will directly improve health benefits for California communities impacted by port operations. Specifically, by 2032, total costs for all

entities to implement the rule will exceed $2.2 billion, while health benefits in that time add up to $2.3 billion from 230 fewer premature deaths, 72 fewer hospital admissions, and 116 fewer emergency room visits statewide. (SOR, ES-16, see also Table VI, "Statewide Valuation from Avoided Adverse Health Outcomes Between 2021 and 2032 as a Result of the Proposed Regulation," p. VI-3.) In addition, potential cancer risk from at berth emissions reduction will also be reduced by approximately 60%. (SOR VI-1,2.) From the Ports of Long Beach and Los Angeles alone, about 2.4 million residents would have a reduced potential cancer risk from implementing this At Berth Regulation, and communities around the Richmond Complex would have a potential 14,000 residents with a cancer risk level of 20 in a million would be eliminated. (Id., see also p. V-15.)

In addition, the annual cost to the average individual consumer is negligible at most. According to the ARB staff calculations, approved by the California Department of Finance, the following are the annual costs in 2030 broken down by vessel type:

Container Ship	**$1.11 per Twenty Equivalent Unit or TEU**
Cruise Ship	**$4.56 per Passenger**
Roll On-Roll Off Vessel	**$7.49 per Automobile**
Oil Tanker	**$.008 per Gallon**

(SOR, Table IX-9, p. IX-23.)

Thus, although the initial price tag of the At Berth Regulation implementation may seem excessive, when measured against the direct health benefits and the cost to the average consumer, it is clearly a worthy investment in a cleaner goods movement system and a healthier California populace.

III. We Support the Use of Remediation Fund in Communities Impacted by Uncontrolled Emissions

ARB staff states quite clearly that any ship that cannot comply with the At Berth Regulation will pay an hourly-based fee and "any remediation funds received would be required to be put back into projects in the communities impacted by the uncontrolled emissions." (SOR, ES-34, 35.) We support this use of the remediation funds, and further respectfully request that ARB ensures that fund administrators, working with air districts or directly with ARB via a Memorandum of Understanding, have an obligation to provide an annual report to the public as to how funds have been administered. Although the SOR provides for semi-annual reporting to ARB, there is no provision for an annual accounting of mitigation funds to the public. (SOR, p. VI-102, "Rationale for Section 93130.16(h)(6)".) For an example of how this is done, We refer ARB to the Harbor Community Benefit Foundation, which partners with the Port of Los Angeles to gather

and spend container fees to decrease community impacts of port operations. (Harbor Community Benefit Foundation website: https://hcbf.org/, accessed November 18, 2019.) However, it is essential that these payments not substitute for any regulated entity good faith efforts to comply with the rule.

Conclusion

26.1 For all the reasons stated above, we strongly support the Proposed At Berth regulation, and urge the ARB to implement the rule as soon as possible, and certainly no later than January 1, 2021. Thank you for your time and consideration.

Respectfully submitted,

Jerilyn López Mendoza
Senior Policy Advocate
Coalition for Clean Air

Andrea Viadurre
Policy Analyst
Center for Community Action and Environmental Justice

Taylor Thomas
Research and Policy Analyst
East Yard Communities for Environmental Justice

Joy Williams
Research Director
Environmental Health Coalition

Heather Kryczka
Attorney
NRDC

Joel Ervice
Associate Director
Regional Asthma Management and Prevention

Katherine Garcia
Policy Advocate
Sierra Club California

Local Union 569
San Diego and Imperial Counties
INTERNATIONAL BROTHERHOOD OF ELECTRICAL WORKERS
4545 Viewridge Avenue, Suite 100 San Diego, CA 92123-5615 (858) 569-8900
2420 Imperial Business Park Drive Imperial, CA 92251-4004 (760) 355-3000

December 4, 2019

Clerks' Office
California Air Resources Board
1001 I Street
Sacramento, California 95814
Via Electronic submittal: http://www.arb.ca.gov/lispub/comm/bclist.php

Re: PROPOSED CONTROL MEASURE FOR OCEAN-GOING VESSELS AT BERTH

On behalf of over 3,300 members of the International Brotherhood of Electrical Workers (IBEW) Local 569, I write in support of the Control Measure for Ocean-Going Vessels at Berth. Not only will enacting this rule reduce vessel emissions and improve air quality, it will create new electrical work opportunities. We urge the California Air Resources Board (CARB) to adopt this regulation and move forward with its implementation as soon as possible.

As the American Lung Association noted in their recent "State of the Air" report, California has some of the most polluted air in the nation. If we are to avert the worst impacts of a climate disaster and improve air quality, we must drastically reduce emissions across all sectors of our economy. This proposed regulation is critical to reducing these emissions within the maritime and goods movement industries. Additionally, here in San Diego, some of our most vulnerable communities are impacted by dangerous pollution from these vessels. This proposed regulation is vital to improving air quality in neighborhoods and environmental justice communities around the Port here in San Diego and other Ports across our state.

By enacting this rule, we expand the universe of vessels subject to regulation and provide opportunities for our local workforce to participate in the infrastructure upgrades required to achieve these goals, a win-win for public health and our economy.

27.1 For all the reasons stated above, we strongly support the Proposed At Berth regulation, and urge CARB to implement the rule as soon as possible, and certainly no later than January 1, 2021.

Sincerely,

Jeremy Abrams
Business Manager/ Financial Secretary

Bay Planning Coalition

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John A. Coleman
Chief Executive Officer

December 4, 2019

Chair Mary Nichols
California Air Resources Board (CARB)
1001 I Street
Sacramento, CA 95814

SUBMITTED ELECTRONICALLY

RE: Proposed Control Measure For Ocean-Going Vessels At Berth

Dear Chair Nichols,

The Bay Planning Coalition (BPC) is a non-profit organization with over 150 members representing a broad range of industries who collectively advocate for strong economic growth while protecting the environmental sustainability of the San Francisco Bay Region. BPC appreciates the opportunity to comment on the Proposed Control Measure For Ocean-Going Vessels At Berth (Proposed Control Measure). BPC fully supports CARB's efforts to improve air quality but is concerned that the Proposed Control Measure lacks the requisite feasibility and cost-effectiveness analyses. Specifically, BPC's concerns and recommendations are as follows:

- The Proposed Control Measure should analyze and demonstrate technological and financial feasibility. We support comments by WSPA, PMSA, and other groups that requested a feasibility evaluation study for technology alternatives prior to setting an implementation schedule for specific vessel classes. Feasibility evaluations would ensure thorough analysis of all relevant factors (e.g., safety concerns, technology availability, vessel class certifications, local land use permitting, cost-effectiveness, etc.) and ensure emission reductions are real and achievable. BPC encourages CARB to continue to work with stakeholders (i.e. ports, refineries, agencies, and others) to conduct the applicable feasibility studies, especially in the identification, validation and review of assumptions and data as a precursor to developing a new Proposed Control Measure. 28.1

- Comments submitted by the Bay Area Air Quality Management District (BAAQMD - November 26, 2019) refer to the Dredged Material Management Office (DMMO) as an example of interagency collaboration that could speed up the proposed implementation schedule. BPC welcomes interagency collaboration between CARB, Air Pollution Control Districts, and other relevant regulatory bodies that would result in real efficiencies. While the DMMO has resulted in efficiencies related to the issuance of reoccurring dredging permits, as a stakeholder in the DMMO development process, BPC understands that it took a significant 28.2

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John A. Coleman
Chief Executive Officer

amount of time and resources to successfully establish and manage that inter-agency forum. To create a similarly effective forum that ensures consideration of all key decision criteria in implementing the Proposed Control Measure, BPC believes that work to align key agency decision makers should take place before adopting any implementation schedule. Since this work has not yet begun, it may be unrealistic to expect meaningful impacts on the currently proposed implementation schedule. If CARB takes the step of organizing an inter-agency group to accelerate implementation of the Proposed Control Measure, BPC would appreciate the opportunity to contribute its expertise and perspective on how to make such an inter-agency forum as effective as possible.

28.2

Once again BPC and its members appreciate the opportunity to comment on the proposed rule. Please do not hesitate to contact me if you have any questions or concerns.

Sincerely,



John A. Coleman
Chief Executive Officer

Comment Log Display

Below is the comment you selected to display.
Comment 29 for To Consider Proposed Control Measure for Ocean-Going Vessels At Berth (ogvatberth2019) - 45 Day.

First Name: Shawn
Last Name: Dolan
Email Address: sdolan50@msn.com
Affiliation:

Subject: Opacity Measurement Ocean Going Vessels at Berth and Anchor
Comment:

29_30.1

In review of the proposed enhanced regulatory vision of Ocean going vessels at berth and anchor. Opacity is clearly the fastest and most efficient means for CARB and other Port enforcement to identify potential non-compliance events. However, the proposed regulation continues to perpetuate the 1970 vintage Method 9, human means to measure opacity using calibrated eyes. Most other states have realized that enforcement of human measured opacity violations has become very difficult do to the variations inherent to human eye sight, e.g. vision is a function of rest, eye pressure, sobriety, and many other factors to include the use of allergy, inflammation, and other medications, such as Erectile enhancement and disfunction medications used widely throughout California.

Due to these reductions in vision consistency, many states have abandon Method 9 as unenforceable, LA DEQ and AZ DEQ as examples.

US EPA has promulgated a Broadly Applicable Alternative Method 082, (Digital Camera Method), which uses common consumer grade digital cameras and computer software to perform stand off Opacity Measurements, create validated error free Visible Emission Observations, bringing credibility back to the stand off measurement of Opacity from Stationary, Mobile and Fugitive Sources. In fact the FerroAlloy NESHAP at https://www.regulations.gov/document?D=EPA-HQ-OAR-2010-0895-0280 defines the Digital Camera Method USEPA Broadly Applicable Alternative Method 082 and its supporting ASTM D7520-16 standard as the Best Available Technology for the measurement and analysis of process fugitive emissions, (roof vents) and source opacity.

Suggest that CARB insure the Best Available Technology for the measurement of Opacity NOT be excluded from the community and enforcement tool box, by specifically calling out the Legacy Method 9 and thus effectively eliminating the ability to use the best measurement technology.

The Digital Camera Method, preserves pictorial evidence of the opacity event, verifies method procedural compliance, e.g. sun behind the camera, perpendicular to plume travel and a reading every 15 seconds for the observation period, (normally 6 minutes).

Why would the most progressive Air Pollution control agency in world use out dated methods, that drive absorbent litigation cost, do to the reliance entirely on human honesty.

The Digital Camera Method is commercially available today, it has been reviewed and validated to be as accurate and more consistent and repeatable than Method 9 by the CARB smoke school program. 2011-2013, and recognized by CAPCOA as the Best Available Opacity Measurement capability.

Thank you, I hope CARB finds the wisdom in including the Best Available Technology for Stand off Opacity measurement, (The Digital Camera Method, ASTM D7520-16 and/or US EPA Broadly Applicable Alternative Method 82). Most all citizens carry cell phones with cameras these days and the ability to find and measure opacity sources is as simple as snapping a picture and uploading it to a cloud based platform for results. All 617 identified communities could benefit from a simple to use and operate, not training required means to measure opacity.

Attachment:

Original File Name:

Date and Time Comment Was Submitted: 2019-12-05 07:19:04

If you have any questions or comments please contact Clerk of the Board at (916) 322-5594.

Board Comments Home

CONTACT US

(800) 242-4450 | helpline@arb.ca.gov
1001 I Street, Sacramento, CA 95814
P.O. Box 2815, Sacramento, CA 95812

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General Steamship Agencies, INC.
575 Redwood Highway, Suite 200, Mill Valley, California 94941-3007

Tel: (415) 389-5200
Telex: 149020
Fax: (415) 389-9020
Email: office@gensteam.com
www.gensteam.com

December 4, 2019

Bonnie Soriano
Angela Csondes
California Air Resources Board
1001 "I" Street
Sacramento, CA 95812

Re: Proposed Regulations Order, Title 17, 93130-93130.20 CCR

We are a vessel agency founded in 1920 at San Francisco and represent a large percentage of bulk and general cargo vessels calling at California Ports. We have some comments on the Proposed Regulations contained in Appendix A of the referenced subject matter. We submit these as a result of wording that requires reporting by vessels that are not subject to the Purpose and Intent of these regulations and therefore consider them arbitrary, capricious and likely to cause economic harm to the people of the State of California and the many industries that depend on the movement of bulk goods and general cargo excluded from the stated intent of these regulations. The reporting requirements add a real, quantifiable burden to bulk and general cargo vessels, but do not advance any emissions reduction program in California. The State should not impose costly reporting requirements for the sole sake of collecting more information, particularly when there is no planned use for the data. If CARB identifies a future need for such data, it is readily available through alternative sources such as marine exchanges or port authorities. There is no reasonable basis to place a permanent, costly reporting burden for no measurable benefit. Specific comments are as follows:

Section 93130.7 Vessel Operator Requirements, Items (a) through (d) do not apply to these vessels;

Item (e) (1) – (3) do not apply to these vessels;

31.1 Item (e) 4 (A) – (G) is widely available information known to USCG, Marine Exchange, State Lands Commission (via Oil Spill Enrollment) and several existing commercial databases. To require repetitive reporting on these items is arbitrary, duplicative and capricious;

Item (e) (H) does not apply;

Item (e) (I) is irrelevant as the definition of "Ready to Work" is flawed for these vessels which, again, are not covered by these regulations. These vessels frequently work cargo alongside and at anchor prior to formal entry at CBP, with full permission of course, from CBP. Also, USCG never "clears" a vessel.

Item (e) (J)-(R) are mostly irrelevant due to the fact that these vessels are burning MDO or MGO as already required by the Federal government and the State of California;

Item (f) is deeply flawed as the Master of these vessels, who should be the party submitting them, as they are required to for all other Reporting Requirements of vessels engaged in Commerce, is sometimes unaware of which berth or even port their ship shall call 7 days prior arrival. These cargoes are traded, may be split parcels with tonnage changing as local conditions warrant and in any case are not utilizing shore power because they can't. Their value to Commerce is in large part due to their versatility. They can call anywhere the water depth allows. They are not tied to one berth like an in-house container terminal or a refinery. The draconian penalties proscribed for non-compliance to these vessels borders on incomprehensible.

Please note the following comments of a general nature: the one-hour hook-up will be
31.2 impossible to meet for the bulk and general cargo vessels. Shore power will never suffice for the vast majority of the terminals that service these trades. They cannot physically or financially construct the infrastructure. In addition, the vessels, which number in the thousands, have vast differences in their
31.3 construction, their power systems and their design. No "adapter" plug will ever suffice. Therefore, "sock on a stick" technology is their only realistic option. In areas with strong currents, like the Carquinez Straits, or in restricted areas like the Ports of Richmond, Stockton, Sacramento, Redwood
31.4 City, Wilmington, Long Beach, etc., the placement of a barge alongside will cause safety issues in addition to the inability to meet the one-hour rule. In addition, bulk vessels frequently have to shift alongside, known as line hauling, therefore they are not fixed in a single position while conducting
31.5 operations. This desire to impose draconian penalties (for bulkers and general cargo vessels) for an impossibility is incredulous.

The second general comment relates to the impact this type of Regulation of bulk and general cargo vessels will have on the people of California. These vessels move rice, wind power generating
31.6 equipment, aggregates, non-GMO grains, pet coke, cement, fertilizers, slag, steel, scrap and coal that are critical inputs for California agriculture, power generation, dairy, construction, recycling, refining and manufacturing industries that support millions of citizens and are the lifeblood of the "smaller" California that most of us live in. Massive diversions of cargoes away from California ports is the inevitable outcome. Will the extra emissions generated by trucking or railing these cargoes to whoever is left in business be part of your computer modelling?

These vessels are not part of a vertically integrated, International conglomerate with captive terminals. Let them burn MDO or MGO and continue to serve our interest in a cost effective manner. These are not intermodal containers or vehicles. These are far more basic necessaries.

Very truly yours,

Scott M. Jones
CEO

Advanced Environmental Group, LLC.
Emission Control Technology

230-234 East C Street
Wilmington, CA 90744
Ph. (562) 247-7720

32.1

October 14, 2019

Bonnie Soriano, Chief

Freight Activity Branch

Transportation and Toxics Division

1001 I Street, Sacramento

California 95812

Dear Ms. Soriano,

In response to your letter dated September 3, 2019 regarding the anticipated new regulation and the potential increase in demand for additional capture and control systems beginning in 2021.

1. We at Advanced Environmental Group, LLC have been working diligently providing services to vessels currently calling in Ports of Los Angeles and Long Beach with our AMECS-1 barge. We are finally moving forward to complete AMECS-II for service in LA/LB and AMECS-III in partnership with Lind Marine in Vallejo, Ca. with a grant from the BAAQMD.

   We are also responding to several inquiries including potentially building and delivering an AMECS Barge system for the Port of San Diego, and Port Hueneme to service reefer vessels calling in both of these ports with AMP or Cold Ironing currently not suitable to cover all calls. In addition, we have been working with our technical partners which have the capability to design, build, manufacture, and assemble additional AMECS Barge systems or dock based systems.

Our team includes Ship & Shore Environmental with many years of experience in designing, building emission control systems, Thermal Oxidation technology, and Waste heat recovery systems for many industrial applications. Ship & Shore Environmental, Inc is located in Signal Hill, Ca.

Additional technical partners are Pacific Blue Engineering a control system integrator providing turn-key automation solutions, legacy upgrades with emphasis on safety. Pacific Blue Engineering is located in Signal Hill, Ca

Lind Marine, Inc. is a full-service maritime company providing Tug, Barge, Crane, Dredging, Custom marine manufacturing services for maritime applications. Lind is currently assisting AEG, LLC in building the AMECS -III Barge for the BAAQMD Grant. We plan to deploy AMECS Barge-III in May of 2020 for

testing of roll-on/roll-off (ro-ro) Liquid bulk, (tankers), as well as reefer, cruise, and large container vessels 18,000 teu + we anticipate will enter the west coast market. Lind Marine is located in Vallejo, Ca.

Furthermore, we anticipate beginning of testing on tanker auxiliary engines, as well as capture and control of their boiler emissions while at berth or at anchor. We are also excited to begin testing with our new Spud barge design in the near future. This will allow all vessel fleets to take on bunkers, and stores at berth or anchor, while AMECS is connected capturing and controlling emissions from both auxiliary engines and boilers while adding an additional safety measure to all vessel classes. This will protect ship and barge personnel from falling debris or dislodging containers over on water side on to barge.

The AMECS Spud barge also ads a measure of safety to the liquid bulk vessels as we are not required to be alongside vessel while vessel is loading or unloading cargo. This can also be addressed with a dock mounted system.

2. With respect to Liquid Bulk (Tanker vessels) We have met with engineers, from Exxon Mobil, Plains, Chevron, and BP we have held several symposiums, meetings, tours of current AMECS-1, we hired classification society groups such as DNV, and ABS to provide AEG, LLC with risk assessment analysis consisting of scenarios with AMECS Barge coming along side Tankers while conducting loading and unloading cargo operations, and while connecting to auxiliary and boiler stacks. I am happy to report that after many years of discussions ExxonMobil has vetted our AMECS Barge mounted system and we are confident we can connect to a liquid bulk vessel safely. We are currently going thru some final recommendations and plan to build a new AMECS Barge for deployment in Texas. We plan to use our technical team, all data, experience and lessons learned over the past several years on container vessels, as well as our early testing with capturing and controlling emissions from multiple aux and boiler stacks simultaneously on Break Bulk vessels and complete the design of an AMECS Spud barge for use on tankers.
   We are adding intrinsically safe components and pressurizing our emission treatment system (ETS). We will supply a copy of final product design to your team for review and comment.
   Ro-Ro Vessels produce high emission loads, stacks are relatively easy to connect to from either side of vessel. We feel Ro-Ro's can be a candidate for either a barge-based system or a land/dock-based capture and control system. We feel comfortable our AMECS technology can not only easily reach all Ro-Ro fleets, control emission loads, and be a cost-effective alternative as same system can be used on all other fleets when not utilized for a Ro-Ro service.

3. Yes, AEG team has spoken to and met with several of the class societies, we have reached out to Intertanko, International Maritime Organization, and continue to reach out to local and regional oil companies some receptive while others are cautiously optimistic, and a couple remain resistant. We plan to complete the design and build system for EM and invite these class societies, oil companies to attend testing, demonstration and final implementation of technology. We are also including their valuable input.

4. AEG's current AMECS system has the capability to capture and control emissions from reefer vessel calls utilizing two auxiliary engines. We are currently providing this service for vessels calling in LA/LB for the South American service. Multiple stacks are not an issue as we have proven this can be done safely with a plenum capture system as proven early with breakbulk vessel testing, see SCAQMD report. Tanker auxiliary and boiler funnels come in many different sizes, angles, and shapes as well as have large spark arrestors affixed to each stack. AEG has designed a high temperature sock which fit's over the spark arrestors for control of emissions without any back pressure or undistributed weight on funnels. We feel confident this will be a quick and simple way to connect with great flexibility to vessel as well as AEG crews.

5. We are exploring the possibility of removing diesel generators all together with Solar/battery technology, Hydrogen fuel cells, and electricized technology. We are working with WestGen Power Solution which we had great success with applications installed in Puerto Rico. Also, we are exploring a GHG technology which we feel is promising developed by a professor at Stanford University which we may add on to our existing system/technology with its byproduct of H20 we plan to use in our So2 tower. This is still under development and examining the cost effectiveness of implementing such a technology.

6. Yes, AEG in conjunction with Ship and Shore environmental will be testing SSE Thermal Oxidizer & Waste Heat Recovery system. We feel we may be able to control by physicochemical means of separation by chemical conversion, including thermal or catalytic combustion and chemical oxidation or reduction, adsorption onto a suitable solid adsorbents but concerned we are creating a California regulated hazardous waste with heavy metals which will be difficult and expensive to dispose of and will add to the cradle to grave responsibilities to user and or generator. With this said we are looking at other suitable technologies and feel much progress has been made with alternative technologies which may soon be more cost effective such as Algae Photo Bioreactors generating positive use by products. We are also focused on such technologies as absorption towers, and micro capsules but concerned about waste by product.

7. The technical feasibility is upon us as we have solved this issue with our plenum capture system. This is a duct system with four high temperature hoses attached with light weight connectors affixed to emission capture system or ECS. This allows our emission treatment system to collect emissions from up to four auxiliary and boiler funnels simultaneously. We proved this concept early on during our testing with breakbulk vessels at the Metropolitan Stevedoring Terminal in Port of Long Beach as they often run multiple auxiliary generators during loading and unloading of vessel. In this case it was coal, calcine, and other materials. (see SCAQMD/POLB Demo)

8. If demand grows as expected AEG is positioned with its team members to effectively build and deploy multiple AMECS systems both dock based and barge based wherever needed or required throughout California ports and rail yards. AEG is the only company that has successfully demonstrated we can safely capture and control emissions from 6,000-18,000 teu container vessels, break-bulk at berth or at anchor as well as rail emissions. We are confident we now have the technical expertise to not only meet but exceed the need of industry as Ro-Ro's Tankers, Reefer's are included in upcoming regulation and as it incrementally increases.

9. Based on our current structure AEG plans to deploy five barge-based systems by 2021, with suitable financing we can deploy an additional fourteen systems by 2025, and an additional six systems dock based or barge-based units by 2027-2028 comfortably. The buildout of systems may be increased depending on financing as we are capable of building several systems simultaneously. We have located several suitable flat-deck barges, former single skin tank barges, and construction barges which are readily available throughout the West Coast.

Best regards,

Ruben Garcia

President

Advanced Environmental Group, LLC

From: Debi Clifford
To: ARB Clerk of the Board
Subject: Proposed Control Measure for Ocean-Going Vessels At Berth
Date: Thursday, December 5, 2019 9:26:32 AM

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December 4, 2019

33.1

Clerk of the Board
California Air Resources Board
1001 I St., Sacramento 95814

Re: **12/5/19 Public Hearing To Consider Proposed Control Measure for Ocean-Going Vessels At Berth**

Greetings:

I am writing to urge CARB to approve the rule that would extend its pollution-control requirements to many more container and cruise ships and, for the first time, include oil and chemical tankers and ships used to import and export cars.

Bay Area air quality is already seriously threatened by the dramatically increasing frequency of wildfires – disasters that are out of our control. All the more reason that we should do everything we can in our power to immediately reduce toxins in our air – especially those generated by the production of fossil fuels – the burning of which further degrades the air we breathe.

Most importantly, this is an environmental justice issue. The polluting of air in refinery and port communities hits the lower-income West County residents the hardest, increasing the incidence of asthma, other respiratory illnesses and cancer in those communities.

Please act now to increase air pollution controls, protect our environment, and safeguard our health!

Sincerely,

Debi Clifford

6205 Panama Avenue
Richmond, CA 94804

From: David Belden
To: ARB Clerk of the Board
Subject: Proposed Control Measure for Ocean-Going Vessels At Berth
Date: Thursday, December 5, 2019 10:24:51 AM

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To the Clerk of the Board
California Air Resources Board
1001 I St., Sacramento 95814

34.1

Re: **12/5/19 Public Hearing To Consider Proposed Control Measure for Ocean-Going Vessels At Berth**

Hi, I am writing to urge CARB to approve the rule that would extend its pollution-control requirements to many more container and cruise ships and, for the first time, include oil and chemical tankers and ships used to import and export cars.

Bay Area air quality is already seriously threatened by the dramatically increasing frequency of wildfires – disasters that are out of our control. All the more reason that we should do everything we can in our power to immediately reduce toxins in our air – especially those generated by the production of fossil fuels – the burning of which further degrades the air we breathe.

Most importantly, this is an environmental justice issue. The polluting of air in refinery and port communities hits the lower-income West County residents the hardest, increasing the incidence of asthma, other respiratory illnesses and cancer in those communities.

Please act now to increase air pollution controls, protect our environment, and safeguard our health!

Sincerely,

David Belden

6205 Panama Avenue
Richmond, CA 94804

Pacific Basin Shipping (Canada) Ltd.
Suite 1620 Guinness Tower
1055 West Hastings Street
Vancouver, B.C.
V6E 2E9
Canada

Bonnie Soriano
Angela Csondes
California Air Resources Board
1001 "I" Street
Sacramento, CA 95812

RE: Proposed Regulations Order, Title 17, 93130 - 93130.20 CCR

We are an international vessel owner and operator of Handysize and Supramax vessels, with 12 offices globally, and headquarters in Hong Kong. Pacific Basin Shipping are publicly traded on the Hong Kong Stock Exchange. On an annual basis, we have approximately 150 vessel calls to the state of California.

In regards to proposed at berth changes in regulations, we have the follow comments for your consideration.

35.1 Due to the "tramp" nature of bulk cargo trades (in comparison to container liner trading), we are not consistently calling to one berth only, but may call to various berths for undetermined periods of time. Our vessels may collect separate cargo parcels from more than one berth or port within California, as part of a

35.2 typical voyage. A proposed "one-hour hook-up" is neither practical for a bulk vessel, nor for a bulk loading terminal. Bulk vessels and the terminals to which typically do not have the required infrastructure onboard or on the shore side to be compliance with this proposal. Also, what is called "line-hauling" is quite customary, whereby a vessel must shift along berth between hatches due to shore loading facilities do not

35.3 have the ability to themselves shift along a berth. This shifting requires full use and readiness of vessels main engine, thereby questioning further to practicality of one-hour plug in's.

35.4 As a secondary, and perhaps more important comment, the impacts of further regulation would be substantial upon the people living in the state of California. The state of California economy relies upon the import and/or export of products such as grains, rice, cement, fertilizers, slag, steel, scrap, steel, coal, slag and aggregates to name just a few. Should these regulations prevent a bulk carrier from calling to a California port as a result of increased regulation, these cargoes shall be exported elsewhere, beyond the state boundaries of California.

While we understand and support efforts to reduce GHG emissions and the overall environmental impact of shipping, we urge that this is done in a practical manner. We remain at your disposal to discuss this matter further.

With best regards,

S. R. Brown

Simon Brown.
Senior Operations Manager
Pacific Basin Shipping (Canada) Ltd. On behalf of Pacific Basin Shipping Ltd.

CROWLEY®
People Who Know®

December 6, 2019

CALIFORNIA AIR RESOURCES BOARD
1001 I Street
Sacramento, CA 95814

Attn: Clerks' Office

Re: Proposed Control Measure for Ocean Going Vessels at Berth (At-Berth Rule)

California Air Resources Board,

On behalf of Crowley Maritime Corporation (Crowley), thank you for the opportunity to comment on the California Air Resources Board's (CARB's) At-Berth Rule. Crowley applauds CARB's leadership in the stewardship of California's air quality and appreciates CARB's current recognition that the U.S. domestic maritime industry's fleet of large ocean-going articulated tug-barges (ATBs) (20,000 deadweight tons or more) play a substantial role supporting the economies of West Coast states and the livelihood of their citizens, including those of California, with respect to the region's requirements for coastal energy transportation.

Crowley is the largest independent operators of petroleum ATB's and tankers in the United States. We own and operate a diverse, sophisticated fleet of double-hull tank vessels, enabling us to offer a wide range of environmentally safe and reliable transportation options and meet virtually any commercial or Government customer requirement. In so doing, we maintain an extensive fleet of 40 U.S. flagged product and crude oil tankers and large petroleum ATB's ranging in size from 20,000 DWT to 45,800 DWT that safely and reliably carries petroleum in bulk throughout the U.S. East, Gulf and West Coasts, including Alaska, as well as international ports. Crowley has proven itself as an innovator and leader in petroleum transportation through the development of an unrivaled articulated tug barge (ATB) and tanker fleet which includes the newest and most sophisticated U.S.-flagged vessels.

Crowley companies operate Self-propelled tank ships and Articulated Tug-Barges (ATBs) that regularly call California ports; General cargo vessels and container ships that may call California ports; and a fleet of harbor tugboats servicing the San Francisco Bay area, the Los Angeles-Long Beach area, and San Diego. Because of Crowley's extensive experience with vessel operations across a broad range of vessel types, many of which may be covered under the proposed At-Berth Rule, leads Crowley to submit these comments to CARB.

SUPPORT FOR WORLD SHIPPING COUNCIL COMMENTS

Crowley is a member of World Shipping Council (WSC) and supports the comments provided to CARB on the At-Berth Rule by WSC.

ATBs ARBITRARILY EXCLUDED FROM THE DEFINITION OF OCEAN-GOING VESSELS AND FEDERAL PREEMPTION

36.1 The At-Berth Rule arbitrarily excludes ATBs from the definition of Ocean-Going Vessels and capriciously classifies ATBs as Commercial Harbor Craft, which they are not. This arbitrary classification of ATBs as Commercial Harbor Craft will result in the control of emissions from two types of vessels with nearly-identical operational profiles – ATBs and tank ships – under separate regulatory schemes, causing an illogical,

inefficient, costly patchwork regulatory scheme applicable to the movement of petroleum products in bulk between California ports.

The disparate regulation of ATBs and tank ships introduces unnecessary complications into the regulatory compliance burden imposed on ATB and tank ship operators. It is not clear what benefits the people of California and the broader environment of California will receive in exchange for these burdens and extra costs being imposed on vessel operators.

CARB DEFINITION OF ATBs AND OCEAN-GOING VESSELS

Section 93130.2(b)(42) of the proposed regulation order defines ATBs and Ocean-Going Vessels as follows:

> *"Articulated Tug Barge" means a tanker barge that is mechanically linked with a paired tug that functions as one vessel. For the purposes of this Control Measure, articulated tug barges are not considered ocean-going vessels.*
>
> *"Ocean-Going Vessel" means a commercial, government, or military vessel, excluding articulated tug barges, meeting any of these criteria:*
>
> *A. A vessel greater than or equal to 400 feet in length overall as defined in 50 CFR § 679.2, as adopted June 19, 1996;*
>
> *B. A vessel greater than or equal to 10,000 gross tons under the convention measurement (international system) as defined in 46 CFR § 69.51-.61, as adopted September 12, 1989; or*
>
> C. *A vessel propelled by a marine compression ignition engine with a per-cylinder displacement of greater than or equal to 30 liters.*

The Initial Statement of Reasons (ISOR) provides the following rational for the exclusion of ATBs from the definition of Ocean-Going Vessels as follows:

36.2

> *"When an articulated tug barge is fully connected, it may meet the definition of an ocean-going vessel, as defined in this chapter (Section 93130.2(b)). However, despite being defined as a subcategory of tankers, articulated tug barges are considered a barge and a tug separately. As such, they are considered a harbor craft instead of an ocean-going vessel, and must comply with the requirements of CARB's Commercial Harbor Craft Regulation and not of this Proposed Regulation."*

The ISOR explanation appears to be based on circular logic and incorrect, the mistaken nature of which contradicts applicable federal law and Coast Guard rules regulating the type of vessel (ocean-going) that CARB's proposed rule considers "harbor craft".

First, the explanation implies that ATBs only meet one of the three conditions to classify as an Ocean-Going Vessel when those ATBs are fully connected. This argument is erroneous. Crowley currently operates 17 ATB units, comprised of a total of 17 ATB tugboats and 17 ATB barges, for a total of 34 individual vessels. Over seventy percent of those vessels (25 tugs or barges) meet one of the conditions to classify as an ocean-going vessel, *individually*. Stated differently, the majority of the tugs and barges in Crowley's ATB fleets classify as ocean-going vessels, individually, based on the conditions that CARB itself has outlined for ocean-going vessels (i.e., length, tonnage, or per-cylinder displacement).

36.2 Regulatory treatment of ATB components as individual vessels by the Federal Government was first set forth in Coast Guard Inspection Guidance Regarding Integrated Tug Barge Combinations, NAVIGATION AND VESSEL INSPECTION CIRCULAR NO. 2 - 81 (NVIC 2-81), which classifies the type of ATBs operated by Crowley as "Dual Mode ITBs". For purposes of regulation of ocean-going vessels, NVIC 2-81 applies Federal statutes and Coast Guard regulations to tug barge combinations. To the extent CARB's proposed classification of ATB tugs as Harbor Craft, therefore, treats ocean-going ATB tugs as other than "ocean-going vessels", CARB's proposed rule is preempted by federal law.

In effect, CARB appears to have taken a position that:

- Even though the majority of Crowley's ATB tugs and ATB barges are by definition ocean-going vessels *when considered individually*
- All of Crowley's ATB units meet the conditions to classify as an ocean-going vessel when connected as a unit
- All of the ATBs tugs and barges functionally operate connected as a unit
- None of the ATBs are ocean-going vessels

Second, the ISOR explanation appears to state that simply because a barge and a tug are barges and tugs, they are not ocean-going vessels. There is no explanation for why a barge and a tug, even if they meet *CARB's own conditions for ocean-going vessels* are classified as harbor craft and not ocean-going vessels. Again, CARB's regulation is preempted by applicable federal statutes and U.S. Coast Guard regulations that occupy the field of vessel regulation in interstate commerce and conflicts with the proposed rulemaking.

Here, CARB appears to have taken the position that:

- An ocean-going vessel is a vessel that meets one of three conditions
- A tug or a barge that meets one of those three conditions is not an ocean-going vessel because it is a tug or a barge

36.3 The exclusion of ATBs from the definition of ocean-going vessels appears to be based on an inaccurate understanding of the length, tonnage, and per-cylinder displacement of many tugs and barges in ATB units, and to be based on circular logic. The mistaken application also in conflict with applicable federal law and regulation administered in the fields of marine safety, vessel operation and design by the U.S. Coast Guard.

OPERATIONAL PROFILE OF ATBs AND OCEAN-GOING TANK SHIPS

Crowley's ATBs are, from a trading perspective, the effective equivalent of ocean-going tankers.

Crowley operates Medium Range and Aframax tank ships, as wells as ATBs, in California. Crowley therefore knows from direct experience that Crowley ATBs:

36.3
- Call the same petroleum terminals in California that are called by Crowley managed tank ships (for example, Chevron Richmond, Shell Martinez, Phillips Rodeo, Shell Mormon Island).
- Carry the same cargoes that are carried by Crowley-managed tank ships. Both ATBs and tank ships carry refined petroleum products and (in some cases) crude oil.
- Conduct operations in a manner equivalent to those conducted by Crowley managed tank ships. Both ATBs and tank ships transit California waters bound to a petroleum terminal, conduct cargo operations at the terminal, and then depart California waters for their next port of call.

Crowley also operates harbor tugboats in California. Crowley therefore knows, from direct experience, that Crowley ATB operational profiles are not at all similar to those of commercial harbor tugboat operational profiles. Figure 1 (below) demonstrates the similarities between ATB and tank ship operational profiles and the distinctions between ATB and commercial harbor tug profiles.

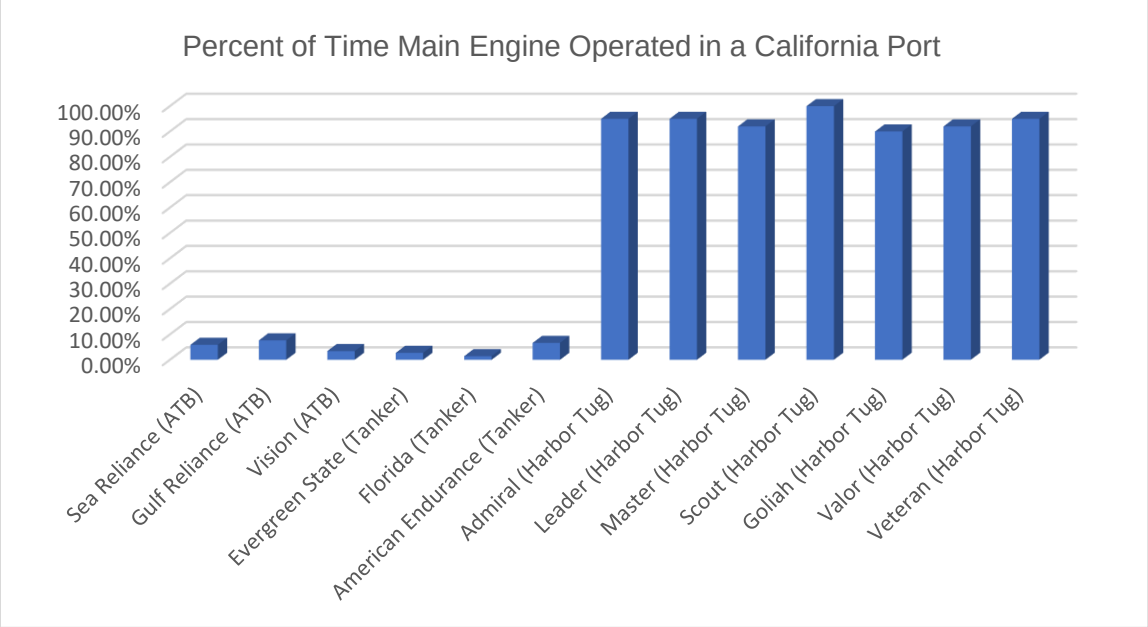


Figure 1: Percent of time a selection of Crowley-managed ATB, tank ship, and harbor tugboats operated their main engines in California ports during the first half of 2019.

SUMMARY

The At-Berth Rule arbitrarily excludes ATBs from the definition of Ocean-Going Vessels. This exclusion appears to be based on a misunderstanding of the characteristics of ATBs and associated circular logic. The exclusion is also inconsistent with the actual operational profiles of ATBs and is preempted by applicable federal laws relating to ocean-going vessels and, therefore, violates the Commerce Clause of the U.S. Constitution.

For these reasons, Crowley asks that CARB remove the exclusion of ATBs from the definition of Ocean-Going Vessels in the final At-Berth Rule and regulate ATBs as Ocean-Going Vessels – not as harbor craft.

Yours respectfully,
CROWLEY MARITIME CORPORATION

Art Mead
Vice President & Chief Counsel,
Government and Regulatory

SSAMarine
A Carrix Enterprise

1131 SW Klickitat Way
Seattle Washington
98134

206/623-0304 tel
206/682-0187 fax
www.ssamarine.com

Clerk's Office
California Air Resources Board
1001 "I" Street
Sacramento, CA 95814

December 6, 2019

Subj: Comments to Initial Statement of Reasons (ISOR) and Proposed At-Berth Regulation

CARB Staff,

Thank you for the opportunity to comment on the ISOR and the proposed At-Berth Regulation. We appreciate the time and consideration CARB Staff has taken with efforts to propose a regulation that is workable for industry stakeholders.

Carrix is the parent company of SSA Marine and its affiliates. We provide terminal, stevedoring, and other services at California ports. SSA Marine has maintained a long term presence in California since 1982. Rail access for intermodal cargo and a large consumer market has made California a logical destination for a wide variety of products, both within the region, in nearby Western states, and throughout the country. Growth in logistics-based businesses have created a new and diverse source of employment and economic growth for California. As part of our contribution to enhance goods movement, most observers associate our activities as a marine terminal operator delivering quality services for container vessels calling California ports. We also provide important stevedoring and terminal services to vessel operators engaged in the transportation of general cargo and Roll-On, Roll-Off (Ro-Ro) vessels and other services.

SSA Marine is supportive of efforts to reduce emissions within the state and we look forward to continued dialogue with CARB staff to come up with practical, implementable and affordable solutions to meet these goals. However, we do have concerns with the proposed At-Berth Regulation and the many variables and uncertainties associated with what has been proposed. How these regulations adversely affect Ro-Ro vessels is particularly concerning.

37.1 CARB staff made a prudent decision to exempt bulk and general cargo vessels based on a significant economic impact versus the amount of emissions captured, and therefore terminals that receive this category of ships are not required to arrange for a CARB approved emission control strategy for their visit.

Our experience is that the cost benefit analysis and margins in the Ro-Ro business are not dissimilar from general cargo vessels, and it is not inconceivable that these unknown variables could have a significant impact and jeopardize our ability to operate.

We urge CARB to also exempt Ro-Ro vessels from proposed alternative at-berth control measures when shore side power capabilities fail to exist.

- We find that the proposed hourly rental rate of a barge-based emission control and capture system to be dubious, particularly since few service providers exists.

37.2

- Inasmuch as a monopoly or, at best, an oligopoly will be created by this proposed rule if adopted, the hourly estimates to rent a barge-based system are significantly underestimated.

- *We encourage CARB to explore other options that allow it to achieve emissions reductions. It is more likely that harbor emissions will be increased from tugs and other harbor craft, nullifying any measurable gains by including Ro-Ro vessels in the rulemaking.*

- The cost effectiveness of CARB's Carl Moyer program limit of $30K per ton exceeds both the hourly or barge based purchase option proposed by CARB.

- Indeed, *it would be far more prudent for CARB to exempt Ro-Ro vessels and capture more emissions from tugs and other harbor craft.*

- Most of these harbor assets need to be repowered, and requiring Tier 3 engines is more cost effective and will allow CARB to capture a greater reduction in emissions as compared to Ro-Ro vessels, which amount to approximately *one percent of the overall ocean-going vessel emissions in the San Pedro Bay Ports (SPBPs) 2018 inventory*.

Definition of Emergency Event for a Utility: Notwithstanding the definition, we would like to see further clarification regarding what qualifies as an Emergency Event for power outages due to a failure on the Utility's end. Power outages are not uncommon in the Ports and this may result in a failure to utilize an

37.3

emissions control strategy. In cases of power outages, would this be considered an exemption and no requirement to use a TIE or a VIE? If TIEs are to be utilized, in the event of a power outage, multiple vessels could be impacted while at berth. Would this result in the need to use multiple TIEs for a single event, or a requirement to pay into the Remediation Fund for the multiple vessels that were impacted by the outage?

1 Hour Plug/Unplug Requirement: We appreciate the efforts of CARB staff to fix the limitations of the 3/5 rule, but the new 1- hour requirement also presents additional challenges and potentially eliminates

37.4

accepted practices under the current regulation.

Adding a restrictive time limitation on both the terminal and vessel operator will result in safety issues surrounding the handling of high voltage power equipment when plugging in a ship. We work in an industry where safety is our top priority, but accidents do happen, most typically when there is an arbitrary standard. *For the safety of our people, we cannot place a restrictive 1-hour time limit on vessel plug and un-plugs.* We implore CARB staff to address this. We would recommend language along the lines of "as quickly and safely as possible."

In addition, for those vessel operators who have chosen the lift-on lift-off compliance pathway, this 1-hour time limit would be unachievable in certain situations. For example, if a vessel arrives at berth between shifts (i.e. between 3 AM and 7 AM), labor typically isn't available until 8 AM to load or discharge any containers. In order to meet this 1 hour requirement, additional labor would have to be ordered for the sole purpose of loading an amp box, which is very cost prohibitive, or a vessel would

have to alter its schedule, potentially holding offshore, increasing emissions so as to arrive at times when labor is available.

Due to the limitations of the new 1-hour rule, it appears that the currently accepted amp-box technology that many in the industry have invested in and utilized to meet compliance will potentially be eliminated. We have not seen any data or economic impact analysis that addresses this and feel that this change will further limit industry's pathways towards compliance, not assist with it.

37.5 **Terminal Responsibility for Infrastructure Failures:** We feel that in many cases the responsibility for failures in shore power infrastructure might be misdirected to the terminal operator. As an example, the Port of Oakland has recently made it very clear that they (The Port) are the owners of the shore power infrastructure. As such, the Port of Oakland is responsible for maintaining that infrastructure and we as a terminal operator pay significant fees for that maintenance. In the event there is a failure with that infrastructure, the draft language indicates that the terminal would be required to either use a TIE or pay into the remediation fund. If the Port is responsible for maintenance and repairs of the infrastructure, how is it that a terminal operator would be required to pay remediation fees or use a TIE when there is a failure with that infrastructure? Where is the Port's responsibility in this?

37.6 **Terminal Operator Requirements for Infrastructure:** The draft language of this section indicates that Terminal Operators are responsible for "equipping their berths with a CARB approved emission control strategy." We strongly disagree with this requirement. In the majority of cases, it is the port that is the landowner and the landlord. Terminal operators are tenants who lease the land from the ports and making significant investments in port infrastructure doesn't make business sense. If we as a company decide to relocate or discontinue operations at a particular location, this infrastructure is not an asset that we can take with us. In some instances, due to the lengthy construction and permitting process it would be necessary to begin infrastructure installation now to comply with upcoming deadlines, not even knowing if we will be at the facility at the time of implementation. We feel that it is the port's responsibility to equip the berths with a CARB approved control strategy. Bringing electricity to a terminal to enable shore power is really providing utilities to the terminal, which is something a landlord is usually required to do, not the tenant. We would recommend changing the wording in section 93130.10(a) to:

(a) Port Infrastructure

Ports with terminals not excluded due to thresholds found under Section 93130.8(g) Terminal Exceptions, are responsible for providing equipment or necessary infrastructure thot will enable a terminal to comply with this Control Measure, unless such equipment or infrastructure is provided by the terminal operator.

37.7 **Additional Terminal Operator Requirements:** The draft regulation suggests that if a vessel is commissioned to connect either port or starboard, it is the terminal operator's obligation to ensure that the vessel is berthed in that direction for all future visits, which places prohibitive operational and safety limitations on terminal operators when berthing vessels. In order to work a vessel safely and efficiently, we as terminal operators find it necessary at times to adjust the berthing direction of a vessel. This restriction would eliminate our professional discretion and ability to do so.

Excessive Reporting Requirements and Deadlines: We find the reporting requirements to be excessive, redundant, time restrictive and in some cases unnecessary.

37.8 It seems redundant to have each party report the same information. In scenarios where a barge-based system is used it appears that all 3 parties would be reporting very similar information?

The proposed reporting requirements for terminal operators will add additional man hour costs to meet these mandates, especially for our high vessel volume facilities. Additionally, some of the data that is being requested is not information that is typically relayed between vessels and terminals, such as the time the pilot has boarded the vessel. This will require an additional burden to all parties to increase communication and cross-check all information that will be reported. We would recommend streamlining the information and instead of reporting within 7 days of a vessel's departure, to send reports on a monthly or quarterly basis.

Summary

We appreciate this opportunity to submit our comments for the record. We urge you to exempt Ro-Ro vessels from the rulemaking. It is far more preferable, more cost effective, and there's a greater opportunity to capture a comparable level of emissions from harbor craft. Additionally, reporting requirements for unregulated vessels adds increased time and costs and does not seem to provide a practical benefit. Finally, the one-hour plug in requirement is not realistic, the ports need to assume responsibility for infrastructure failures and port infrastructure requirements, and we believe CARB should reconsider some of the excessive reporting requirements proposed in the rulemaking.

Comment Log Display

Below is the comment you selected to display.
Comment 39 for To Consider Proposed Control Measure for Ocean-Going Vessels At Berth (ogvatberth2019) - 45 Day.

First Name: Judith
Last Name: Schumacher-Jennings
Email Address: sjmadrone@sonic.net
Affiliation:

Subject: Added Pollution Control for Ships in Bay
Comment:

39.1 I am in favor of the CARB staff proposed rule that would extend pollution-control requirements to more container and cruise ships and include oil and chemical tankers and ships used to import and export cars. I'm concerned about air quality.

Attachment:

Original File Name:

Date and Time Comment Was Submitted: 2019-12-09 07:33:11

If you have any questions or comments please contact Clerk of the Board at (916) 322-5594.

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CONTACT US

(800) 242-4450 | helpline@arb.ca.gov
1001 I Street, Sacramento, CA 95814
P.O. Box 2815, Sacramento, CA 95812

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Comment Log Display

Below is the comment you selected to display.
Comment 11 for To Consider Proposed Control Measure for Ocean-Going Vessels At Berth (ogvatberth2019) - 45 Day.

First Name: Diana
Last Name: Bohn
Email Address: nicca@igc.org
Affiliation:

Subject: Cut Air poliution from ships
Comment:

40.1 Please approve a proposal that would make a big dent in toxic air pollution from ships at Bay Area ports and refineries.

Attachment:

Original File Name:

Date and Time Comment Was Submitted: 2019-11-23 06:58:13

If you have any questions or comments please contact Clerk of the Board at (916) 322-5594.

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December 7, 2019

Ms. Bonnie Soriano
California Air Resources Board
1001 I Street
Sacramento, California 95812

Transmitted via email

Subject: COMMENTS ON PROPOSED REGULATION ORDER
SECTION 2299.3 AIRBORNE TOXIC CONTROL MEASURE FOR AUXILIARY DIESEL ENGINES OPERATED ON OCEAN-GOING VESSELS AT BERTH IN A CALIFORNIA PORT
FROM CRUISE LINES INTERNATIONAL ASSOCIATION (CLIA)

Dear Ms. Soriano:

Thank you for the opportunity to provide official comments on the proposed At-Berth Draft Regulation and for the additional time to submit the comments. CLIA appreciates the many meetings with you, Richard Corey and your staff to discuss specific issues related to the regulation of concern to the cruise lines and the PMSA industry coalition, as well as the industry coalition alternative emissions reduction proposal still under consideration. CLIA will also be signing on to the PMSA Coalition comment letter on the proposed At-Berth Regulation and agree with their comments. This comment letter outlines the concerns with the proposed At-Berth regulation that are cruise-line specific:

GENERAL COMMENT: It is still the position of the cruise lines and other industry coalition vessel operators that this new proposed regulation should not go forward for the existing regulated fleet. Instead, we believe the industry alternatives currently being discussed, along with corrections to the existing rule for currently regulated fleets, should be substituted and CARB should allow the next step in the existing rule to be fully implemented for these existing regulated fleets. This rule -- by providing no CARB-approved alternative compliance option for many vessels including cruise lines, eliminating the existing regulation after 2023 for vessels that make very infrequent calls to California, and eliminating the fleet average compliance option used by the currently regulated vessels successfully since 2014 -- leaves no margin for error and sets up vessels for failure in spite of all reasonable efforts to comply.

41.1

COMMENTS SPECIFIC TO CRUISE VESSELS:

P. 9 – (52) "Previously Unregulated Vessels" Definition, Loss of Fleet Average System, and Elimination of "Non-frequent Flier Rule": The provision on page 9 in combination with (e) on page 27 will extend the compliance date for non-frequent fliers in currently regulated fleets by two years to 2023, which is appreciated. Unfortunately, this amendment came too late for non-frequent fliers with cruises scheduled in 2020 and 2021, which has already resulted in changed itineraries to avoid calls in California for at least those two years. This is because world cruises and transitioning cruises begin to sell these voyages years in advance, so the companies had to make a decision this summer whether to pull these visits from California ports. The ISOR and SRIA do not properly analyze the possibility of vessel diversions and their economic impact. These infrequent cruise vessel calls are particularly subject to diversion. This is especially true without the existing fleet average compliance system, which could allow the cruise lines to accommodate these non-frequent fliers.

41.2

CLIA has brought this issue up many times in the last few years with CARB staff when the non-frequent flier exemption was discussed. This exemption in the current rule allows vessels calling on CA ports for five or fewer visits each year to be exempt from the mandate to install shorepower infrastructure. Note that this decision to pull out of CA port calls for the cruise lines only applies to world and transitioning cruises and other infrequent cruise vessels without shorepower, and that the decision is not just based on the cost of installing shorepower infrastructure on these ships alone. Other major factors for this decision include:

- The fact that out of the hundreds of cruise vessels worldwide, only a limited number continually visit California. The more specialized world and transitioning cruises and cruise vessels may visit California once every two to four years

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and only a few ports each visit, using entirely different cruise ships each time. (This means that these vessels would be able to use these $2 million systems only 8 – 16 hours every one or two years.)

- The required commissioning and maintenance of these systems, particularly if not used regularly.
- Required crew on the ship that are knowledgeable about the systems.
- The inability of cruise vessels to use the only current CARB-approved alternative control strategy, leaving them with a one-shot compliance option.

Finally, without knowing what eventual/potential criteria for non-compliance and violations will eventually be adopted by CARB, cruise lines believe there is just too much uncertainty to keep California ports on their itineraries for these vessels that rarely visit CA. They also have other alternative ports they can use for these itineraries.

It is important for CARB to note that the cruise ships that continually visit California were early adopters of shorepower and have an excellent compliance rate with the existing CA rule – this situation for non-frequent cruises is very specific to those vessels. It is also important to understand, as described above, that the impacts on these vessels of losing the previous exemption involves much more than just the cost of installing the infrastructure on a ship, which currently is about $2 million per vessel. And, each cancellation of a cruise visit is a direct and major financial hit to the ports the cruises used to visit in exchange for very small emission reductions anticipated by the rule. These vessels account for a very low percentage of vessel visits. The cost to the port and city economies for these cruise visit departures from CA are in the millions each year. These cruise visits provide economic and employment benefits in the amount of between $500,000 to $2 million dollars for each single visit.

41.3

P. 32-33 – S. 93130.11 Vessel Incident Events (VIEs) and Terminal Incident Events (TIEs): Rather than using a fleet average to allow the flexibility that vessels need to deal with normal incidents beyond their control, this rule sets up a complicated and limited number of passes each year through VIEs and TIEs. In (1), it states that CARB, by February 1 of that year, will determine the number of VIEs and TIEs – meaning that almost 10% of the year will have passed before the number of VIEs and TIES available will be known. What happens during January? The VIEs and TIEs are also provided for just one port, even if vessels call 3 different terminals - for instance in SD-LA/LB-SF - severely limiting their number, availability or usefulness. The VIEs and TIEs system is most punitive to vessels making fewer calls and those without an option to use alternative compliance options. They are also based on the calls occurring in the previous year, leaving new vessels without any options including scouting voyages for companies pursuing or adding new markets in the state. The VIEs and TIES are then dropped by 2025. As noted, this system is unrealistic and uncertain, leaving ships without knowing if they have incurred a violation or if they are in non-compliance, even if it is the result of something beyond their control. On page 34, in (d), the rule states that VIEs and TIEs can't be traded with other fleets, terminals, or any other entity, taking even more flexibility out of this process.

41.4

41.5

41.6

P. 14 – S. 93130.4 Limited Exceptions and No Alternative Compliance Option for Cruise Vessels: This section discusses circumstances when the rule would not apply. This section should also explicitly exempt specific scenarios so vessels would not be in violation or non-compliance of the rule under circumstances that, as a practical matter, cannot be controlled 100% of the time. The fact that there are no existing approved alternative compliance technologies that can be used by the cruise lines leaves cruise vessels at a major disadvantage in attempting to comply with this at berth rule.

41.7

P. 41-44 – S. 93130.15 Remediation Fund Use: This remediation fund would apply only to vessels that already have complied with the rule by installing on-board shorepower technology, or that are using an alternative if a vessel can use an alternative, for instances beyond the control of the vessel operator. The remediation request must be made and submitted to CARB electronically within 7 calendar days of a vessel's departure, long after the vessel has left the port. Vessels won't know for up to 30 days if such request to use the fund is granted, and ineligible requests to use the remediation fund for a vessel visit will result in that visit being considered non-compliant with this regulation. Why should vessels be in violation or non-compliance of a regulation under the listed scenarios that as a practical matter cannot be controlled 100% of the time - particularly if they will not know their compliance status until they have left port? The reality is that companies will not "plan to be noncompliant" as that would surely subject them to a violation. These issues are of particular concern to cruise vessels because they cannot use the existing approved alternative compliance options.

41.8

P. 43 – Table 4: Remediation Fund Hourly Amount: This Table outlines the hourly remediation payment beginning in 2021. This table requires extremely high fees, even though shorepower is already installed on the ships. The fee will be assessed on a per hour rate when many of the scenarios cannot be resolved within hours or days, but rather months. This is extremely punitive for an equipment part that just isn't available quickly for instance. Duration of a scenario matters. It is particularly punishing

41.9

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for cruise lines at $5,300 per hour for small lines and $12,000 per hour for larger lines since they have no alternative compliance measure identified by CARB that will work on a cruise ship. At $12,000 per hour, if an equipment part takes 3 months to obtain, the fee for cruise ships could be in the millions. The methodology for these charges should be revised to be fairer among various vessel types, and longer-term issues should be assessed at lower rates. Without these changes, the remediation fee acts not like a fair alternative emission control option, but rather a major penalty that is usually reserved for willful or intentional violations.

41.10 P. 22-23 – S. 93130.7 (a) Compatible Shorepower Berth Definition for Side of Ship Where Connection is Available: This section requires vessel operators with commissioned shorepower vessels to plug in to shorepower on each and every visit to a compatible shorepower berth. This section should definitively define a "compatible shore power berth" to mean one that will accommodate the on-board shorepower connection on the side of the ship that the connection is available.

41.11 P. 23 (b) Start Date for Vessel Auxiliary Engine Compliance vs No Timeline for Terminal Shorepower Infrastructure: This section requires compliance start dates for container and passenger vessels to begin January 1, 2021. However, as explained below, the terminals will not be required to install the infrastructure necessary to be able to accommodate every container and passenger vessel by that specific date, and actually not until years later.

41.12 P. 28 – (b) Visits to Terminals without Shorepower When Alternative Isn't Feasible: This section requires that if neither the vessel nor the terminal has shore power, then it is the shared responsibility of both parties to arrange a CARB-approved emission control strategy for this visit. This section should clarify what happens if an alternative doesn't exist, which is the case for cruise ships, or the alternative is not available, or not feasible. (See also P. 30 discussion below.)

41.13 P. 28 – (c) Visits by Vessels with On-Board Control Strategies: It isn't clear what on-board strategies are envisioned. Does this text contemplate exhaust gas cleaning systems? How would the terminal operator assess these on-board options?

41.14 P. 30 – (f) Lack of Alternative for Cruise Vessels During Terminal Shorepower Construction or Repair: Again, this rule requires the terminal operator to provide an alternative CARB approved emission control strategy for a berth that is unavailable due to construction or repair. What will happen to ships that can't use alternative control strategies, particularly if TIE's or VIE's are not available? If the cruise ships will be charged a very costly remediation fee for each of these instances, it places a significant burden on cruise vessels not faced by other vessel types.

P. 38-39 – S. 93130.14 Terminal and Port Plans and Interim Evaluation: This section requires terminal and port plans discussing how the terminal will comply with the requirements for ocean-going vessels visiting each berth. Although CLIA has no objection to these plans specifically, we have a major problem with the timing of these plans and the complete lack of compliance dates for the terminals to actually comply with the components of the plan so that vessels can hook up as intended by the rule. Here is what this section contemplates:

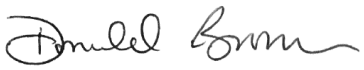
1. Terminal and Port Plans for container and passenger terminals are due July 1, 2021 that will identify how the terminals and ports will provide the electricity and infrastructure to allow vessels to hook up to shorepower or an alternative to meet the requirements of the rule.
41.15 2. Although the list of terminal and port plan information includes a "Schedule for implementing equipment" for the terminals and a "schedule for installing equipment and/or any necessary construction projects" for the port plans, there is absolutely no deadline by which that equipment must actually be installed.
3. CARB then has another 90 days after the plans are due to determine any deficiencies in the contents of the plans or making good faith efforts to facilitate the use of a CARB-approved control strategy at each berth, to October 1 of 2021.
4. If CARB does not notify the applicable terminal operator or port of any deficiencies, the plan shall be deemed acceptable on the 90th day following submittal, or October 1st of 2021, but there is still no actual date by which implementation must be completed. If the plan, however, does have deficiencies, there is no timeline at all for completion of the plan or actual implementation of the plan.
5. Vessels, however, must actually plug in or use the alternative for each visit to a berth by January 1, 2021. This is a complete disconnect between the timeline for vessels to comply with the rule and the timeline for terminals and ports to actually provide the infrastructure to the vessels to make sure they can plug in.

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A set implementation date should be established for the terminals and ports to provide the shorepower infrastructure for each vessel visit and the compliance timeline for the vessels should match that date. Just relying on TIEs if infrastructure at the terminals isn't available will not remedy this issue.

Again, thank you for your consideration of these comments.

Sincerely,



Donald Brown - VP, Maritime Policy
Cruise Lines International Association

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Comment Log Display

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Comment 42 for To Consider Proposed Control Measure for Ocean-Going Vessels At Berth (ogvatberth2019) - 45 Day.

First Name: Lawrence
Last Name: Sullivan
Email Address: Lawrencebsullivan@gmail.com
Affiliation: Contra Costa County retiree

Subject: Amend regulations for shipping
Comment:

42.1 As a retiree of the Contra Costa County probation department I experienced it firsthand for many years the air pollution created by inadequate controls and regulation of local refineries and the shipping they use. The proposed changes would greatly reduce air pollution for hundreds of thousands of residents in these areas. I fully support the proposed changes.

Attachment:

Original File Name:

Date and Time Comment Was Submitted: 2019-12-09 10:25:57

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Coalition For A Safe Environment



Environmental Justice Organization Assessment of the Proposed Control Measure for Ocean-Going Vessels at Berth
&
Public Comments

December 5, 2019
(Updated 12-9-2019)

PRESENTED BY

Jesse N Marquez
Executive Director

Coalition For A Safe Environment

- Supports the proposed Control Measure For Ocean-Going Vessels At Berth

43.1 • We request the measure include both At-Berth and At-Anchor

- Ships At-Anchor are already using the AMECS technology
- At-Anchor Emissions from Ocean-Going Vessels are significant
- Ship emissions significantly impact the environment & global warming
- Ship emissions significantly impact public health & have not all been assessed
- The number of ships visiting California ports is increasing every year

43.2 • We believe that all categories of ships should be included: An even playing field

- We do not support exempting Bulk Ships or any category as proposed

43.3 • All Ports & Shipping Companies have had 5 years to gear-up

Coalition For A Safe Environment

- **AB617 Communities have identified all ship emissions mitigation as a priority**
- **AB617 does not authorize any exemptions, waivers or variances**
- **All categories of ships are major air polluters: Tons per day**
- **We support Electric Shorepower**
- **We prefer Ship Emissions Capture & Treatment (SECT) Technologies**
- **Electric Shorepower & SECT Technologies are feasible**
- **Electric Shorepower & SECT Technologies are cost effective**
- **Electric Shorepower & SECT Technologies are proven technologies**
- **Electric Shorepower & SECT Technologies are valid Mitigation Measures**

43.4 • **We do not support exempting smaller ports**

Coalition For A Safe Environment

- Various grants are available to small ports: C&T, Prop 1, DERA, DOE
- Small ports can afford SECT Technologies: Monthly Lease / Daily Rent
- 43.5 We do not support the proposed implementation schedule 2021-2029
- Sufficient SECTS can be built to meet demand & delivered by 2025
- All Ports & Shipping Companies can use SECT until their electrical infrastructure is built
- 43.6 All Ports & Shipping Companies are responsible for the future planning, addressing all potential non-compliance circumstances & contracting of SECT services: Fines shall be doubled daily until compliance
- 43.7 We do not support minimum Annual Thresholds because SECT is available
- Numerous European Ports Currently Offer & Require Shorepower

We Prefer Ship Emissions Capture & Treatment Technologies

Ship Emissions Capture & Treatment Technologies (SECT)

~ Use existing state-of-the art off-the-shelf proven technologies

~ Do Not require any modification of a ship

~ Do Not require any modification of terminal infrastructure

~ Do Not require any shorepower & not subject to power outages

~ Do Not require any additional special permits

~ Can be built Stationary On-Dock or Mobile On-Barge

~ Work on any category class of ship

~ Are a capital equipment tax write-off

~ Capture & Treat Emissions from both Auxiliary Engines & Boilers

~ Can be used while terminal electrical infrastructure is being built

~ Shorepower only Eliminates Emissions from Auxiliary Engines

We support the AMECS Technology Because

- AMECS is already CARB approved: Executive Order AB-15-02
- The AMECS SECT is more cost-effective then shorepower
- The AMECS has built & operated three proven SECT Technologies
  - ~ On-Dock
  - ~ Ship-Side Barge
  - ~ Ship At-Anchor Barge
  - ~ Currently Building a SPUD Barge for Liquid Bulk Tanker Ships
- AMECS has serviced 226 ships to date
- AMECS On-Dock has serviced 65 ships to date
- AMECS Ship-Side Barge has serviced 159 ships to date
- AMECS At-Anchor Barge has serviced 2 ships to date
- AMECS has commercially operated without incident for close to 3,000 hrs.
- AMECS meets US Coast Guard & OSHA safety, structural & stability standards
- AMECS has undergone risk evaluations by both the American Bureau of Shipping (ABS) and Det Norske Veritas (DNV)
- AEG has the capacity to build sufficient AMECS systems to meet any schedule


MAERSK
MAERSK
MAERSK
MAERSK
MAERSK
MSC MANU
AMECS
M S C

Advanced Maritime Emissions Control System
(AMECS)

AMECS Captures And Cleans Airborne Emissions

From Auxiliary Engines & Auxiliary Boilers

AMECS Consists Of Two Major System Components

The Exhaust Capture System & Emissions Treatment System

1st Generation

AMECS Bonnet Large Single Funnel Smokestack Exhaust Capture System

2nd Generation

AMECS Direct Connect Multi-Funnel Smokestack Exhaust Capture System

Confirmed Emissions Control Efficiencies

PM 94.5% NOX 99% SO2 98.5% VOC 99.5%

Table 22. Emissions Reduced per Vessel

Vessel Type	PM[1] ton/yr	NOx ton/yr	VOC ton/yr	TOTAL[2] ton/yr	SOx[3] ton/yr
Auto Carrier	135.8	72.7	2.4	210.9	70.2
Bulk	42.3	22.9	0.8	65.9	21.6
Container Ship	242.0	135.0	4.5	381.5	117.4
General Cargo	34.7	17.2	0.6	52.5	19.8
Passenger	386.7	197.4	6.2	590.3	164.9
Reefer	194.8	106.8	3.6	305.2	97.3
Roll-on/Roll-off	102.7	61.1	2.0	165.8	44.5
Tanker	237.2	74.4	2.8	314.4	197.0

[1] Moyer weighting factor of 20 was applied to the PM emissions reduced.
[2] Total emissions only include PM, NOx, and VOC for cost effectiveness calculations.
[3] SOx emissions reduced is provided in this table for informational purposes only.

AEG Has Continued To Improve Its Emissions Treatment System Technology (ETS)

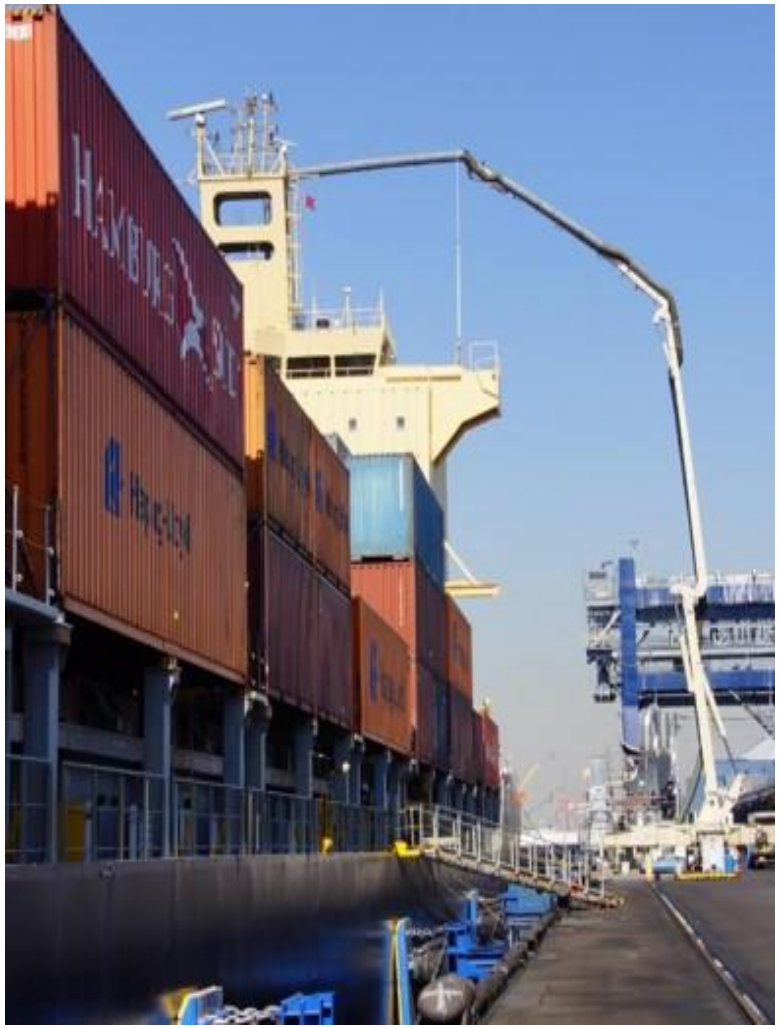


AMECS 1 ETS



AMECS 2 ETS

Articulated Arm Can Reach Any Height And Length Of All Ships





First Generation On-Dock AMECS Bonnet System





Port of Long Beach





AMECS Barge System At-Dock Direct-Connect Stack Exhaust Capture System

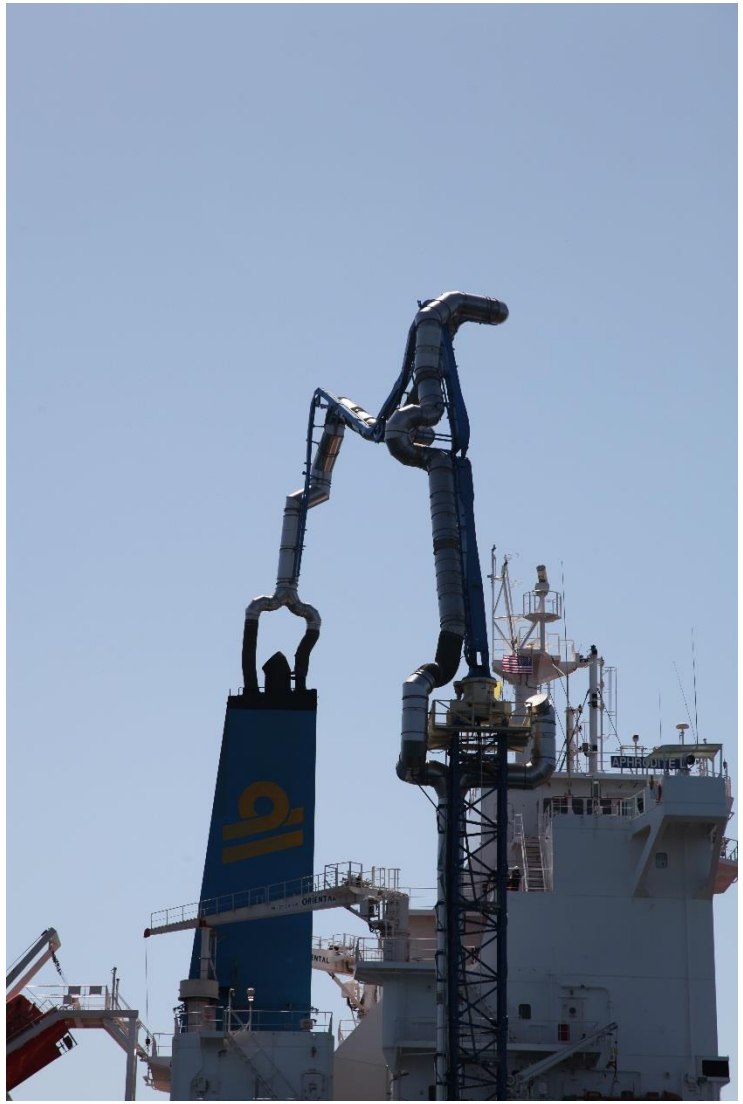

COSCO SHIPPING


PM TERMINALS
MAERSK SYDNEY
MONROVIA


MSC


MAERSK
MAERSK





AMECS Barge System At-Anchor Direct-Connect Stack Exhaust Capture System

AMECS Spud Barge 2020

The next generation of the AMECS Barge Technology currently near completion is an AMECS Spud Barge. A Spud Barge is a barge that is moored or anchored to the ocean floor by through-the-deck steel shafts in each corner which are lowered to the ocean floor to provide stability so that the barge does not move or shift due to the ocean waves or current. The shafts or round cylindrical pipes are referred to as spuds.



AMECS vs Shore Power
Cost Comparison

Assumptions Based on California Air Resources Board (CARB) and Environ Study Data

* Capital cost to retrofit a ship for shore power ($1.1 million to $1.7 million per CARB):
* Cost differential between self-generating power and shore power purchase: $60/MWH
* Personnel cost of connecting to shore power with port and ship personnel: $3,360/ visit

Additional Assumptions

* Cost of Capital (3-year horizon): 10% WACC
* O&M Cost of AMP at 15% per annum ($165,000 to $255,000 per year): $165,000
* Number of visits into California port per year: 10
* Average stay per visit: 40 hours/ visit
* Number of Hours at Berth per year: 400 hours/ yr.
* Number of Hours connected to shore power (92.5% of 400): 370

AMECS Annual Cost Data

Shore Power Cost

* **Cost of AMP system plus Installation @ 10% WACC with a 3-year amortization: $442,326**
* **Cost of Price Differential Between self-generation and grid power (370 X $60): $22,200**
* **Cost of Shore Side Personnel Used for Shore Power $3360 X 10): $33,600**
* **Cost of O&M for ship based AMP system and circuitry at 15% per annum: $165,000**

Total Shore Power Annual Cost: $ 663,126/ yr.

AMECS Cost

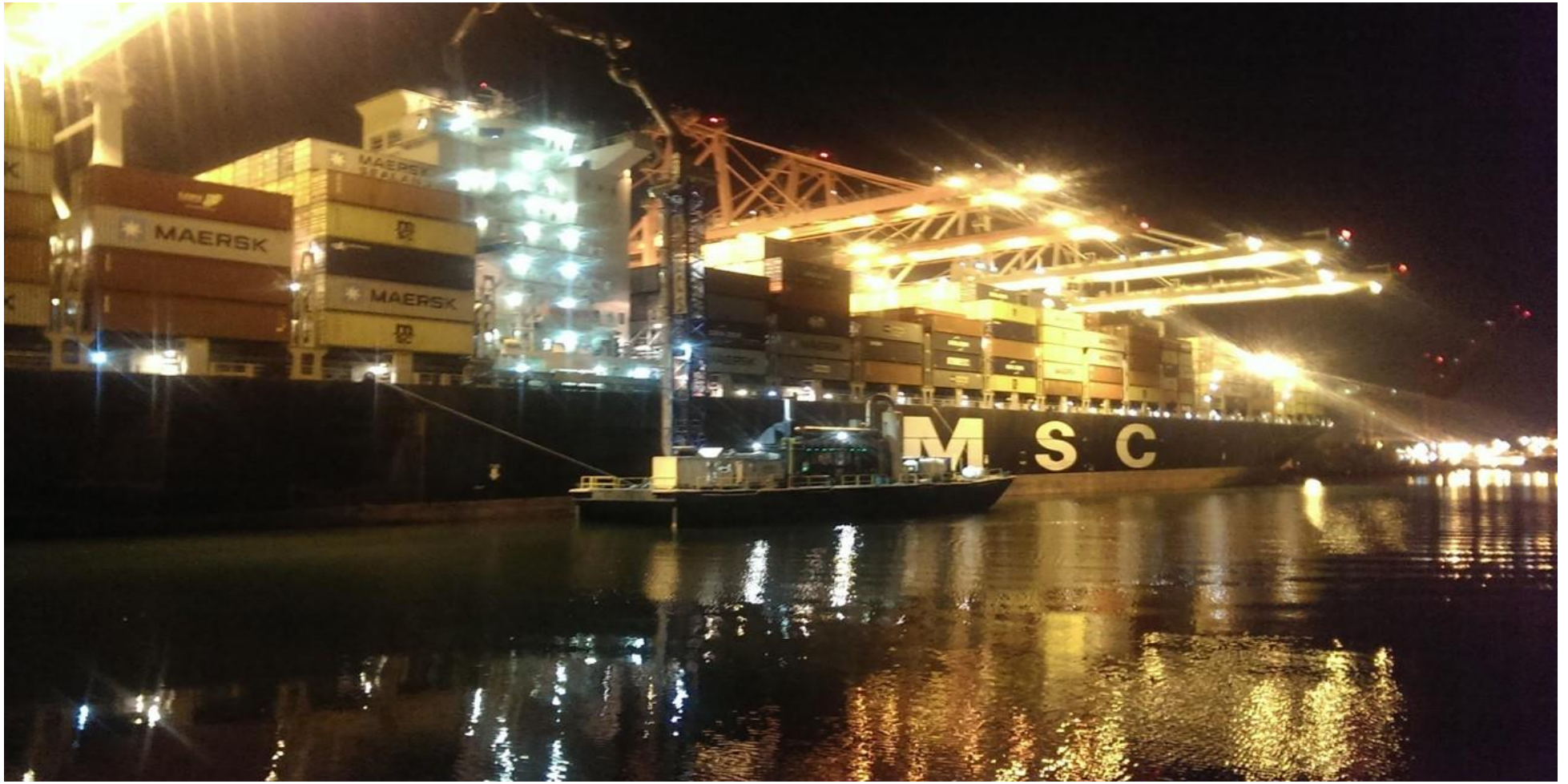
* **Cost of AMECS system per hour: $1,200/ hour**

Total AMECS Annual Cost: (400 hours at Pier XYZ $ 1,200/ hour): $ 480,000/ yr.

Advanced Environmental Group

Next AMECS 2020 Design Enhancement

AMECS currently operates by using a Natural Gas CAT Generator to provide electrical power. AEG has begun discussions with members of the California Hydrogen Business Council to incorporate Hydrogen Fuel Cell Technology to replace the CAT Generators so that the AMECS Barge is 100% Zero Emissions. A proposal for designing and building the first prototype Hydrogen Fuel Cell Powered Barge is now ready for submission for new technology grant funding and can be built in less than 12 months.



Coalition For A Safe Environment

1601 N. Wilmington Blvd., Ste. B
Wilmington, Ca 90744
www.cfase.org
424-264-5959 310-590-0177

Long Beach Container Terminal

1171 Pier F Avenue
Tel: (562) 951-6000

Long Beach, California 90802-6252
Fax: (562) 951-6235

December 9, 2019

Mary D. Nichols, Chair
California Air Resources Board (CARB)
1001 I Street
Sacramento, CA 95814

Subject: Comments for Draft Regulation Order: California Code of Regulations, Title 17, Division 3, Chapter 1, Subchapter 7.5, Sections 93130-93130.20

Dear Chair Nichols and Members of the Board:

Thank you for the opportunity to provide comments on the proposed regulation order for California Code of Regulations, Title 17, Division 3, Chapter 1, Subchapter 7.5, Sections 93130-93130.20.

Long Beach Container Terminal (LBCT) is one of the largest container stevedoring terminals (by containerized volume) in the Ports of Los Angeles and Long Beach and the West Coast of the United States. LBCT is one of the most environmentally clean terminals in the world with an all-electric transport system deployed with our ship-to-shore cranes, automated guided vehicles, automatic stacking cranes and rail-mounted gantry cranes that are infused in all aspects of our business including vessel, yard and rail operations. LBCT is committed to environmental sustainability, emission reduction and in many cases on the cutting edge of environmental stewardship in our industry. We do, however, have considerable concerns with sections of the proposed regulation.

I have notated the particular regulatory cite and the comment subsequently following:

44.1 **93130.2 (b)(55)** We recognize that the definition for 'Ready to Work' has been revised but still is missing information regarding labor. We would recommend that the following definition be considered and read: "Ready to Work" means that the vessel is tied to the berth, the gangway has been lowered with netting down, U.S. Coast Guard and U.S. Customs and Border Protection have cleared the vessel, and the labor is available, and the labor shift has started.

44.2 **93130.9 (a)(2)** It should not be the Terminal Operator's responsibility to commission the vessels. This involves vessels involved in international trade, and nearly exclusively under the jurisdiction of a foreign government. This could only be undertaken by international treaty.

44.3 **93130.9 (a)(3)** It should not be the responsibility of the Terminal Operator to shift a vessel to shore power if the shore power was previously unavailable but becomes available at a berth. Consideration should be given if the vessel did not meet its schedule, who is responsible for the costs as a result of this including: labor, pilots, etc. This could have significant impacts to stevedoring contracts that have been in place for decades. The proposed language did not consider the complexity of vessel operations as well as placing the burden on the Terminal Operator when they cannot control vessel schedule.

44.4 **93130.9** The proposed language has not considered numerous factors including: what if the reason the vessel cannot connect is a result of another (third) party (example: prior vessel at berth damaged infrastructure); what if there is a warranty issue with the shore power; what if the vessel cannot connect for as a result of compatibility, lack of commission, vessel issue. It should not be the 'shared responsibility' to arrange a CARB approved emission control strategy. The Vessel Operator is the holder of all vessel information including their design, ship power requirements, ship schematics and electrical infrastructure details, etc.

44.5 **93130.9 (d)** There would likely be weekly notices by terminals up and down the coast the way the current proposed language is written. Regardless, there should be an email that can be utilized to report exceptions. The timeline should be extended as well, since it may take time to gather all pertinent information. Also, this is another administrative burden that is being placed onto the Terminal Operator. The designated person likely handles numerous other responsibilities and could be on business travel, meetings, etc. A more reasonable timeframe would be to report within 30 days.

44.6 **93130.9 (d)(2)** Ships manage their power usage, asking the Terminal Operator to communicate with the vessel to determine their usage does not seem to be practical or applicable. In many cases meters are not located on the terminal, and in fact are under the control of the providing utility. Beginning and ending meter readings are not possible in these cases.

44.7 **93130.9 (d)(2)(A)** It is the vessel's responsibility to commission. The Terminal Operator will coordinate, where applicable.

44.8 **93130.9 (d)(2)(B)** It is the Vessel Operators responsibility confirming that the strategy is CARB approved.

44.9 **93130.9 (d)(2)(C)(F)** What is the reasoning that CARB needs to know the meter reading? This appears as if CARB is expanding their jurisdiction. If terminal records the meter reading number, then wouldn't that be sufficient? If there is a 'need' to know that particular meter number, then that can be provided. In many cases meters are not located on the terminal, and in fact are under the control of the providing utility. Beginning and ending meter readings are not possible in these cases.

44.10 **93130.9 (d)(2)(D)** 1 hour is not practical and will clearly become a safety issue. CARB has not considered the already CARB approved emission technology lift on/offshore power container. There have been significant capital expenditures to utilize this CARB approved technology and CARB needs to allow the proper amount of time to utilize this CARB approved technology.

93130.9 (d)(3)(e) The Vessel Operator is already reporting this information, and this creates a redundant and an additional administrative burden to the Terminal Operator to report the same information. Further, there could
44.11 be slight differences on reporting information between the two entities thus causing and creating additional coordination and/or research if the information is not exactly consistent. There could also be occasions that a third-party operator is involved and now you have three entities reporting the same redundant and likely slightly different. We are having difficulty identifying the reason/ need to have this redundant reporting.

93130.9 (d)(3)(I) What is the reasoning that CARB needs to know the meter reading? This appears as if
44.12 CARB is expanding their jurisdiction. If terminal records the meter reading number, then wouldn't that be sufficient? If there is a 'need' to know that particular meter number, then that can be provided. In many cases meters are not located on the terminal, and in fact are under the control of the providing utility. Beginning and ending meter readings are not possible in these cases.

93130.9 (f) How can the Terminal Operator be responsible for port owned land and infrastructure? If
44.13 the work includes warranty-related repairs, is the manufacturer responsible? It surely can't be the Terminal Operator's responsibility. The Terminal Operator will report such issues but if there is construction or repair, there needs to be some flexibility. The reality is, there will be repairs, replacements, maintenance needed, and the rules need to account for that. Otherwise, this impacts commerce if you cannot have a vessel berthed when unforeseen or unavoidable circumstances present themselves.

93130.11(a)(1) Terminal volumes and vessel calls fluctuate. The TIE's should be based on current year
44.14 and not previous year. The entire VIE/TIE proposal needs to be reconstructed. It simply does not match with the reality of industry and there are numerous considerations that need to be inserted into the program including what if CARB technology fails; other circumstances outside the control of a Terminal and Vessel Operator.

93130.11 There will need to be more % for TIE's issued the way the current proposed language is
44.15 written. This still does not match with the reality of industry and there are numerous considerations that need to be inserted into the program including what if CARB technology fails; other circumstances outside the control of a Terminal and Vessel Operator.

93130.11 A TIE should not be utilized for uncontrollable events. This still does not match with the
44.16 reality of industry and there are numerous considerations that need to be inserted into the program including what if CARB technology fails; other circumstances outside the control of a Terminal and Vessel Operator.

93130.11 (c) A TIE should be able to be carried over to the next year and so forth. This would provide
44.17 an incentive for Terminal Operators and reward them for compliance. This still does not match with the reality of industry and there are numerous considerations that need to be inserted into the program including what if CARB technology fails; other circumstances outside the control of a Terminal and Vessel Operator.

44.18 **93130.12** It is not the responsibility of the Terminal Operator to contract with a third party for an CARB approved emissions control equipment. This is not consistent with how current operations are handled and this needs to be reconsidered.

44.19 **93130.14.** This is another administrative burden. Further, it isn't practical for a terminal to develop a plan that they have no to limited control over. Carriers decide what will happen to their respective vessels. Carriers develop and control vessel schedules and these schedules change throughout the year. We do not see a value or reason to develop and maintain a plan. There will be regulations in place that will need to be followed, that would be the plan.

44.20 **93130.15** There should not be a fine or 'pay for remediation' if equipment fails or is being repaired, or parts are on order. If equipment is in good order and proper maintenance has taken place and equipment fails, there should not be a penalty. Further, if there are required repairs or maintenance that is needed, that should not be penalized. This regulation is expecting perfection and that simply is not reality in any industry. What if the failure is due to a weather event or act of god? These should be identified as the exceptions allowed.

44.21 **93130.15** What if the control strategy is delayed because of the third party or weather? Again, there shouldn't be penalties/ enforcement on operators for things that are out of their control.

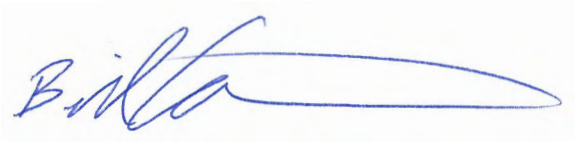
44.22 **93130.15** If the construction project is CARB approved then why would the operator have to 'pay for remediation'. What if the reason for the construction is a result of action/inaction of a third party? Again, there shouldn't be penalties/ enforcement on operators for things that are out of their control.

44.23 **93130.15(f)** Significant changes need to occur for the proposed language to balance compliance. The hourly fee for container vessel is $1,900.00. This would be $45,600 a day. This is an absurd penalty and needs serious reconsideration. There are many circumstances that may prevent or delay a vessel to 'plug in' or have an CARB-approved emission control device at the ready.

44.24 **93130.13** Exceptions should be expanded to handle various other scenarios that have been previously mentioned in this document. There are not enough TIE's/ VIE's and the percentage needs to be increased. Responsibility should not be the Terminal Operator, as previously mentioned in this document. It simply does not match with the reality of industry and there are numerous considerations that need to be inserted into the program including what if CARB technology fails; other circumstances outside the control of a Terminal and Vessel Operator.

We have been very involved with previous public workshops, have been in communication with your staff and have provided previous comments on this proposal. A deeper analysis of our industry needs to occur to further understand our business and standard industry practices so that the regulations can provide value and keep a standard. The proposed regulations are setting up the industry for failure. The potential costs to attempt to comply and pay the remediation fees is exorbitant. We are very concerned on how this will impact safety, as well. With so much at stake, accidents will occur, and we are speaking up now to prevent this. We hope that CARB will take this letter seriously and spend the time to revaluation what has been proposed. We understand that the goal is reduce emissions. The greatest impact that the proposed regulations will achieve is non-compliance, fines and jeopardizing safety. We respectfully ask that you consider our comments in your revision.

Best Regards,



Bill Carson
General Manager, Safety, Security and Environmental
Long Beach Container Terminal
(562) 951-6041
Bill.carson@lbct.com

World Shipping Council Comments
to the
California Air Resources Board (CARB)
on the
Proposed Control Measure for Ocean Going Vessels at Berth

9 December 2019

The World Shipping Council (WSC) is a non-profit trade association that represents the liner shipping industry, which is comprised primarily of operators of containerships, vehicle carriers, and roll-on/roll-off (ro-ro) vessels. Together, WSC's members operate approximately 90% of the world's liner vessel services. Vessels operated by WSC members make frequent calls in California ports, and WSC's members would be directly and substantially affected by the proposed rule.[1]

Before turning to our detailed comments, we wish to highlight several points. First, WSC and its members have actively encouraged CARB to modify the current at-berth regulatory structure, which imposes essentially all of the regulatory obligations and penalty risk on ocean carriers, to establish clear and appropriate obligations for shore side entities to provide the shore power connection infrastructure that is critical to this regulation and to connect arriving vessels that are subject to the rules. For the rules to function effectively, each party that is needed to play a role in meeting the rule's objectives should be provided with clear and achievable regulatory obligations. We therefore support this proposed rule's inclusion of such obligations on ports, marine terminal operators and on emissions control strategy operators.

Second, as you will see below, WSC has provided detailed comments that are intended to improve and streamline the regulatory system through which CARB has regulated at-berth emissions since the original at-berth rules were promulgated. We have serious concerns, however, with CARB's proposal to both substantially *revise* the current at-berth regulatory system *and expand* the applicability of that system to new classes of vessels, particularly ro-ro vessels, which comprise a large number of discrete vessels, only a small percentage of which make infrequent and very short port calls (on average 14 hours and short as 9 hours) in California. No evidence has been presented or reviewed that demonstrates that a cost-effective pathway

45.1

[1] A full description of the Council and a list of its members are available at www.worldshipping.org.

exists for controlling ro-ro vessels' auxiliary emissions. Furthermore, CARB's analyses fail to address the major operational, safety and cost issues the proposed "capture and control" systems pose for ro-ro vessels or to account for the emissions generated by these control systems and the tug boats need to maneuver them to and from the vessels. In short, the proposed rule and its supporting analyses fail to provide an adequate explanation and cost-benefit analysis that demonstrate that controlling auxiliary emissions for ro-ro vessels is any more practicable and cost effective than for general cargo ships, which the rule has chosen not to regulate. Instead of expanding the applicability of this rule to new classes of vessels such as ro-ros, we recommend that CARB first consider other, more cost-effective and feasible approaches to achieving further emissions reductions.

45.2

45.3

Third, we have concerns with CARB's proposed implementation timeline. Substantial additional technical work, planning, approvals and investments in ship and shoreside infrastructure and alternative emissions control strategies will be required to meet the proposed rule's requirements to control at-berth emissions for each regulated vessel call to California. If the CARB Board approves the proposed regulation in April 2020, that would leave 8 months for the industry to try to be prepared to comply with the rule starting on 1 January 2021. The rule already acknowledges that the ports and terminals cannot realistically submit their infrastructure plans within that timeline (their earliest infrastructure plan deadline is 1 July 2021). Equally important, CARB-approved infrastructure expansion plans also requires time for the on-shore infrastructure to be built and permitted. We therefore recommend that the rule be modified so that it takes effect once the port and terminal infrastructure plans have been approved by CARB and the terminals and/or port authorities have built out the infrastructure needed and obtained the necessary permit approvals.

45.4

WSC's detailed additional comments and suggestions on CARB's proposed Regulation Order follow for your consideration. Our comments and recommendations are presented in the order that the provisions appear in the proposed Regulation Order. Questions on these comments should be directed to Doug Schneider of the WSC staff at dschneider@worldshipping.org or +1-202-589-1227.

1. Definitions (Section 93130.2 (b)):

   a. *California Approved Emission Control Strategy (CAECS) Operator*: We support the inclusion of this new definition and note that it will be essential not only for CARB to approve the types of CAECS technologies, but also the parties that are approved to operate them. This is particularly important given the problems carriers have faced in obtaining reliable and quality services from the existing barge-based capture systems operators.

45.5

   b. *Ready to Work*: We appreciate that this definition was changed to include other government entities that may affect when a vessel is cleared and ready to work. We also recommend that CARB insert in this definition the following after "netting down" and before "United States Coast Guard": "*, the ramp is down and secure (if applicable),*

45.6

required shore side labor technicians are present, and the". Finally, we wish to note that changing the "Ready to Work" definition does not solve the problems with the proposed 1-hour connection timeline. That issue is discussed in point 4.d.ii of our comments.

2. CARB Approval of Emissions Control Strategy Operators (Section 93130.5): We support CARB approval not only of particular emissions control strategies, but of parties that operate those strategies. CARB approval of emissions control strategy operators is essential under the proposed revised regulations because they would place penalty obligations on operators for failure to meet their responsibilities under the rule. It is therefore essential that CARB formally approve the named operators or companies operating a particular emissions control strategy. We recommend that the text of 93130.5(a) be slightly amended as follows: delete the words "at a port or terminal" from line 2 and replace "it" in line 2 with "that person". The first change will eliminate confusion about the provision's applicability to emissions control strategies that are deployed not from the terminal or port property but from a barge. The second change would make it clear that the emissions control strategy operator must be approved by CARB.

45.7

3. Already Approved Strategies (Section 93130.5 (d) (3)): As noted in the comment immediately above, we recommend that CARB affirmatively approve operators of emissions control strategies, not just the technologies used in those strategies. Therefore, if the existing CARB approvals referenced in this sub-section already include approval of the parties operating the strategy, then we have no objection to this provision. If, however, the existing CARB approvals referenced in this sub-section are only for the strategies and would allow any person or company to operate those strategies, then we recommend that this provision be deleted.

45.8

4. Vessel Operator Requirements (Section 93130.7):

   a. *General Requirement* (Section 93130.7): The "Summary of Responsibilities" section of this rule (Section 93130.17) identifies, with one exception discussed in point 12 of our comments, the particular entity that will be held responsible in circumstances in which auxiliary emissions are not controlled. For example, when a commissioned shore power equipped ship arrives, the terminal/port is responsible for connecting the ship to shore power. This is appropriate. The problem is that Section 93130.7 contains checklist items that a commissioned shore power equipped ship will not be able to complete unless the terminal/port completes its obligations under the rule. Section 93130.7's statement that "Any failure to perform any specific items in this section shall constitute a separate violation…" could thus be used to penalize a shore power equipped ship that cannot complete all of the vessel checklist items in 93130.7(e) because the terminal/port failed to meet its rule obligations.

45.9

   To correct this misalignment between proposed Sections 93130.7 and the "Summary of Responsibilities" section, we recommend that the second sentence in the opening paragraph of Section 93130.7 be replaced with: "*Any failure to perform any*

specific items in this section shall constitute a separate violation for each day that the failure occurs, except to the extent a vessel operator cannot perform any requirement due to (1) a terminal and/or port's failure to comply with the portions of this Control Measure that impose requirements upon terminals and/or ports, and/or (2) a CARB Approved Emission Control Strategy Operator's failure to comply with the portions of this Control Measure that impose requirements upon CARB Approved Emission Control Strategy Operators."

b. *Shore Power Requirements* (Section 93130.7 (a)): This provision states that commissioned shore power vessels shall plug in to shore power on each visit to a "compatible" shore power berth. CARB staff indicated in discussions with industry that "compatible" relates only to electrical standards, not to terminal or vessel characteristics such as berth location, space, side of vessel fitted with shore power, or other factors. We therefore recommend that CARB amend this provision by inserting the words "functioning, electrically" before "compatible". We also recommend that reference be made to the technical standards of the international organizations, which are IEC/ISO/IEEE 80005-1/80005-2 and IEC 62613-1.

45.10

c. *Applicability to Roll-on/Roll-off (ro-ro) Vessels* (Section 93130.7(b)): The rule continues to propose that ro-ro vessels be subject to at-berth emissions controls starting on 1 January 2025. CARB has estimated that the control cost per ton of emissions reduced for ro-ro vessels is $53,600. We believe that estimate is low, for reasons discussed below. Even using that estimate, however, it is worth noting for comparison that CARB estimated that the control cost per ton of emissions reduced for containerships is $13,500.

The proposed rule and its supporting analyses have failed to provide an adequate explanation and cost-benefit analysis that demonstrate that controlling auxiliary emissions for ro-ro vessels is any more practicable and cost effective than for general cargo ships, which the rule has chosen not to regulate. It is also worth noting that ro-ro competes with general cargo and some bulk cargo vessels for the transport of construction and agricultural machinery and a lot of "breakbulk" cargo. Imposing requirements on ro-ro would create a market distortion.

45.11

When asked what cost-benefit threshold was used to decide which classes of vessels to regulate and which not to regulate, CARB staff reported that there is no threshold and that the decision to regulate ro-ro was based simply on aggregate emissions. There has been no considered analysis of the costs and benefits of regulating ro-ro auxiliary emissions versus the operational realities associated with regulating this class of vessels, which is comprised of a large number of discrete vessels, only a small percentage of which make infrequent and very short port calls (on average 16 hours and short as 8 hours) in California.

Shore power infrastructure for ro-ro vessels is not emerging in California ports or in any other U.S. or international ports where ro-ros call. There are many reasons for this,

45.12

including: the fact that ro-ros increasingly operate like tramp vessels and less like liner vessels, making shore-side power infrastructure difficult to set up; that ro-ros would need to go through expensive electrical system retrofits because container-based shore power units (e.g. AMP's) are not a realistic option; and ro-ro's don't typically carry dedicated electricians that container vessels have (to handle reefer units). CARB is therefore basing regulation of ro-ros on the premise that barge-based capture and control equipment is or will become a viable and practicable emissions control option. Experience to date with the two existing barge-based capture and control service providers has demonstrated

45.13 that those services are often unreliable, are exceedingly costly, and pose substantial operational and safety problems for ro-ros - namely that the systems cannot be used in windy weather, cannot always reach ro-ro stacks (which may be 40 meters laterally and 40 meters above the waterline), and often prevent simultaneous alongside bunkering operations. If ro-ros cannot bunker in port, they may be forced to bunker at anchorages. Neither ro-ro auxiliary emissions at anchor for bunkering nor the additional emissions from tugboats used to move bunkering barges to and from the anchorage have been accounted for in CARB's analyses.

We also note that barge-based capture and control systems need to be moved into position, by tugboats, after the ro-ro has been secured fast to the pier. This consumes a substantial amount of time, which increases the cost of control per hour of emissions because ro-ro calls are already very short. A related factor that has not been adequately

45.14 considered is the impact of the tug emissions generated to move the barge-based capture and control system to and from the ro-ro vessels and other vessels that may require barge-based emissions control strategies. Typically, a tugboat will use engines two to four times larger than the ro-ro auxiliary engines to be controlled. As a result, emissions from tugboat operations can significantly offset the emissions reductions gained by requiring ro-ro to use capture and control systems during their vessel calls. The capture and control systems also use generators for power that need to be factored into the total impact analysis for regulating ro-ro auxiliary emissions. While CARB staff included the cost of obtaining tug services and capture and control services in the SRIA, CARB staff has not included in to the environmental analysis, ISOR or the emissions inventory the increased emissions that result from controlling emissions using capture and control system emissions and the tugs that support them.

Another idea that has been proposed to control ro-ro emissions is development of shore-based capture and control systems at the various ro-ro terminals in California. While one land-based system is being trialed, no commissioned land-based systems exist today and we understand that land-based systems would not be a practicable control option at many existing California ro-ro terminals because the piers on which the shore-

45.18 based control systems would sit could not support the weight of the systems. Furthermore, such systems would obstruct cargo operations as ro-ro stacks are located near the stern where the ramp is located. Ro-ro operators need to be able to stage, maneuver and park cargo all along the quay side. Even if this technology could be built and deployed, the limitations related to use of the systems in inclement weather remain

as does the need to factor in the generator GHG emissions the control systems would produce.

Finally, if ro-ros are diverted – either to concentrated docks within California or to out-of-state alternative ports - due to lack of control technology, access to alternatives, or simply to avoid increased costs, CARB's analyses needs to analyze the related emissions and costs of the delivery of automobiles by other intermodal methods, principally by rail for long-haul and truck for local distribution. Acknowledging that emissions per ton vary widely by transportation mode, but with ocean going vessels always having the lowest emissions per ton per mile, it is likely that ro-ro vessel diversions would not only have significant economic costs to the state in terms of lost employment and activity but also result in a net increase in emissions.

45.19

For the reasons discussed above, we recommend that CARB not proceed with plans to regulate ro-ro auxiliary emissions in 2025 and instead monitor ro-ro emissions and the ongoing development of technologies that may in the future provide a viable and economically achievable compliance option for these vessels.

45.20

d. *Vessel Compliance Checklists* (Section 93130.7 (e)):

i. Before Arrival Communications: We recommend that the requirement in § (1) to communicate "in writing" be eliminated from this provision, as it would impose a method of communication that may not be practicable between a vessel operating at sea and a marine terminal. Electronic communication should be encouraged.

45.21

ii. Shore Power Connection Time: § 3(A) would require vessels to begin using shore power or another CAECS within one hour after "Ready to Work". We have serious concerns about the practicability of such a requirement.

45.22

While it may, in rare circumstances, be possible for a vessel arriving from a foreign country to meet this requirement because of the time it may take for U.S. Customs to clear the vessel to work, this will mostly not be the case; a regulatory deadline should not be based on a variable such as how long it will take another agency to clear an arriving vessel. Moreover, there would be no Customs inspections for a large percentage of vessels calls to California because the U.S. Customs inspections occur only on the first vessel arrival from a foreign country.

The question is then, would it be practicable for vessels to connect to shore power within one hour after the vessel is secured to the berth? Based on experience, the answer is no. Establishing shore power connections must be done safely by longshore technicians, who may not be immediately available given their other extensive responsibilities (such as maintaining the cranes). Furthermore, many vessels employ systems that must be lifted on/off that require additional connection time. We understand that safety protocols prohibit crane operators from connecting or

disconnecting vessels to/from shore power while it is raining. We are also concerned that an unreasonably short time limit for connecting high-voltage systems could pose safety risks to the workers making the connections and could result in unnecessary damage to the equipment.

For CARB's consideration, one of our Member lines computed, using vessel call data going back to May 2019, how the proposed connection time would affect that company's compliance rate. Out of 135 vessels calls for this period, 38% of the calls would not have met CARB's proposed 1-hour window for connecting to shore power. We note that 27% of those calls were in Los Angeles, 24% in Long Beach, and 54% in Oakland.

We strongly recommend that CARB amend this provision to require vessels to: "Begin using shore power or another CARB approved emissions control strategy as soon as safely practicable and within 3 hours after "Ready to Work."

iii. Shore Power Disconnection Time: § 3(B) would require vessels to cease using shore power no sooner than 1 hour before "Pilot on Board". There will be situations in which this is not a practicable disconnection deadline for ocean carriers because of delayed vessel departures due to weather or vessel traffic or if labor unplugs the vessels early due to their own shift schedules. We therefore recommend that the shore power disconnection time be no sooner than 2 hours before "Pilot on Board". We also request clarification regarding what would happen if the pilot shows up later than the scheduled time, causing the vessel to fail to meet this disconnection time.

45.23

iv. Post-Visit Reporting: This provision would require reporting of information for each visit to a California terminal within 7 days of vessel departure. The required visit information includes, among other things, information about whether a vessel uses an exception, if a vessel incident event (VIE) or terminal incident event (TIE) is used for the visit or if a remediation fund payment will be made to cover the visit. It is not realistic to expect vessel operators to be able to report the above visit information in such a short timeframe.

45.24

First, the visit information will, for most or all shipping companies, be submitted not by the vessel itself, but by a senior company representative who will collect, review and then submit the information to CARB. One of the reasons for this reporting approach is quality control to ensure that all the required information is properly and consistently presented to CARB. Another reason is the fact that the decision whether to use a VIE, ask the terminal to use a TIE, or to use the remediation fund, is not for the vessel master, but for the company to make since VIEs are allocated based on the company fleets. This process takes time, particularly if there are ongoing negotiations between the shipping company and terminal about whether a VIE or TIE will be used. Weekends, holidays or operational issues affecting the ship's reporting of the data will also slow down this process.

It is also not clear to us why CARB would want the visit information on such short notice and why CARB would want visit information presented in a discrete submission for each visit. We believe that the visit information may, in fact, be more useful to CARB staff if companies submit visit information for all of their vessels (e.g. in a single large spreadsheet) that call California over a fixed period on a quarterly basis. CARB could, for example, require that each company submit visit information no later than 30 or 45 days after the end of each quarter. For example, visit information for all company vessel visits that occurred between 1 January and 31 March would be due to CARB no later than 30 April or 15 May.

We recommend that CARB replace the 7-day visit information reporting requirement with a requirement that visit information be submitted on a quarterly basis (due 30 or 45 days after the last day of the quarter). Given the complexity of the reporting process, CARB staff has supported the idea of establishing a dedicated industry workgroup to focus on reporting requirements for this rule. We recommend that CARB revisit that idea before the rule is finalized.

5. Vessel Visit Exceptions (Section 93130.8): We appreciate that CARB has simplified the vessel visit exception provisions from previous drafts by incorporating safety and emergency events, vessel commissioning, research, vessel incident events (VIE) or terminal incident events (TIE), and remediation fees under the same regulatory category. This makes it clear that all of these categories of events will be treated as exemptions under the rules. We also support CARB's inclusion of a procedure for dealing with situations in which a vessel is unable to complete an at-berth power commissioning visit in a single call to the terminal. This is an important change as unanticipated problems sometimes impact the successful commissioning of a vessel's at berth equipment. We encourage CARB to process commissioning exceptions quickly, so vessel operators do not end up using a VIE for a commissioning that required two vessel calls. Our additional comments on VIEs, TIEs and remediation are provided later in these comments.

45.25

6. Terminal Operator Requirements (Section 93130.9): We support CARB's decision to include in this proposed rule clear and appropriate obligations for marine terminals and ports to, among other things, provide the shore side infrastructure to connect ships to at-berth power and to connect commissioned ships in a timely manner when they call. These are functions that commercial ships cannot themselves perform and lack commercial power to require. Including these requirements in the regulation will establish balanced obligations for ships and the terminals they call and will set clear expectations regarding what ports and marine terminals will need to do to fulfill their obligations under the rule.

45.26

We recommend that CARB make the following changes to Section 93130.9 to provide additional clarity regarding the terminal operators' responsibilities under this rule:

- Section 93130.9(a)(3): Replace the current text with the following to make it clearer and eliminate confusion about whether a TIE or VIE should be used: "*If the commissioned shore power vessel is berthed in a way that prevents it from connecting to shore power, the terminal shall either: 1) use a TIE, or 2) provide an alternative CARB approved emissions control strategy that is compatible with the vessel*." 45.26a

- Section 93130.9(d)(3): Amend the visit reporting deadline for terminals consistent with our recommendations for vessel visit reporting (discussed above in point 5.c.iii of these comments). 45.26b

7. VIEs and TIEs (Section 93130.11): This section describes how VIEs and TIEs should be allocated.

a. *Fleet-based Allocations*: We support the allocation of VIEs based on company vessel fleets. We note, however, that allocating VIEs based on the fleet's previous year vessel calls to California fails to account for growth in services to California over time. An easy way for CARB to address this would be to set VIEs based on the previous year vessels calls plus a percentage of those calls that accounts for annual growth in the arrival of at-berth regulated vessels. 45.27

b. *VIE and TIE Rates*: The table on page 33 of the proposed rule indicates that all vessels would be granted VIEs for 5% of their previous year vessel calls. Terminals, on the other hand, would initially be granted TIEs for 15% of the terminal's annual vessel visits. That allocation would fall to 5% in 2025. We understand based on discussions with CARB staff that the total percentage of visit exceptions (i.e. VIEs plus TIEs) should not exceed 20% because the current at-berth regulations are set to increase to 80% compliance in 2020. While we understand that reasoning, we note that the proposed rule is substantially different from the current rule in that it would require *each* regulated ships' auxiliary emissions to be controlled, whereas the current rule is based on 80% *fleet* compliance. 45.28

We therefore think that the VIE percentage needs to be increased to account for the fact that this proposed rule will require all containerships and refrigerated cargo vessels to use at-berth power when the rule becomes effective. While many of the issues that have previously prevented commissioned vessels from connecting to at-berth power have been shore side infrastructure-related, we anticipate, based on historical compliance data, that more than 5% of vessel fleets will be unable to comply due to onboard equipment problems, the need to rotate vessels into and out of California services for required surveys and dry- dockings, and due to unpredictable commercial demands that may require shipping companies to deploy or phase-in non-commissioned vessels to meet U.S. import and export trade needs. Furthermore, there are only two CAECS currently in operation and they offer services only in the Ports of Los Angeles and Long Beach. The lack of available CAECS reinforces the need to temporarily increase the VIE percentage.

With the above considerations in mind, we recommend that CARB increase the VIE allocation for 2021-2024 to 10 percent per year.

c. *VIE and TIE Expiration*: The proposed rule states that VIEs and TIEs would expire on January 31 of the year after they are granted. To address frequently challenging market conditions during the winter months, we recommend that CARB allow companies to carry over any unused TIEs or VIE until June 30 of the year after they were granted.

45.29

8. CAECS Operator Requirements (Section 93130.12): We commend CARB for including in this proposed rule responsibilities and requirements for CAECS operators. Since these operators will provide essential emissions control services, it is logical that the operators themselves will be subject to checklist obligations and penalties for failing to meet those obligations under the rule. This is particularly important given the historical problems vessel operators have encountered with CAECS operators who, despite having a confirmed booking and contract with a vessel operator, may not show up on time, may cancel a booking on short notice or may breakdown during control operations. When a vessel or marine terminal contracts for CAECS services, the vessel or marine terminal cannot control whether and when the CAECS operator shows up or provides proper control services.

45.30a

We therefore recommend that, when a CAECS operator fails to provide contracted emissions control services to a vessel or marine terminal, the compliance burden and any penalties for noncompliance be initiated solely against the CAECS operator. We also recommend that CARB amend the visit reporting deadline for CAECS operators consistent with our recommendations for vessel visit reporting (discussed above in part 5.c.iii of these comments).

WSC also believes, as we have communicated in earlier meetings and comments, that it is important to discourage or restrict the use of alternative control emission control technologies in container ports where the clear objective of the existing rule was to facilitate connections to shore-side power. Encouraging or facilitating further expansion of alternative emission control technologies in container terminals undermines the investments made in retrofitting the container fleet and could lead to an absurd and unfavorable outcome in which shore-power equipped container ships are expected to use alternative emission control technologies that are inefficient, often unreliable, and only available at high cost. In short, expansion of emission capture systems in container terminals and ports undermines existing carrier investments and undermines the rules effectiveness in delivering emission reductions that are achieved through the most cost-effective and efficient pathway.

45.30b

9. Terminal and Port Plan Requirements (Section 93130.14): WSC strongly supports the provisions that require CARB approval of shore-side infrastructure plans applicable to ports and terminals. This is a critical element of the new rule. How well these obligations are implemented will have a significant impact on the future program and whether the rule delivers the expected air quality benefits. In this context, WSC believes that there would be value in explicitly articulating in the revised rule that plans should include, among other

45.31

things: a) appropriate changes to existing infrastructure design (e.g., inadequate electrical sub-station/electrical vault configurations); b) expansion of existing electrical infrastructure in container ports to accommodate future rule requirements to enable 95% of all shore power equipped container ship calls to be accommodated through shore-side power; and c) that approved plans include a realistic timeframe for design and construction consistent with the final regulatory dates promulgated in the final rule.

10. Interim Evaluation of Ro-Ro and Tanker Control Technologies (Section 930130.14(d)): As emphasized in point 5.b of these comments, we think an adequate case has not been made to include ro-ro vessel auxiliary emissions in this regulation. We hope that CARB staff will carefully consider our arguments regarding the operational problems and costs versus benefits of regulating ro-ro vessel auxiliary emissions. Should CARB proceed with plans to regulate ro-ro auxiliary emissions, we think the interim 2023 evaluation control technologies will be critical in understanding if technology solutions that may facilitate operationally practicable controls of ro-ro (and tanker) emissions are commercially available and cost-effective. We also recommend that CARB include in this interim evaluation comprehensive cost-benefit and practicability analyses for controlling ro-ro auxiliary emissions using available technologies.

45.32

11. Remediation Fund Use (Section 93130.15): We generally support CARB's proposal to establish a remediation that regulated entities could pay into to offset auxiliary emissions that the regulated entity would have been responsible for under the regulation. We think it is critical that monies paid into the remediation fund be used on projects to reduce in-sector emissions or impacts of those emissions.

45.33

We recommend that CARB expand the list of circumstances in which vessel operators may use the remediation fund to include vessels that make infrequent calls to California ports (e.g. less than 3 calls per year). This is a logical regulatory approach for addressing infrequent calling vessels (e.g. vessels rotated in to address increased demand or "extra loaders" brought in to ease port congestion) because it would enable the vessels to have a compliance option if CAECS operators, which have limited operations, are not available or operational for a particular visit.

12. Summary of Responsibilities (Section 93130.17): We generally find the "Summary of Responsibilities" matrix on pages 48-49 to be helpful in defining which party or parties are responsible for what actions under a given scenario. We have two recommended changes to the matrix, as follows:

45.34

- One row of the matrix improperly assigns responsibility to the vessel operator for a situation entirely outside of the vessel operator's control. The last row of the matrix on page 48 suggests that in the case of a CAECS failure, the vessel and the CAECS operator would be held responsible. We note that nowhere else in the matrix is a party held responsible for a circumstance completely outside of its ability to control. An arriving vessel has absolutely no ability to control whether a CAECS system will

work properly. The proper function and maintenance of a CAECS is up the CAECS operator. We therefore recommend that "vessel" be removed from the list of responsible parties when a CAECS has a failure. The CAECS operator must be solely responsible for these situations.

- We recommend that CARB change the statement "No shore power, but has other CAECS" in the "Berth" column of the matrix to: "No shore power available, but has other CAECS". This change will address situations in which a terminal that is equipped with shore power cannot for one reason or another connect a shore power equipped vessel to power.

13: Compliance Examples: We recommend that CARB consider publishing a list of situations vessel operators (and other parties with responsibilities under the rule) may face, with a discussion of what happens when that situation occurs. For example, it would be helpful if CARB described how vessel operators should deal with the following situations:

45.35

- What happens when labor delays prevent a vessel from connecting to shore power?
- What happens when a booked CAECS operator does not show up?
- What are specific examples of circumstances that would qualify for use of the remediation fund (please note our recommendations in point 11 of these comments)?

# # #

MAERSK LINE/ Maersk Agency USA
9300 Arrowpoint Blvd.
Charlotte NC 28273

www.maerskline.com
tel: (704) 571-2693

December 6, 2019

Ms. Mary D. Nichols, Board Chair
Mr. Richard Corey, Executive Officer
California Air Resources Board
1001 I Street
Sacramento, California 95812

Submitted via docket as directed at http://www.arb.ca.gov/lispub/comm/bclist.php
Also transmitted via email

Cc (email): Heather Arias, Bonnie Soriano, Angela Csondes, Nicole Light

Subject: **Maersk Comments on Proposed Control Measure for Ocean-Going Vessels At Berth and Associated Standardized Regulatory Impact Assessment (SRIA)**, Board item ogvatberth2019

Dear Board Chair Nichols and Mr. Corey,

Thank you for this opportunity to comment on the Proposed Control Measure for Ocean-Going Vessels At Berth and Associated SRIA and ISOR. We commend staff for the outreach to stakeholders and the clear writing in the ISOR.

We have been engaged with CARB staff during the development of this new approach, in both workshops and meetings and through written comments. Three sets written comments were provided in 2019 (March 8, March 26, and June 10) and my speaker notes for the CARB Board public hearing on Dec. 5, 2019 are attached. Our comments in this document focus primarily on the proposed regulatory language and the processes defined for implementation. We have also provided input to PMSA and the World Shipping Council to incorporate in their comments.

Structure of these comments:

1. Executive Summary of comments
2. Maersk's interest in this rule and approach to regulation
3. The current At-berth regulation
4. Comments on the proposed new regulation
5. Recommendations

MAERSK LINE/ Maersk Agency USA
9300 Arrowpoint Blvd.
Charlotte NC 28273

www.maerskline.com
tel: (704) 571-2693

1. Executive summary of comments

The existing At-berth regulation has been an important and successful contributor in the dramatic reduction of shipping-related emissions. It is administratively complex, and CARB issued three Regulatory Advisories (2013, 2015 and 2017) to enable implementation and improve clarity. If this approach is continued in whole or in part in the future, some updating and technical corrections should be considered. A possible productive continuation could include a fleet averaging approach for the currently regulated fleets. Suggested areas for technical corrections are in Table 1.

46.1 Currently-regulated vessel fleet operators have developed sophisticated predictive models and expertise to manage this complex requirement and improve operations. Change to a new structure will make these models obsolete while achieving little to no additional environmental benefit vs the fully-implemented 2020 requirements already in place.

46.2 The per-vessel/checklist-based concept was initially supported by industry as a way to clarify and streamline the compliance process, address many of the issues in the current rule, establish balanced responsibilities for all participants, and make enforcement simpler. However, as the concept and language developed, the spirit changed from encouraging desired behaviors to a more controlling, punitive approach, which is also complex to administer, provides significantly less flexibility and planning capability, and creates conflict rather than cooperation between regulated entities.

46.3 The proposed "per-vessel" rule requires vessels to connect almost all calls starting January 1, 2021, however, the infrastructure to do so is not in place. The proposed regulation calls for Ports' infrastructure plans to be submitted by July 2021, approved by CARB in 90 days (October), and only then start the funding, permitting and construction process. In addition, the envisioned alternative control systems are inadequate in LA/LB and do not exist in any other ports, and barge-based alternatives may not be usable in some locations due to safety concerns.

46.4 The proposed language includes positives such as a creative remediation fund (limited in use), and mechanisms to evaluate and approve future technologies. However the proposed rule still does not provide clear mechanisms to deal with significant operational disruptions, redeployments or market shifts. It also creates new technical issues which must be addressed if this approach is to be implemented. For example, the new rule calls for 1-hour connection times on arrival and departure, which is not feasible. We found that

46.5 38% of our vessel calls in California between May and October would not have met this requirement. (54% in Oakland). Clearly these technical issues need to be addressed before a rule based on this approach could be effectively implemented.

MAERSK LINE/ Maersk Agency USA
9300 Arrowpoint Blvd.
Charlotte NC 28273

www.maerskline.com
tel: (704) 571-2693

46.6 We recommend that staff work with the currently regulated vessel operators to improve the proposed compliance structure for these fleets – based on the current regulation's EERO pathway (fleet averaging), the per-vessel approach, or some third alternative. The final direction should ensure at least one clear, feasible, reasonably cost-effective compliance pathway for all the typical variations of this business – including the periodic major disruptions (e.g., the 2015 labor disruptions, and the 2018 surge in extra vessels calls due to the threat of new tariffs in 2019, which resulted in a surge of over 30 additional vessels to CA ports in late 2018, few of which were shore power equipped).

46.7 We also recommend that CARB Staff work with Ports and other stakeholders to evaluate whether other reduction projects could provide earlier and more cost-effective ways to achieve the needed reductions.

Finally, only California has experience with shore power. Other ports and governments around the world are looking to California for data and best practices, so we need to get it right.

2. Maersk's interest in this rule and approach to regulation

Maersk is the global leader in container shipping, operating in 130 countries and employing roughly 76,000 people. We operate about 750 container vessels globally. Each year 45 to 60 of our vessels make over 500 calls in five California ports. These international vessels spend on the order of 5% or less of their operable lifetimes in the waters of any one state or country.

Maersk has long been an environmental leader in shipping. Examples of this environmental leadership include:

- Our voluntary clean fuel initiatives in California started in 2006, and other high-priority ports followed (e.g., Hong Kong, Houston). We are the only shipping line that supported both the California Vessel Fuel Rule and the US EPA's North American Emissions Control Area proposal.
- Since 2007 we have reduced our fuel consumed and related emissions by 47% on a per container per kilometer basis, through new larger vessels, improved operational and vessel management practices, and retrofits of our existing fleet. Our fuel and CO_2 data are calculated using Clean Cargo methodologies and third-party verified by Lloyd's Register.
- Our 2018 commitment to Net Zero CO_2 Shipping by 2050 means that we must launch our first carbon neutral vessel by 2030. New fuel, propulsion and technology development initiatives are underway to support this goal.

MAERSK LINE/ Maersk Agency USA
9300 Arrowpoint Blvd.
Charlotte NC 28273

www.maerskline.com
tel: (704) 571-2693

- We now provide the first carbon-neutral shipping options for customers, and we are partnering with major cargo owners and technology providers to develop future fuels and technologies.
- Maersk's APM Terminals company is now installing hybrid cargo handling equipment in priority ports around the world, including Pier 400 in Los Angeles. This hybrid equipment reduces diesel emissions by well over half and can be converted to fully electric operations as equipment technology, supply of electricity and charging infrastructure become available.

Maersk's approach to compliance:
Maersk supports California's clean air and climate goals and strives to meet or exceed all requirements. We have committed time and resources to work with regulators to provide information on operations and capabilities to help their development of regulations that achieve environmental goals, are cost effective, clear and enforceable, and avoid unintended consequences. Our goal is that there will be clear, feasible compliance pathways for all reasonably foreseeable operational modes, which encourage desired behaviors and discourage counterproductive actions. We also support the development of emissions inventories that recognize the full range of efficiency and environmental improvements implemented by fleets, terminals and ports.

Maersk vessels began complying with the California At-berth rule in 2010 using the Equivalent Emissions Reduction Option, which focuses on fleet emissions reductions. This is four years earlier than the 2014 compliance date on the Reduced On-board Generation compliance approach taken by most carriers.

We have been engaged with CARB staff during the development of the proposed rule and ISOR, including numerous meetings, calls and written communications. We have also provided significant input to both PMSA and WSC on their comments, and support most of their industry recommendations. This letter will provide more specifics on a few key issues that we feel are of particular concern.

3. The Current California At-berth rule

The existing At-berth Rule and Vessel Fuel Rule have been important and successful contributors in the dramatic reduction of shipping-related emissions near California ports. However, the current rule is administratively complex for both the regulated entities and the Enforcement division and does need technical corrections. The existing structure encourages "spreadsheet exercises" rather than encouraging operational behaviors that minimize emissions. It is also not yet fully implemented.

MAERSK LINE/ Maersk Agency USA
9300 Arrowpoint Blvd.
Charlotte NC 28273

www.maerskline.com
tel: (704) 571-2693

The existing At-berth Rule established a multi-year phase-in, with the final step scheduled in 2020. On 1/1/2020 the vessel fleet emissions reduction requirements step up from a minimum of 70% to a minimum of 80% emissions reductions. [1] Assuring that fleets achieve the requirements requires that operational targets be set well above the minimum. On the shore side, berths where shore power infrastructure was funded by Proposition 1B have 10% higher requirements, so their requirements step up from 80% to 90%. Achieving these existing requirements means almost all regular calling vessels must be shore-power capable and connect.

In 2-3 years data on the outcome of the fully implemented rule will be available, enabling more thorough assessments.

Table 1: Structural Aspects and Technical Corrections for the Existing At-berth Rule

<u>General structure:</u>

- The existing Equivalent Emissions Reduction compliance pathway (fleet averaging approach to emissions reductions) encourages focus on the largest sources with over-compliance to ensure full compliance. This structure does provide some flexibility to address normal operational variations and challenges, but is complex to manage for both the vessel operators and CARB Enforcement.
- Currently-regulated vessel fleet operators have developed sophisticated predictive models and expertise to manage this complex requirement and improve operation. Change to a new structure will make these models obsolete while achieving little to no additional environmental benefit from these fleets.
- Obligations and penalties should be balanced for all participants responsible for making shore power effective: vessel operators, marine terminals, Ports, and alternative technology providers. This is not currently the case. The key role of labor must also be considered.
- No mechanism is provided to address for major redeployments or business disruptions (e.g., 2015 labor situation, or the 2018 influx of over 30 extra vessels due to the threat of federal tariffs).

<u>Need to clarify use of Regulatory Advisory scenarios and streamline reporting</u>.

- The Regulatory Advisories include several key provisions ("scenarios") essential for effective operation of the Rule, including Commissioning calls, shore-side power unavailability (e.g. infrastructure projects), annual reporting and averaging, research and testing of

[1] The current first line-last line vessel visit definition results in low calculated reductions since it includes time prior to regulatory clearances and time needed for shore power connection and disconnection. It is not feasible to operate on shore power or an alternative during these times.

MAERSK LINE/ Maersk Agency USA
9300 Arrowpoint Blvd.
Charlotte NC 28273

www.maerskline.com
tel: (704) 571-2693

alternatives technologies, etc. These issues need to be addressed in any technical corrections.

- Dealing with short calls <30 hours. The emissions reduction calculation structure defined in the existing rule is increasingly challenging with the upcoming 80% reduction requirement. For example, a 10-hour call with 3 hour connect/disconnect time is a 70% reduction.
- Power consumption defaults given in "Table 1" are not accurate for today's vessels, and do not include larger vessels. This can distort emissions calculations.
- Arrival/departure definitions and the connection window were originally not based on actual experience and should be adjusted now that data is available.
- Review and clarify the math to be used for exclusions outside the vessel operator's control. The existing structure penalizes smaller ports and vessel fleet operators making short calls.

The initial concept of a per-vessel/checklist approach was attractive and widely supported as addressing many of the issues in the current rule. However, as the concept, structure and language developed, the spirit changed from encouraging desired behaviors to a more controlling, punitive approach. Particular concerns include these:

1. Compliance Pathway:
   - The rule basis is per-vessel with only a few exemptions. This demands near perfect performance from a mobile source technology that is used only intermittently and must withstand the challenging ocean environment during and between uses.
   - The rule does not provide feasible compliance pathways for some normal operational situations (e.g., major business or economic changes, network redesigns, or the large number of "extra loaders" encountered in late 2018).

46.8

2. Control options: Alternatives are very limited in LA/Long Beach, and completely unavailable in other ports. Feasible compliance options need to be available and clearly defined for all ports prior to implementation of a more stringent requirement.

46.9

3. Complexity: The proposed rule is also administratively complex and challenging, so is not an improvement vs. the existing rule. The seven-day reporting requirement conflicts with annual allowance of VIEs and TIEs. This adds significant uncertainty and challenge to planning, decision-making and reporting for any non-routine call.

46.10

4. Conflict vs. cooperation: The design as now written will lead to conflict between vessel operators, terminals and ports rather than increasing cooperation.

46.11

MAERSK LINE/ Maersk Agency USA
9300 Arrowpoint Blvd.
Charlotte NC 28273

www.maerskline.com
tel: (704) 571-2693

5. Cost: The rule as currently structured increases costs and the risk of non-compliance, particularly at ports with few or no alternatives (assuming payment to the remediation fund is allowed at these locations). This will increase costs per container more at these ports, further disadvantaging these smaller ports.

46.12

Examples of practical flaws in the proposed regulatory language:

1. Replaces the current 3-hour engine run time with two one-hour requirements. No data was provided to support this change. (why a 1-hour rule was chosen/feasible).

   In October 2019 Maersk analyzed data on 135 vessel calls back to May 7, 2019. We found that 38% of the calls would not have met the proposed 1-hour rule on arrival. (Details: 27% in LA, 34% in Long Beach and 54% in Oakland). Would these visits all have paid mitigation fees (if available and allowed) or been out of compliance?

   If 38% of vessels cannot meet a fundamental requirement in the regulation, there is a problem with the feasibility of the regulation. Analysis of engine run times required by size and port are available for discussion with staff.

   ➢ Recommendation: Initially require documentation of reasons when the time is exceeded, with no penalty, and review in the proposed 2023 program review to determine statistically feasible times.

46.13

2. Currently regulated Vessel fleet operators are required to comply on essentially every vessel call starting 1/1/2021, but infrastructure does not exist to do so. Ports and terminals must submit PLANS by July 2021, and CARB has 90 days to review and approve those plans. Only then can the infrastructure proposal, permitting, funding and construction processes be started.

   ➢ Recommendation: Defer implementation of the per-vessel approach until this infrastructure availability is addressed.

46.14

3. Reporting is required within 7 days, however VIEs and TIEs are granted annually. This incompatibility in time spans means vessel operators must make decisions with very significant annual cost and operational impacts without knowing the annual impact and without the ability to plan for the full year.
   - The Terminal TIEs may not be available for some needs, and could be provided preferentially to fleets with ownership interests
   - VIEs at 5% mean only 2 calls per year in some small ports

46.15

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9300 Arrowpoint Blvd.
Charlotte NC 28273

www.maerskline.com
tel: (704) 571-2693

- The VIE structure does not provide a mechanism to address the periodic business changes and disruptions mentioned above.

➢ Recommendation: Allow adjustment of VIE and TIE visit allocations on an annual basis to enable cost controls and effective planning.

5. Recommendations:

46.16 1. Ports and government agencies around the world are looking to California as the only place with experience and data. CARB needs to ensure anything published or enacted is accurate, clear and a scalable practice.

46.17 2. The proposed rule should not go forward as currently designed. This rule, by requiring near 100% connections for shore power or alternatives, no ability to use an alternative (CAECT) for many vessels including very large cargo and cruise vessels, and no fleet averaging leaves no margin for error and sets up vessel operators for failure in spite of all reasonable efforts to comply.

   Instead, we ask that the Agency "hit pause" and re-evaluate options including the following:
   - Other port-specific concepts that could achieve greater reductions
   - The "Industry alternatives" which include fleet averaging.
   - Allowing the currently regulated fleets to continue under the Equivalent Emissions Reduction Option with technical corrections.
   - Another clear and simple approach is a fleet averaging approach based solely on the percent of time the fleet is connected. We believe this is consistent with CARB's inventory approach.

3. If the proposed rule does move forward as currently structured, the following changes would make it more feasible and practical:

46.19 a. We ask that the CARB Board direct staff to ensure that any rule changes provide clear feasible pathways for all reasonably foreseeable business events outside the control of the vessel fleet and marine terminal operators.

46.20 i. Conduct an analysis covering at least the known occurrences encountered in the decade this rule has been on the books (economic and trade disruptions, labor issues impacting productivity, ownership and alliance changes, redeployments, business swings due to carrier bankruptcy, et. al.). Use the results of this analysis to fine-tune the requirements.

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9300 Arrowpoint Blvd.
Charlotte NC 28273

www.maerskline.com
tel: (704) 571-2693

ii. Ensure implementation of the infrastructure improvement projects required to deliver high levels of control for the future and provide mechanisms to enable vessel and terminal compliance during construction while minimizing total environmental impact (all modes). This has been addressed under Scenario 1 of the 2015 Regulatory Advisories, which discourages diversions to other modes such as trucking.

46.21

iii. Phase in the new requirements in alignment with availability of infrastructure and alternative control systems.

46.22

b. Technical aspects for the proposed regulatory language:

i. Modify the "1 hour connect/disconnect time requirements" to be "as soon as practicable." If a numeric standard is needed, CARB could initially require documentation of reasons when a defined time is exceeded, with no penalty, and review performance in the proposed 2023 program review to determine statistically feasible times.

46.23

ii. Please clarify that "compatible" and "compatibility" refer to shore power electrical standards and are not related to physical vessel configurations (e.g., not intended to require installation of shore power on the second side of the vessel).

46.24

iii. Please clarify a vessel operator's options and responsibilities if the master or CAECT provider believes the available CAECT cannot safely connect to the vessel's stack due to height, configuration or presence of a scrubber.

46.25

iv. Clarify and fine tune processes for managing exceptions:
We continue to be concerned about the complexity and fault-finding involved in managing the TIEs/VIEs and remediation fees.

46.26

- VIEs needs to be flexible within a port complex like LA/LB since vessel services may move from terminal to terminal as business changes.

46.27

- To be most useful, VIEs and remediation fees should be reviewable and adjustable if needed and valid for at least 18 months.
- Clarify whether a VIE covers a vessel visit to one port or a full California voyage. It appears that as written a vessel scheduled to make calls in 3 ports that experiences a malfunction could be required to expend VIEs in each port called until repairs can be made. The operational alternative would be to omit vessel port calls, potentially requiring that containers be trucked to the other ports.

46.28

- Clarify the mechanism for the managing the situation where a vessel experiences a major mechanical problem and is moved to a "lay by" berth for repairs. We are checking to determine whether such occasionally-used berths have shore power capability. If shore power is

46.29

MAERSK LINE/ Maersk Agency USA
9300 Arrowpoint Blvd.
Charlotte NC 28273

www.maerskline.com
tel: (704) 571-2693

not available could this be covered under the original TIE/VIE, or would a second TIE/VIE be required? An unintended consequence could be prolonging repairs by making them at anchorage instead of at berth.

46.30 - A similar question applies if a vessel "double calls" – visits one terminal in a port complex and then makes a brief stop in another terminal in the same port (e.g., to load empty containers). Is there a *de minimis* visit?

46.31 - Is there a way to address the regulatorily-required 5-year vessel dry dockings? A service with 5 identical vessels will almost certainly include vessels of the same class, with dry dockings bunched rather than being spaced evenly at one per year. For a short rotation service, (e.g., 5 vessels in 5 weeks) such dry dockings may require a replacement vessel for 2 to 3 visits. Replacement vessels with shore power can be difficult to charter and are not available in some sizes. Thus, dry dock replacement could exhaust or exceed all VIEs at each port, leaving no VIEs for extra loaders, redeployments or operational issues. Would remediation fees be an option in this case?

46.32 - Similarly, how will a port or terminal operator handle major public works or infrastructure projects, such as the major projects to install infrastructure for electrification of cargo handling equipment and heavy duty over-the-road vehicles? Is the only option to increase the cost of these desirable projects due to remediation fees? Is it clear that remediation fees would be allowed for these uses?

c. Reporting

46.33 i. The Responsible Official must manage data quality and carefully allocate VIEs/TIEs/exemptions for the full fleet on a centralized basis. Thus, individual vessels will not be capable of reporting directly to CARB.

46.34 ii. Due to the high level of expertise and knowledge required for managing VIEs, seven (7) days is not feasible during certain seasons (summer holidays, Christmas, etc.). Negotiation with terminals around use of TIEs vs. VIEs will also require time. In addition, VIE vs. remediation cost management calls for a minimum of 30 calendar days, and a quarterly or annual adjustment period would be more feasible for planning and fleet/cost management.

46.35 iii. We do not yet know what information will need to be reported or how the system will work, and therefore cannot comment specifically on the feasibility, time commitment or individual items to report. This requirement should be made transparent to the regulated community quickly or be revisited when the reporting system design is available.

MAERSK LINE/ Maersk Agency USA
9300 Arrowpoint Blvd.
Charlotte NC 28273

www.maerskline.com
tel: (704) 571-2693

d. Remediation fee: The remediation fee is an interesting and creative mechanism for addressing operational challenges and enabling community air quality improvements. Broad availability of the remediation fee option would help address the flexibility needs identified in both the existing and the proposed rule. As mentioned above, to be most useful, VIEs and remediation fees should be reviewable and adjustable if needed during the time that they are valid. A critical question is when is the Fee payable, how and by whom in each operational scenario?

46.36

e. The severability clause on the last page will leave the rule unbalanced and unworkable if any party is able to successfully challenge their inclusion in the rule. A reversion to some modified version of the existing rule may be more appropriate in this case.

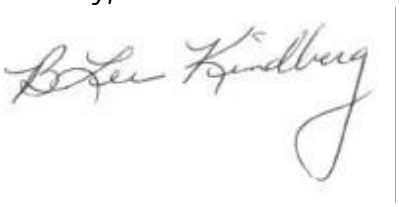
46.37

f. The research exemption needs to be broader to cover testing of new measurement devices (e.g., CEMs), new treatment technologies, fuels, etc. for both ship and shore side.

46.38

Again, thank you for this opportunity to comment on the proposed regulatory language and ISOR.

Sincerely,



Lee Kindberg, Ph.D.
Director, Environment & Sustainability
MAERSK LINE/ Maersk Agency USA
9300 Arrowpoint Blvd.
Charlotte NC 28273

www.maersk.com
tel: (704) 571-2693
mob: (704) 756-5965

MAERSK LINE/ Maersk Agency USA
9300 Arrowpoint Blvd.
Charlotte NC 28273

www.maerskline.com
tel: (704) 571-2693

Speaking Points for CARB At-berth Public Hearing

Oakland CA, Dec. 5, 2019
B. Lee Kindberg, Ph.D.

Good Morning. I am Lee Kindberg, Head of Environment & Sustainability for Maersk North America.

Maersk is the world's largest container shipping company and has long been committed to environmental leadership.

- voluntary use of clean fuels in California starting in 2006.
- reduced CO2 by 41% per container moved in the last decade.
- We have committed to zero carbon shipping by 2050 so are working to launch our first zero carbon vessel by 2030.

I've managed our clean fuels and shore power programs from the beginning.

Maersk Exeter arrived in Oakland this morning. She left here in early August -- 16 weeks ago -- and visited Asia, Singapore, Suez and Antwerp before returning.

A weekly sailing on that route takes 16 vessels - all shore power capable at a cost ~~$1M. If we change out vessels that's an additional million each and takes 6 to 9 months.

Current rule:

- Has helped reduce emissions @ ports
- Is complex for us to manage and CARB to enforce, so we have built models and expertise to do so.
- Needs technical corrections – but not necessarily a whole new rule.

We were optimistic that the new rule would streamline compliance and establish responsibilities for all participants.

However, as the proposal evolved the spirit changed, and it became equally complex and even punitive.

The proposal means throwing out our models, SOPs and experience, and starting over – with less flexibility, far less ability to plan, and minimal additional environmental benefit.

- The new rule requires vessels to connect 100% starting 1/1/2019 but the infrastructure to do so just isn't there. Ports' infrastructure plans would be approved by CARB in October that year.

MAERSK LINE/ Maersk Agency USA
9300 Arrowpoint Blvd.
Charlotte NC 28273

www.maerskline.com
tel: (704) 571-2693

And the envisioned alternative systems just don't exist in most ports.

- There is still no clear mechanism to deal with significant disruptions, redeployments or market shifts.

- Technical issues – e.g. 1-hour connection times –

38% of our vessels calls since May would not have met. (54% here in Oakland)

What would we like to see?

1. Direct staff to pause and work with currently regulated fleets to improve the structure – old or new or a third approach.

2. Ensure at least one clear, feasible, reasonably cost-effective compliance pathway for all the likely variations of this business – including the periodic major disruptions.

   2015 labor
   2018 tariffs → surge of 34 additional vessels to CA

3. Finally, only California has experience with shore power. Other ports and governments are watching so we need to get it right.

Thank you again for this opportunity to speak. I will also submit written comments by Monday.



1730 Rhode Island Avenue, NW
Suite 702
Washington, DC 20036

December 9, 2019

Clerk of the Board
California Air Resources Board
1001 I Street
Sacramento, California 95812

Transmitted via email to: cotb@arb.ca.gov
bsoriano@arb.ca.gov
acsondes@arb.ca.gov

Subject: PROPOSED CONTROL MEASURE FOR OCEAN-GOING VESSELS AT BERTH

Thank you for the opportunity to provide comments on the proposed At-Berth Draft Regulation. We appreciate the many meetings held and outreach efforts CARB has taken to discuss these complex issues with the regulated community.

The Chamber of Shipping of America (CSA) represents 30 U.S. based companies that own, operate or charter oceangoing tankers, container ships, and other merchant vessels engaged in both the domestic and international trades. The Chamber also represents other entities that maintain a commercial interest in the operation of such oceangoing vessels. Our members operate internationally and off all coasts of the United States and regulations which have a direct operational and economic impact on these vessels are of continuing concern. The proposed CARB regulations will have a significant impact on the many CSA members that operate containerships, tankers, bulk carriers and roll-on roll-off vessels in California.

47.1

1. While we agree that a deliberate and reasoned approach to the implementation of shore power is warranted, we do not believe this proposal meets those criteria both in the timelines established and across all regulated entities

47.2

2. We are fully in agreement with the industry coalition vessel operators that this proposed regulation should not go forward without amendment. We believe that the industry alternatives currently being discussed, along with corrections to the existing rule for currently regulated fleets, should be substituted and CARB should allow the next step in the existing rule to be fully implemented for these existing regulated fleets. Equally as important is our concerns that this rule, provides no CARB approved alternative compliance options for many vessels especially those making infrequent calls to California and eliminates the fleet average compliance option used by the currently regulated vessels, leaving no margin for error and sets vessels up for failure despite all reasonable efforts to comply.

47.3

3. We are aware that an industry coalition comprised of the Pacific Merchant Shipping Association (PMSA), the California Association of Port Authorities (CAPA), the Cruise Lines International Association (CLIA), the Western States Petroleum Association (WSPA) and the World Shipping Council (WSC) submitted extensive comments regarding the proposed measure SRIA and economic considerations regarding the development of the Proposed At Berth Control Measures in a letter dated August 26, 2019. Furthermore, the industry coalition proposed alternatives to the proposal in a letter dated February 15, 2019. To the best of our knowledge and as of this date, CARB staff has not responded to the submitters of these two documents, failed to include any reference to these documents and most certainly did not include the industry coalition proposed alternative in the SRIA. Therefore, we request that each of the issues identified in the Industry Coalition Proposed Alternative be addressed and responded to formally.

47.4

4. The routes and berths of vessels regulated under the existing requirements are generally more predictable and regular than the operational characteristics of those vessels proposed to be added to the program. For example, many chartered vessels or vessels engaged in the tramp trade e.g. single voyage charters, may be directed very late in its voyage, to call at ports/berths based on the charterer's needs at the time and thus 7 days advance notice to the terminal operator and operator of the CARB approved emission control strategy is not possible. The different commercial and operational scenarios across ship types must be incorporated into these discussions to enable a workable program for all entities.

5. Critical to success in a program of this kind is that both sides of the ship/shore interface are fully integrated in a timely and safe manner, a point with which we are sure CARB agrees. However, in the proposed regulation, specifically under section 93130.14, there are deadlines for submitting a schedule for implementing equipment (terminals) or a schedule for installing equipment and/or any necessary construction projects (ports), there is absolutely no deadline for when that equipment must actually be installed. Vessels however must actually be prepared to plug in or use an alternative compliance method by the set dates contained in the proposed regulations. We believe this represents a complete disconnect between the hard timeline for vessels to comply and the timeline for terminals and ports to actually provide the necessary infrastructure to assure compliance. In this respect, we believe a set implementation date should be established for terminals and ports to provide the necessary shore based infrastructure which should be in line with the compliance timeline for vessels.

47.5

6. While we applaud California's leadership in addressing vessel emissions and the movement toward shore power or other alternative compliance mechanisms, it must be appreciated that the rest of the world is also struggling with how best to implement similar requirements. Given that shipping is global in nature and the diverse commercial and operating arrangements across multiple ship types and within ports, it is important to note that the International Maritime Organization's (IMO) Maritime Safety Committee (MSC 98) proposed to develop mandatory and non-mandatory safety provisions for the cold ironing of ships and guidance on safe operation of on-shore power supply service in port, with work being led by the Ship's System and Equipment Subcommittee (SSE). The acceptance of this issue as a work plan item recognizes the importance of global consistency across all ship types and port configurations. A Correspondence Group was established to further develop the guidelines taking into account technical standards established by the International Organization for Standardization (ISO), the International Electrotechnical Commission (IEC) and the Institute of Electrical and Electronic Engineers (IEEE) Standards Association. The SSE subcommittee focused initially on the operational safety aspects with further developments to incorporate a much needed uniform set of equipment standards as well as consideration of the need for amendments to SOLAS Chapter II-1 and II-2. The Guidelines are in draft form and further work will continue on this issue at SSE 7 to be held in March 2020. We urge CARB to recognize the complexity of this issue as it relates to multiple ship types and port/berth configurations and allow the IMO process to fully develop these guidelines before implementing CARB regulations for vessels not currently covered under the existing regulations.

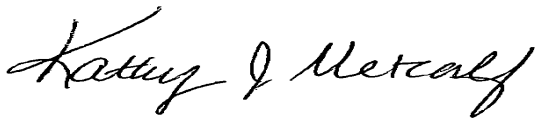
47.6

7. We would also like to support the very detailed comments submitted by the Pacific Merchant Shipping Association on this regulatory proposal on the way

forward to enable the future program to be successful, achievable, practical and truly beneficial to the environment.

We thank you for the opportunity to submit these comments and would be pleased to answer any questions you may have with regard to issues identified.

Respectfully submitted,



Kathy J. Metcalf
President
Chamber of Shipping of America
202.775.4399
kmetcalf@knowships.org

PORT of SAN DIEGO

December 9, 2019

Chair Mary D. Nichols
California Air Resources Board
P.O. Box 2815
Sacramento, CA 95812

RE: Comments on Proposed Control Measure for Ocean-Going Vessels At Berth

Dear Chair Nichols,

Thank you for the opportunity to provide input and assistance on the California Air Resources Board's consideration of potential expansion of the At-Berth Regulation. As a trustee of state tidelands, the San Diego Unified Port District (District) has demonstrated its commitment to pursue environmental priorities alongside its state and community partners and fulfill its mission to promote a sustainable way of doing business in and around San Diego Bay.

Since the original At-Berth Regulation was enacted, California has seen remarkable environmental improvements up and down the state. As you know, the District was an early adopter of shore power and was proud to invest in technology that would provide sustainable solutions for San Diego's maritime industries and future benefits for the Port and its neighboring communities.

As an environmental champion of San Diego Bay and its Tidelands, reducing emissions of criteria pollutants and greenhouse gases (GHG) is a key goal. The District developed a Clean Air Plan focused on decreasing emissions of diesel particulate matter (DPM), nitrogen oxides (NOx), and sulfur oxides (SOx) from its maritime operations in 2007. In addition, in 2013 the District adopted a Climate Action Plan to decrease GHG emissions. The District was one of the first ports in the nation to establish GHG reduction goals, which include a 10% reduction by 2020 and a 25% reduction by 2035 from a 2006 baseline. Since 2006, Port of San Diego maritime-based GHG emissions have decreased 34%, and criteria pollutants have decreased 85% for DPM, 61% for NOx, 97% for SOx.

As part of the District's Climate Action Plan implementation, a public commitment that embraces its mission, we have taken several steps to meet these aggressive measures, including:

- Implementation of Shore Power at Cruise and Cargo Terminals
- Implementation of a Voluntary Vessel Speed Reduction Program

- Promotion of emerging technologies demonstrations to support freight electrification:
  - Tenants demonstrated ten battery-powered electric drayage trucks and equipment along the Working Waterfront; and
  - The District installed electric vehicle charging for public and District employees and solar power at Administration Building, Broadway Pavilion, and General Services Building; and
  - The District is installing 12 kV Microgrid (anticipated Summer 2020); and
  - The District has instituted use of renewable diesel for District fleet vehicles; and
- Established a clean truck program, which prohibits trucks which do not meet the Drayage Truck Rule standard from entering its terminals and incentivized truckers to replace their engines with cleaner models; and
- Joined Green Marine in 2018 and committed to enhanced sustainability framework completing its first third party verification in 2019.

The District's partnership with the Air Resources Board is vital. It cannot succeed alone. And for all the progress it has made with cleaning the air over the years, there's more to be done to meet its shared environmental and community goals.

The District appreciates the positive interaction and engagement with your staff as we've collaborated on refining the proposed regulation over the past two years to make it more practical and effective. Through our collaboration, the proposed regulation has been improved in several ways, focusing the regulation to achieve maximum compliance while providing some necessary flexibility.

The District would urge consideration of these remaining priorities to develop a good regulation that is both practical and effective, and ensure adequate timelines and resources are available for full compliance.

Affordable Shore Power Rates

48.1 One of the earliest adopters of shore power in California, the District now finds itself in a difficult situation, facing shore power electricity rates that will more than double in the next five years -- among the most expensive in the state. Equitable rate relief is required to make shore power affordable. To accomplish that, there must be alignment among state agencies that are responsible for shore power standards and costs, the Air Resources Board and Public Utilities Commission. When those agencies conflict but the mandate is clear, coordination and integrated decision-making are key – for the sake of those, like the District, left straddling the gap without any clear option. The District takes seriously the goals of electrification and seeks to expand use of clean technology along the waterfront but is constrained by the cost of electricity. Compliance is linked, and the regulation's requirements should be tethered to the availability of affordable power.

PORT of SAN DIEGO

Attainable Implementation Schedule

The District and working waterfront businesses have demonstrated their ability to be ahead of the curve and are proud of our reputation as solutions-focused and proactive. The District also recognizes that a reasonable amount of time is needed to develop and make available new infrastructure solutions. An objective, fact-based study by the Air Resources Board of how much time it would take to retrofit vessels and deploy new infrastructure is needed to set a reliable timeline in place.

48.2 Timelines for compliance currently proposed in the Regulation – 2021 for 100% compliance to use shore-based power or an alternative for container, refrigerated cargo, and passenger vessels and 2025 for 100% compliance for auto carriers, or "ro-ro" vessels – are particularly challenging. Comments at the December 5, 2019 meeting of the Air Resources Board suggested an even more stringent deadline that would put the goals farther out of reach. Unfortunately, this would not provide the District and its maritime customers enough time to plan, design, locate, bid/build, and install customized compliant equipment and vessels before being in violation of the regulation. Such an option is not viable. As quickly as the District desires to modernize technology at the waterfront, a viable timeline – no more, no less – is still necessary. Expanding the shore power capacity requires comprehensive planning and design, and external permitting processes that are outside its control, and flexibility on the essentials in order to meet firm goals is the best pathway forward.

48.3 The District's proximity to Mexican ports of entry is a potential complication with implementing the regulation as proposed. As an alternative to California ports, nearby foreign ports and transportation systems, such as Ensenada, have the capacity to absorb and re-direct trade. This diversion, unregulated by California law, would likely bring a new set of environmental impacts that could affect the region's air quality.

48.4 As an example, the automobile carrier ships that bring international trade to the San Diego region also deliver electric vehicles and provide an important trade route with Hawaii, but the terminal that supports that service does not have enough electrical capacity to provide shore power to those vessels. Therefore, the District would appreciate your help with ensuring that any deadlines for compliance are phased to the time it takes to make available the mechanism for compliance. The District, its Terminal Operator, and Carriers need to assess the appropriate options for compliance with the proposed regulation. This may include exploring options to install shore power infrastructure or seeking an alternate control strategy. As there are no currently approved control strategies for auto carrier and ro-ro vessels, a proper cost-benefit analysis of various solutions cannot presently occur. An adequate timeline for implementation – or Air Resource Board's approval of alternative compliance methods for controlling vessel emissions – would allow the District to plan and design long-term solutions for berth infrastructure.

Adequate Resources to Do the Job

Technology solutions need time for proper planning and design, and funding is always a necessary ingredient. Historically, state monies provide vital assistance for infrastructure that benefits the San Diego region, particularly on projects where local and state interests are both at stake.

The large-scale, statewide effort to implement a new At-Berth Regulation is an extraordinary lift, especially for self-sustaining public agencies. Funding streams should flow to where they are needed. For that reason, the District believes an equitable and strategic distribution of state support is critical so that District projects located next to AB 617 communities such as Barrio Logan and National City are properly resourced. No single entity can meet these goals alone – collaboration is essential.

48.5

A needs-based approach built from honest timelines and needs and size of the job is the responsible way to design and build large, custom-made infrastructure in specialty ports like San Diego that lack the capital program capabilities of megaports. For example:

- The District has already laid infrastructure for increased shore powering for its cruise business and faces an additional cost estimate of $5m for the transformer and ensuring the utility provider can supply the power – and at a sustainable rate.
- At the auto carrier facility – the Ro-Ro terminal – the District is currently in the process of analyzing cost estimates and infrastructure improvement needs for the auto carrier facility and anticipates having those costs by the end of 2020.
- In addition to shore power preparations, the District has issued a formal Request for Information for bonnet providers and is now preparing a Request For Proposal.

From the District's perspective, the preferred position is to be proactive, and for that reason the District is moving quickly to explore all options to find feasible courses of implementation and striving to understand all available means to meet its environmental goals and the goals of the proposed Regulation. Additionally,

48.6

operational concerns regarding labor have been brought to the District's attention, particularly as it relates to the proposed one-hour rule for Ro-Ro operations.

Despite its good intentions, the District cannot deploy infrastructure that the District does not have, and one-off, piecemeal approaches are less effective for the long-term than sustained support for comprehensive strategy tailored to a region's needs. Funding formulas and grant solicitations that fit San Diego in proper timing, focus, complexity will help the District continue to meet the environmental outcomes it is pursuing. This is where a shift by the Air Resources Board to stackable, scaled, and strategic funding methods can be a game-changer and build long-term success.

PORT of SAN DIEGO

Conclusion

Since the District first adopted its Climate Action Plan, it has strategized to build infrastructure to modernize port operations for the future and set this Port on a good track for continuing to improve the way it responsibly fulfills its mission.

A good, well-crafted regulation is in everyone's interest, and that is why we want to see the new At-Berth Regulation work and work well. We think a strong partnership with ARB is absolutely essential to our success in meeting the goals you have articulated. Every challenge has a solution, and the District has identified solutions that will – with this regulation – benefit marine air quality. We rely on the Air Resource Board's partnership in meeting these environmental goals and make a difference for generations to come.

Thank you, again, for your concern and willingness to work with the District in our responsibility to serve the public good. As the At-Berth Regulation moves forward, we look forward to providing any additional details on these issues that may be helpful. For more information, please feel free to contact my Legislative Policy Administrator David Yow at 619-725-6087 or dyow@portofsandiego.org.

Sincerely,

Randa J. Coniglio
President/CEO

Comment Log Display

Below is the comment you selected to display.
Comment 49 for To Consider Proposed Control Measure for Ocean-Going Vessels At Berth (ogvatberth2019) - 45 Day.

First Name: Janice
Last Name: Cecil
Email Address: jancecil8@gmail.com
Affiliation:

Subject: I support proposal for more pollution control for oil/chemical tankers
Comment:
49.1 I support Support CARB staff's proposed rule to extend its pollution-control requirements to many more container and cruise ships and, for the first time, include oil and chemical tankers and ships used to import and export cars.

Attachment:

Original File Name:

Date and Time Comment Was Submitted: 2019-12-09 15:43:33

If you have any questions or comments please contact Clerk of the Board at (916) 322-5594.

Board Comments Home

CONTACT US

(800) 242-4450 | helpline@arb.ca.gov
1001 I Street, Sacramento, CA 95814
P.O. Box 2815, Sacramento, CA 95812

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Page	Section	Description	Item	Concern / Question / Comment #1		Concern / Question / Comment #2	ITS Recommendation
							As requested by CARB
24 50.1	93130.7	Vessel Compliance Checklist	(3)	1 Hr to connect and disconnect is not enough. Provide calculations and study methods used to determine how the 1 hr. time to connect and disconnect was determined. How many Terminal operators and ship owners were surveyed? What were the types of ships? What types of control technologies (lift on/lift off, barge, fixed cable reel) were used? What kind of labor was required?		1 Hr proposal makes obsolete the numerous Vessel operators who invested $millions$ in mobile CI or AMP containers that are lifted on and lifted off during shorepower operations. 1 Hr proposal makes obsolete the bonnet barget based on the operations that has taken place at ITS. 1 Hr proposal will increases the disagreements between Terminal and Vessel Operators. CARB will require a full time arbitration department due to the weekly complaints and disagreements between Terminal and Vessel operators. Will CARB have an Arbitration department? If so, what will be the procedures and steps? This Arbitration dept and related rules should be in place prior to passing this At Berth Amendment.	1) Keep and modify existing language. Eliminate 1 hr proposal. Retain current concept of 3 hr rule total aux hrs, but modify to 5 hrs max based on experience. 2) If CARB wants to reduce the time on Aux Hrs, CARB will provide legitimate study with proven test methods that show 1 Hr is acheivable.
24 50.2	93130.7	Vessel Compliance Checklist	(3)	Who will identify the time when 'Ready to Work' starts and who will monitor to ensure connection is completed within 60 min? Who will identify the time when 'Pilot on Board' and who will monitor to ensure connection is completed within 60 min?		Terminal logs date/time power sent to vault and date/time power is disconnected. Terminal is not manned to stand by and determine when the 60 minutes start, when the Terminal sends power and when the Ship connects to the shorepower vault. Vessel operator already logs this information and should soley provide this data to CARB.	Keep and modify existing language. Remove Terminals of responsibility for enforcing time constraints. OGV At Berth rule was made for the Vessel Operators and the existing language should remain the same with an increase in the total hrs on Aux engines. If looking for responsible party, consider Port involvement.
26 50.3	93130.8	Vessel Visit Exceptions		How about vessels that are under repair and not loading/unloading cargo? Do these qualify under this rule?			Add language stating that some exceptions not listed will be considered on a case by case basis. TIEs/VIEs should not be used for these scenarios.
26 50.4	93130.8	Vessel Visit Exceptions		Are weather related damages to the cold ironing equipment during sailing fall under Force Majeur and considered an exception? If not, how would CARB treat this situation?		When ship arrives with damage equipment, who will coordinate the bonnet barge? What if bonnet barge is not available? Will Exception be applied under Force Majeur? If not, how would CARB handle this?	Add weather damage to exception. VIEs/TIEs and Remediation penalties should not be applicable.
28 50.5	93130.9	Terminal Operator Requirements	(a)(3)	Explain how the liability in this scenario falls on the Terminal Operator instead of 'it depends'? What if Control technology design is flawed and cables are too short during commissioning? What if the Terminal only accepts Port side berth ships, but the Vessel Operator installs Starboard side control technology? What if Landlord installed vaults were incorrectly placed so shorepower operation is not possible? What if the barge company doesn't have enough barges to service the ship?		We're losing touch on the spirit of this regulation. Ships are making every effort to reduce emissions. Ships have changed fuel, slowed down and now connecting to the shorepower 70+% of the time. Why does the rule need to be amended to this extreme? Just change the % and keep the existing language.	Add this scenario to Exceptions. TIEs/VIEs or Remediation penalties are not applicable. In these scenarios, the Vessel and Terminal Operator including the Port and the Barge company made every effort to connect. No group should be penalized or required to use a TIE/VIE? If CARB strongly believes that a group must be at fault than CARB must add language that states Ports and Barge companies are liable for Remediation penalites and be given Port Incident Exceptions (PIE) and Barge Incident Exceptions (BIE). Add language that responsibility depends on the who's at fault. Do not default liability to Terminals. WARNING: With several parties potentially liable, this will cause numerous 'finger pointing' and CARB will require an Arbitration process that will rival a small claims court. Determing who's at fault will takes months if not years. Attorneys, consultants, etc will cost tens of thousands if not more. Costs/Time/Peronnel required to run this Arbitration Dept will be enormous.

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28 50.6	93130.9	Terminal Operator Requirements	(a)(3)	Adding to the above. CARB must understand that the Vessel Operator and the Terminal Operator have a service relationship only. Vessels come comes along side and Terminal operator loads/unloads the containers. Terminal Operators are not expose to Vessel side decisions and do not have any input on the type of ships purchased or control technologies used. Therefore, it is not the Vessels best interest for another party to coordinate bonnet barges. Just not good business sense. However, Terminals will reimburse Vessel operators if it's been mutually agreed that the Terminal was at fault.		Coordinaton of the bonnet barge should always fall on the Vessel operator who knows their ship specs and already has a relationship with the barge company. If it's been determined that the Terminal is responsible, Terminal will remburse Vessel Operator. Note: It is rare that the Terminal has any involvement with the bonnet barge operations. In many cases, the barge crew boards the ship on the water side and is never seen by the Terminal.	All bonnet barge or alternative solutions should be coordinated by the Vessel operator. Terminals are not trained, experienced or deal with ships. However, if the Terminal is found to be at fault, Terminal operator will reimburse Vessel operator.
28 50.7	93130.9	Terminal Operator Requirements	(b)	Language states shared responsibility. However, the landlord Port and potentially the barge companies could be at fault.		If finding the responsible party is a top priority for this At Berth Amendment than CARB must look at the Ports, Barge companies, utilities, etc. Under represented Terminals should not be the default for liability.	If trully a shared responsibility, CARB must add language that states Ports and Barge companies are liable for Remediation penalites and be given Port Incident Exceptions (PIE) and Barge Incident Exceptions (BIE). Revise language that states responsibility depends on the who's at fault. WARNING: With several parties potentially liable, this will cause numerous 'finger pointing' and CARB will require an Arbitration process that will rival a small claims court. Determing who's at fault will takes months if not years. Attorneys, consultants, etc will cost hundreds of thousands if not more. Costs/Time/Peronnel required to run this CARB Arbitration Dept will be enormous.
28 50.8	93130.9	Terminal Operator Requirements	(c)	Terminal operators have no control or any say relative to the control technologies. Vessel operators decide which control technologies to install.		Terminal's do not have the man power or expertise to determine if control technologies are approved or operational. Vessel operators own the control technologies and have full knowledge of status/condition of equipment. Vessel operator must take the lead and discuss with Terminal operator.	Change proposed language to state that Vessel operator must notify Terminal operator of status of control technologies and Vessel operator must determine if commissioning or repairs are needed. Vessel operator must than also decide if alt solution i.e., barge is required. In this case, Vessel operator coordinates the barge. Alt solution or barge costs belong to liable party.
29	93130.9	Terminal Operator Requirements	(d)(1)	Vessel operators contorl their ships and sailing schedule. Vessel Operators should notify Terminals via email with approved emission control strategy status.		Terminal have limited access to Vessel information, schedules, etc. Terminal do not have the man power to obtain this information. All this information is already held by the Vessel operator.	Same as above.
29	93130.9	Terminal Operator Requirements	(d)(2)(A)	All notifications should be driven by the Vessel operator who owns and operates the ship. Terminals are completely blind of the Vessel status.			Same as above.
29 50.9	93130.9	Terminal Operator Requirements	(d)(2)(B)	Positioning is the responsibility of the Vessel Operator, Pilots and Agents.			Delete this language. This does not apply to ITS in Long Beach.
29 50.10	93130.9	Terminal Operator Requirements	(d)(2)(E)	Disconnect no more than 1 Hr before Pilot on Board. Please provide study methods used to determine the 1 Hr window.		What if Ship's captain says Vessel will remain beyond the 1hr after Pilot on Board? Terminal has no authority in this case since Vessel hires the Pilot.	Keep existing language that has the Vessel operator ultimately responsible for deciding when to sail since Vessel operators hire the Pilot. Eliminate 1 Hr proposal. Keep and modify existing language from 3 hr aux to 5 hr aux.

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29 50.11	93130.9	Terminal Operator Requirements	(d)(3)	Redundancy is inefficient. Vessel operator already reports this information. PLEASE avoid duplicate reporting. PLEASE do not try to enforce CARB rules through the Terminal operator. Terminal and Vessel operators will log the TIE/VIE, but what if the Port and/or the barge company is found to be responsible, partial or otherwise?		Terminal should be limited to reporting data that is available and applicable to the Terminal operator. Irrelevant data such as IMO #, name, address, email, telephone #, compliance instructions checklist, tier rating of the engine should not be the Terminal's responsibility. Terminal does not have the manning to obtain this kind of information on each call. Terminals should not be bullied into enforcing CARB's hopes to vet Vessel operator data. CARB should properly staff their department to enforce these rules and validate the data given to CARB.	Narrow down Terminal operator reporting requirement based on relevancy. Data reported should be the Voyage #, date and time of arrival/departure, connect/disconnect. Any issues with connecting/disconnecting, special notes i.e., commissioning required would also be included. Ports and barge company liability needs to be added to the Amendment. Ports and barge companies should also have PIEs or BIEs as well as be subject to remediation penalties. Until such language is in place and a full CARB Arbitration process is absolutely clarified with written and mutually agreed procedures, this Amendment should be placed on hold. Additionally, CARB should staff properly to enforce their rules and validate data received from Vessel operators.
30 50.12	93130.9	Terminal Operator Requirements	(d)(3)(L)	Terminals do not have access to Vessel Operator ship and engine specs. Vessel Ops own/charter their ships and readily have this information available to them. Engines specs are irrelevant to a Terminal operator. Terminal operator does not have the staffing to obtain this information.		Again, duplicate effort and inefficient. Terminal is not familiar with this data and does not have the manning to obtain this data.	See above. Ask Terminal operators to provide data that the Terminal operator has control over.
30 50.13	93130.9	Terminal Operator Requirements	(e)(2)	How will Terminal Operatos be trained on the on line system? Will spreadsheets be uploadable?		Will CARB site provide downloadable spreadsheet templates?	CARB to provide excel spreadsheet template for Terminals to use on a daily basis. Document should be unlocked. Drop down menus are highly recommended. Formulas for each cell should be available on seperate worksheet for reference. Operator must be able to upload daily spreadsheet in CARB system without any issues. Homeland Security sensitive data will not be included and should not be asked.
32 50.14	93130.10	Terminal Exceptions	(d)	Who/Where do we send request for testing? What kind of information does CARB need to request the test?		Once submitted, how long before approval or rejection is received? In the meantime, vessel is an exception?	CARB to confirm that TIE/VIE and Remediation penalites are not applicable in this scenario. Testing alt tech should fall under exception. Connection and disconnection should still be reported, but aux use during these tests should be an exception. TIE/VIE and Remediation penaltes are not applicable.
32 50.15	93130.10	Terminal Exceptions		General scenarios: What if the previous ship damaged the Terminal shorepower vault prior to sailing? Repairs will take weeks to complete. What happens to the next ship who can't plug in because the priveious ship damaged the vault?		There are clearly exceptions and there should be language that states request for exceptions will be considered by CARB on a case by case basis.	Add sentence or paragraph that states unusual circumstances (definition required) will be addressed on a case by case basis by CARB. All parties are subject to liability. CARB to add Port and Barge company PIE/BIE including being subject to Remediation penalites for these unusual circumstances.

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33 50.16	91130.11	VIE/TIE	(a)(1)	1) Applying previous years ship calls to determine TIE/VIE is not inline with reality. Ship calls should be derived from current year. Depending on the Alliance, calls to each Terminal may vary. Please consider TIEs based on current year and not based on previous year. Volumes could drastically change from one year to the next. 2) On another note, adding BIE/PIE/TIE/VIE language is another layer of complexity. It will surely require CARB to set up an Arbitraion dept and possibly an Appeals process which will cost CARB more staffing and more money. All the Remediation penalties will go to this and not the emission reduction. 3) BIE/PIE/TIE/VIE will become a highly sought commodity. Does CARB want to deal with this?		What if Terminal has 100 calls in the previous year, but the current year to date is projecting 200 calls? Past year would only give Terminal 5/15 TIEs vs 10/30 TIEs for 200 ships. It is simply illogical to use past year data.	Eliminate BIE/PIE/TIE/VIE and Remediation penalties all together. Go back and modify existing language to a higher % of required connections. Treat exceptions as excpetions. OR 2) Let Ports, Barges, Terminals and Vessels accumulate PIE/BIE/TIE/VIE through the year. CARB reconciles at end of year after total vessel calls are confirmed, CARB will reconcile qualified PIE/BIE/TIE/VIE and notify Ports, Barges, Terminal and Vessels with applicable PIE/BIE/TIE/VIE. Anything in excess would be subject to Remediation penalties. Appeal machinery begins. All cases pending Arbitration will be reconciled with the actual year or the year CARB decisions is made. OR 3) Modify existing quarterly data submission language. When Ports/Barges/Terminals and Vessel operators submit their data, CARB can reconcile and determine which PIE/BIE/TIE/VIE are applicable. Remediation penalties will than be applied. Appeal machinery begins. All cases pending Arbitration will be reconciled with actual year or the year CARB decision is made.
33 50.17	91130.11	TIE	(b)	Table: 2025-2028 reduction from 15% to 5% is too drastic.		5% is too small. 10% should be the default %.	2024-2026 reduction changed to 10%. Replace 5% with 10% going forward.
34 50.18	91130.11	VIE/TIE	(c)	BIE/PIE/TIE/VIE should not have a shelf life. It should be used to reward those who do follow the OGV At Berth rule.		What does it hurt? Either the stakeholders are so good at following that the allowances will not be used OR every BIE/PIE/TIE/VIE will be all used up so there won't be anything to carry over.	Allow excess BIE/PIE/TIE/VIE to be carried over to the following year without expiration. Older BIE/PIE/TIE/VIEs must be used first.
34 50.19	91130.11	VIE/TIE	(d)	TIEs should be traded to other Terminals if legally related or part of a consortium through Carrier alliances.		Based on pg 43 Remediation Fund Hourly Account, a 24 hr BIE/PIE/TIE/VIE is worth $45,600. Expiring or not, these should be made available to others.	Add language that states companies who have legal relationships will be able to exchange TIE/VIE. Each TIE/VIE will need a s/n or tracking number recorded by CARB.
34 50.20	91130.11	VIE/TIE		For those that comply each year and stay under the CARB radar, how will these ports, barge, terminals or veseel opertors be rewarded? Regulation/Amendment focuses on failures.		All spend millions of $ on shorepower. Very little happens for those who comply. The private sector is afraid of CARB. Is this what CARB wants? CARB needs to reach out and support those who meet the regulations targets.	Add an annual incentive program i.e., additional BIE/PIE/TIE/VIE and Remediation credits to those who meet rules. This should be awarded annually and should not expire.
38 50.21	31130.14	Terminal and Port Plan Interim Eval	(a)(3)	Terminal Interim Evaluation Plan: Current rule provides a template to complete. Will this be available on line or downloadable to be completed? What time line i.e. past/projected, 12/24/36 months is the basis of our information?		Technical feasibility study? What does this mean? Who is responsible for this? How much will it cost? Terminals do not have the manning or budget to complete feasibility studies. Ports own the land. Ports should be liable for this.	Involve the Ports and when necessary the utility company. Make the land owner/utility company accountable. Ports should lead any project that require any construction on their property.
41 50.22	31130.15	Remediation Fund Use	(a)	Who is the Remediation Fund Adminstrator? 3rd party, public/private, gov't entity? Can BIE/PIE/TIE/VIE be used in place of Remediation penalties or visa versa? What happens when all the BIE/PIE/TIE/VIE are used up? Does it automatically go to Remediation penalties?		How will this money be used? Could the Port, barge, Terminal or Vessel operator offset Remediation penalties by leveraging other green projects? In this case, emissions are being reduced immediately and not stuck in some dept who has to go through a grant process that will take years before any emission reductions, if any, takes place.	Add language that states BIE/PIE/TIE/VIE are interchangeable with Remediation penalties. All Remediation penalites can be offset by Port, Barge, Terminal or Vessel operator capital expense projects that show emission reductions. Projects open, but not limited to, the following: near zero RTGs, Tier4F THs, electric small forklift, replacement of diesel generator with battery or alt fuel, building additional shorepower vaults, retrofitting existing vehicles to near zero or zero emission, solar, wind, renewables, etc.

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42 50.23	31130.15	Remediation Fund Use	(b)	Penalty qualified circumstances: What about ships who come along side for repairs? No cargo being loaded/unloaded. How does CARB treat this ship if it does not have cold ironing capability. Do all the At Berth rules apply?		What if somekind of scenario occurs that is not covered by any of the conditions of this At Berth rule?	Add sentence or paragraph that states unusual circumstances (definition required) will be addressed on a case by case basis by CARB. All parties are sujbect to liability. CARB to add Port and Barge company PIE/BIE including being subject to Remediation penalites for these unusual circumstances. Utility companies should be added to potential responsible parties.
42 50.24	31130.15	Remediation Fund Use	(c)	7 calendar days to submit request. Assuming parties agree who will pay penalties, 7 days may still be difficult. If parties disagree, than what happens? What is the CARB grievance process for disagreements?		Sounds like another layer of bureacracy will cause additional CARB adminstrative nightmare. Companies will end up with costly attorneys and delays will push settlements and payments into the future with only the Attoneys profitting and emissions still not being addressed.	Change Amendment language to quarterly. CARB to provide simple excel spreadsheet to be completed, but uploadable to CARB website without all cells filled. CARB website to email reminders of missing/pending data.
42 50.25	31130.15	Remediation Fund Use	(d)	Will there be one person or a dept(s) deciding if the Remediation request is eligible? What dept(s)?		Is there an appeals process?	CARB to create and fund another department to handle the Remediation penalties, appeals process, settlement process.
43 50.26	31130.15	Remediation Fund Use	(e)	Remediation penalty payment within 30 days. If CARB allows liable parties to offset penalties with emission reduction projects, how would CARB adminster this?		Payment program?	CARB to issue an invoice or payment voucher to the Port/Barge/Terminal or Vessel operator responsible. CARB to publish where Remediation penalties will be spent. CARB adds Remediation penalty payment option for liable party that will replace direct payments to CARB. Such options would leverage emission reduction project for that year i.e., purchase Tier4F, NZ, ZE or alt power vehicles, retrofits, renewables, shorepower vault investments, etc.
43 50.27	31130.15	Remediation Fund Use	(f)	Kindly confirm how rates were determined. For example, $1900 x 24 hrs = $45,600 per day. How did CARB determine that ship emissions are equivalent or cost $45,600 per day?			Reduce hourly rate.
43 50.28	31130.15	Remediation Fund Use		How is the rate divided if multiple parties are responsible? On pg 48, Summary of Responsibilities, multiple parties are mentioned. How is Remediation divivided between Ports/Barge/Terminal/Vessel?		On pg 48, Summary of Responsibilities, Ports and barge companies are responsible parties, but not mentioned in the Remediation penalties. Ports and barge require incident exceptions i.e., PIE/BIEs. What if utility company is unable to install infrastructure? How do they get penalized?	Add language that states utility companies may be subject to penalties. Remediation penalties can be divided between responsible parties. Once total penalties are calculated and liability % is determined by CARB, responsible parties shall pay their % portion.
43 50.29	31130.15	Remediation Fund Use		Remediation Fund will scare Vessel Operators who are considering calling LA/LB. Vessel Operators will shift towards OR, WA, Canada, East Coast and Mexico.		Remediation penalties should be removed all together. Eliminate the complication.	Eliminate any use of BIE/PIE/TIE/VIE and Remediation penalties. Use and modify existing language and raise the % of ships that need to connect.
48 50.30	93130.16	Remediation Fund Adminstration	(18)	Kindly apply the Remediation Adminstrator Force Majeur language to the Vessels, Ports and Terminal Exceptions.			Add similar Force Majeur language to Vessel, Ports and Terminal Excpetions language.
48 50.31	93130.16	Remediation Fund Adminstration		Ports, Barge, Terminals and Vessel operators should have other options to settle the Remediation penalties.			All Remediation penalites can be offset by Port, Barge, Terminal or Vessel operator capital expense projects that show emission reductions.
48 50.32	93130.17	Summary of Responsibilities	Table 5 / Pg 48	Based on table, multiiple parties can be responsible. How does CARB divide up BIE/PIE/VIE/TIE between responsible parties. Who determines the %?		When parties share responsibility, only % of responsibility should be applied to BIE/PIE/TIE/VIE or Remediation penalty. Using a whole BIE/PIE/TIE/VIE for a 1 or 2 hr delayed connection is poor use of the exception.	BIE/PIE/TIE/VIE and Remediation penalties should be interchangeable options. Add language that states BIE/PIE/TIE/VIE and Remediation penalties will be pro rated to % of responsibility to be Adminstered by CARB.

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48 50.33	93130.17	Summary of Responsibilities	Table 5 / Pg 48	BIE/PIE/TIE/VIE and Remediation should be interchangeable. If whole days, BIE/PIE/TIE/VIE should be applicable, but if emissions are in hours, Remediation should be applied or somekind of offset CapEx project.			BIE/PIE/TIE/VIE and Remediation penalties should be interchangeable options. Remediation penalites can be offset by Port, Barge, Terminal or Vessel operator capital expense projects that show emission reductions.
49 50.34	93130.17	Summary of Responsibilities	Table 5 / Pg 49	Compliance Eval: Scenario 2: Remove Terminal responsibility from Berth with No Shorepower (SP) and Veseel has SP. Depending on the Lease, the Port is the landlord and responsible for the property and constructing shorepower assets.		Should be Table 6 since different condition.	Remove Terminal and add the Port on Scenario: No Shorepower, but has other CAECS. Change to Table 6.
49 50.35	93130.17	Summary of Responsibilities	Table 5 / Pg 49	Compliance Eval: Scenario 3: Remove Terminal responsibility from Berth with No Shorepower (SP) and Veseel with No SP. Vessel is resonible for the ship and coordinating CAECS. The Port is the landlord and responsible for the property and installing shorepower assets.		Should be Table 6 since different condition.	Remove Terminal and add the Port on scenario: No Shorepower, but has other CAECS. Change to Table 6.

Scenarios: CARB, please answer questions.					
	Terminal and Vessel Shorepower capability?	Details:		Question 1:	Question 2:
1 50.36	Terminal capable / Vessel capable:	ITS has 4 single berths vs one single linear berth. At ITS, Port is responsible for installing SPOs & all berth infrastructure. ITS berth SPO is damaged. Several other SPOs available. Ship is too large to shift in single berth design. Unable to reach bollards. Ship does not connect to shorepower.		Who is at fault?	Who is responsible for calling alt solution? What if barge is not available? How is this reported to CARB? Can you use BIE/PIE/TIE/VIE or Remediation?
2 50.37	Terminal capable / Vessel capable:	ITS has always supported Port side shorepower control technologies. Ship arrives with Starboard side control technology. Operationally impossible to turn ship around. Ship does not conect.		Who is at fault? What if last visit, control tech was on Port side?	Who is responsible for calling alt solution? What if barge is not available? Can you use BIE/PIE/TIE/VIE or Remediation?
3 50.38	Terminal N/A / Vessel capable:	ITS berth vault is not accessible due to Crane under repair. ITS planned to complete repairs and move crane to access vault 2nd Shft. Ship was suppose to arrive on 2nd shift, but instead arrives on 1st shift. ITS crane has not been repaired, but ship comes along side & connects. Ship not connected during 1st shift, but does connect during 2nd shift.		Who is at fault for uncaptured emissions on 1st shift? Does CARB expect Vessel to remain at anchor? Does CARB expect Terminal to delay loading/unloading?	Who is responsible for calling alt solution? What if barge is not available? Can you use BIE/PIE/TIE/VIE or Remediation?
4 50.39	Terminal capable / Vessel capable	Ship authorizes Terminal to send power to SPO vault. Ship is unable to sync up to SPO for 4 hrs. After 4 hrs, ship connects.		Do you use VIE or Remediation penalty for missed 4 hrs?	
5 50.40	Terminal capable / Vessel capable	New ship calls ITS. Comissioning required. Ship cable is to short too connect to berth SPO vault. No other cables or vaults available.		Who is at fault? What steps does CARB expect Vessel or Terminal to take?	What if this happened after ship was comissioned? In many cases, these ships are repaired oversseas and parts are replaced. Terminals are not made aware of this.
6 50.41	Terminal NOT capable / Vessel capable	ITS SPO vault damaged by previous ship who connected to SPO vault. Previous ship sails away and next ship arrives, but unable to connect.		Who is at fault?	Who is responsible for calling alt solution? What if barge is not available? Can you use BIE/PIE/TIE/VIE or Remediation?
7 50.42	Terminal capable / Vessel NOT capable	ITS SPO vaults are available. Ship is not shorepower capable. Ship calls barge company. Barge does not show or there are no barges available for their time.		Who is at fault? What if barge shows up next day? Who is responsible uncaptured emissions? What if barge is available on Day 2?	Can you use BIE/PIE/TIE/VIE or Remediation?
8 50.43	Terminal capable / Vessel capable	Unable to connect		Regardless of who's at fault.	What if you're out of BIE/PIE/TIE/VIE? Everything falls under Remediation penalties?

TraPac
Safety • Service • Sustainability

December 9, 2019

Submitted via email to cotb@arb.ca.gov & Submitted via website at https://www.arb.ca.gov/lispub/comm/bcsubform.php?listname=ogvatberth2019&comm_period=A

Chair Mary Nichols
California Air Resources Board
1001 I Street
Sacramento, CA 95814

Chairperson Nichols:

TraPac, LLC ("TraPac") appreciates the opportunity to provide comments on the California Air Resources Board's ("CARB") Proposed Control Measure for Ocean-Going Vessels at Berth ("At Berth Regulations"), released October 15, 2019, and its accompanying Draft Environmental Analysis ("Draft EA"), released October 1, 2019. TraPac has terminals located in the State of California in Los Angeles and Oakland. The TraPac Los Angeles terminal is an automated container terminal located in the Port of Los Angeles at berths 136 thru 147. TraPac remains the leader in emission reduction with the lowest levels of all terminals in the Port of Los Angeles.

Currently 100% of vessels that call at TraPac Los Angeles use AMP or an equivalent technology to reduce harmful pollutants and greenhouse gases. TraPac has made strategic investments in technology to continue to improve environmental protection. As a company, TraPac looks forward to continuing to work with CARB to reduce emissions in California.

With regard to the proposed regulation, TraPac has comments in the following areas:

1. The Percentage of Vessels

TraPac welcomes the proposed increase in the industry requirement to 100% of container vessels. As a terminal already held to this standard and having proven it is achievable with customer co-ordination, we believe this is a good enhancement.

51.1

2. Plug In/Unplug Time.

We do not agree with the proposed time limit for plug and unplug at one hour each and timed from ready to work after customs clearance to plug in on arrival and then unplug to pilot on board for departure.

First no management, labor or port electrician should be placed in the situation where they are "watching the clock" when the work involves handling 6,600 volts and the process requires due care to avoid damage and injury. Getting this wrong may result in life changing outcomes.

Second how will the industry react when multiple ships are planning similar arrival or departure times to meet the one-hour requirement? If vessels are competing for the same tug and/or pilot resources who will decide which vessel is compromised?

Our recommendation is to mandate that each vessel shall plug/unplug as best practical to minimize non emission reduction hours and to use port data to collaborate towards improvement. CARB and/or the port authorities may then engage with vessel operators or terminals using real data to address consistent outliers, to allow best practice sharing and to drive continuous improvement.

3. Reporting

51.2

All of the data currently used to calculate the plug in/unplug time comes from the Port of Los Angeles. A Port of Los Angeles electrician is party to each plugin and unplug. The Port of Los Angeles also controls the Port pilots and track pilot boarding times. As the Port of Los Angeles has been tracking this data for years it does not make any sense for TraPac to duplicate these efforts. As discussed in outreach meetings with CARB, adding the ability to have an authorized agent for reporting purposes will help reduce duplication of efforts and become a single source of data management.

TraPac remains a committed partner with the goal of reducing emissions. We look forward to your consideration of our comments.

Regards,
Bill Schopp

Director – Marine Operations
310 513-7444 office
310 508-7053 Cell
Bill.schopp@trapac.com
www.trapac.com

PMSA
PACIFIC MERCHANT SHIPPING ASSOCIATION

December 9, 2019

Clerk of the Board
California Air Resources Board
1001 I Street
Sacramento, California 95812
cotb@arb.ca.gov
https://www.arb.ca.gov/lispub/comm/bcsubform.php?listname=ogvatberth2019&comm_period=A

RE: PROPOSED CONTROL MEASURE FOR OCEAN-GOING VESSELS AT BERTH

Comments of the Pacific Merchant Shipping Association on Initial Statement of Reasons, Environmental Assessment, Standardized Regulatory Impact Analysis, and Supporting Regulatory Documents

Thank you for the opportunity to comment on the proposed At Berth Regulation. The Pacific Merchant Shipping Association (PMSA) appreciates the opportunity to work with California Air Resources Board (CARB) staff during the course of this regulatory development on behalf of our ocean carrier, marine terminal operator, and other maritime industry member companies.

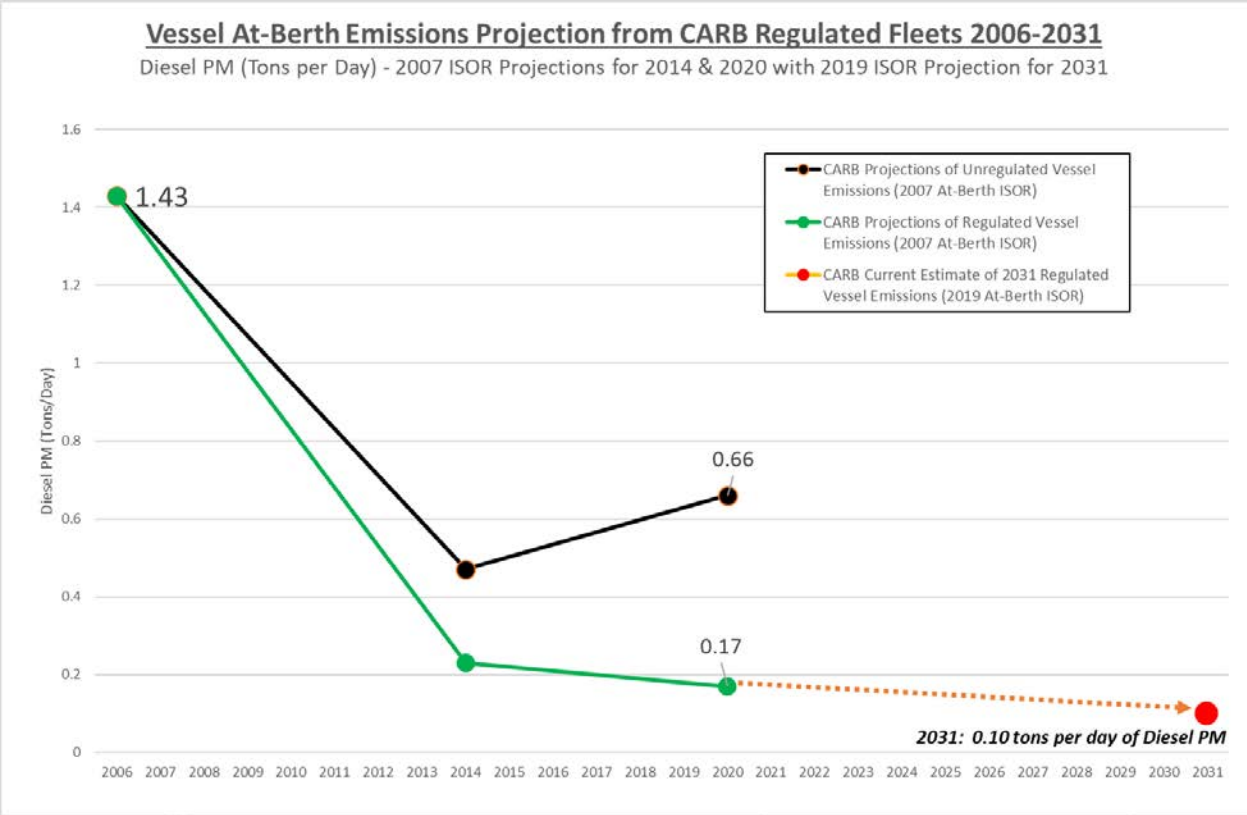
PMSA would like to thank the regulatory program, inventory, enforcement, and executive staff for their availability and professionalism in responding to questions and discussing various aspects of the proposed rule, inventory analysis, and enforcement issues. We look forward to continuing to work on these issues and hope to resolve them satisfactorily prior to the final consideration of the proposed At Berth regulation.

PMSA and its members have very strong reservations and concerns regarding the substance of the new Proposed Control Measure for Ocean-going Vessels At Berth, and believe it would create significant and unnecessary costs for the maritime industry and the state of California and in exchange achieve few air quality benefits. In addition, numerous issues that have been raised by ocean carriers, marine terminal operators, and other maritime stakeholders during the rulemaking process have not been adequately addressed in the Initial Statement of Reasons (ISOR) and supporting documents. As a result, PMSA respectfully submits this comment letter on the proposed regulation.

52.1 **Existing Regulation Needs Amendment to Improve Administration and to Codify Current Guideline Outcomes, but It Is Successful at Outperforming and Producing Emissions Reductions Beyond CARB's Own Expectations, Which Does Not Warrant Elimination and Complete Rewrite**

The current At Berth regulation adopted in 2007 is part of an exceptionally effective and successful suite of emissions regulations efforts adopted by CARB as part of the Goods Movement Emission Reduction Plan. Taken together with the other clean fuel rules, which apply to all vessels while at berth and

underway, CARB was targeting an overall emissions reduction from container, cruise, and refrigerated vessels of nearly 88% by 2020 (reduction from 1.43tpd to 0.17tpd DPM) through the full implementation of the current At Berth regulation. (see below chart)



The 2019 ISOR and background materials for the proposed rule projects that not only has the current regulated fleet well outperformed the targets of the current regulated rules, but that by 2031 cumulative container, cruise, and refrigerated vessel emissions are projected to be only 0.1tpd DPM under the current regulations. This is an overall 93% emissions reduction from original levels and an additional 40% DPM emissions reduction beyond the 2020 CARB target – even if NO ADDITIONAL action is taken to expand or change the current regulation.

52.2 PMSA and industry members are not however advocating for the CARB Board to take no action on this rule – to the contrary, we have been actively advocating for amendments to the existing regulation to address administrative and compliance management issues for many years. In chief, we are asking for a rule which codifies the operational results, if not the terms themselves, of the many Advisories and guidance documents which currently help assist both regulated companies and the CARB enforcement staff work together to avoid unintended violations of the existing rule for vessels that are equipped and plugging in to the full extent of real world practicalities. PMSA in that vein shares the Board's goal of

achieving 100% compliance for regulated vessel fleets at California's ports, and asks for consideration of amendments to the existing rule to make it work better, not to end it and throw it out.

Given the overall success of the current regulation at reducing emissions in excess of CARB's targeted 2020 goals and by an additional 40% through 2031 (and as noted below, that emissions outperformance number will grow even larger upon correction of the CARB emissions inventory methodology which predicts larger than reasonable growth in future vessel emission), we are perplexed by the CARB justifications for concluding that the current rule is a failure that needs to be replaced with more draconian measures for the existing regulated fleets.

The ISOR omits a specific comparison of the performance of the current regulation against 2007 projections. It also constructs a narrative of need which refuses to bifurcate currently regulated fleet emissions from fleet emissions not currently regulated, and which then makes sweeping generalizations about ocean-going vessel emissions which confuse the purpose and scope of both the existing regulation and the proposed regulation even further (ES-7 – ES-13). This narrative refuses to answer the unasked question in the ISOR: "Why is CARB proposing to eliminate the current successful regulation for container, cruise, and refrigerated vessels and to instead punish these fleets which are currently projected to outperform the 2020 regulatory baseline by 40% in 2031?"

Technical Analyses Regarding the Proposed Measure

52.3 After release of the ISOR and initiation of the formal public review period, PMSA commissioned two technical analyses of the proposed control measure: (1) a review of the ISOR and proposed control measure, generally; and, (2) an evaluation of the emissions benefit and cost-effectiveness of controlling Ro/Ro vessels under the proposed regulation.

PMSA has attached those two analyses here as part of our comment letter. *Technical Analysis: California Air Resources Board's Proposed Airborne Toxic Control Measure for Auxiliary Diesel Engines Operated on Ocean-Going Vessels At Berth in a California Port*, December 2019, is included as Attachment A. *CARB At-Berth Regulation Cost Effectiveness Analysis for Auto Carriers and RoRo Ships at Port of Long Beach & Port of Los Angeles*, December 2019, is included here as Attachment B. The analyses, in their entirety, are submitted as part of PMSA's comments on the ISOR and its supporting documentation and they are incorporated by reference herein. To the extent that the issues raised therein are not already otherwise addressed in this comment letter, PMSA requests that each of the issues raised in both Analyses be addressed and responded to formally.

Industry Coalition Comments on the Proposed Measure SRIA

52.4 After release of CARB's Standardized Regulatory Impact Assessment (SRIA) and prior to the initiation of the formal rulemaking process, PMSA along with the California Association of Port Authorities (CAPA), Cruise Lines International Association (CLIA), Western States Petroleum Association (WSPA), and World Shipping Council (WSC) submitted extensive comments to the Department of Finance regarding outstanding issues and questions regarding the SRIA and economic considerations regarding the development of the Proposed At Berth Control Measure.

PMSA has attached that letter, SRIA – Air Resources Board, Proposed Control Measure for Ocean-Going Vessels At Berth, August 26, 2019, with enclosures here as Attachment C. As part of our comment letter on the ISOR, we incorporate by reference here all of the observations made in our SRIA filing and, to the extent that the issues raised therein are not already otherwise addressed in this comment letter, PMSA requests that each of the issues raised in the SRIA comment letter be addressed and responded to formally in response to their inclusion here.

Industry Coalition Proposed Alternative

52.5 In response to CARB solicitations for proposed alternatives to the initial proposed versions of the amendments to the current At Berth regulation, as required by SRIA, an Industry Coalition of PMSA, CAPA, CLIA, WSPA, and WSC submitted a construct for a Proposed Alternative for consideration by CARB program staff. PMSA has attached that Alternative submission, Alternative Proposal for Amendments to At-Berth Regulations, February 15, 2019, with enclosures here as Attachment D (see also Attachment C). As part of this comment letter, PMSA incorporates by reference here the comments of the industry coalition proposed alternative.

CARB staff never responded to the Industry Coalition Proposed Alternative. CARB staff also failed to include the Industry Coalition Proposed Alternative in the SRIA – in fact, the SRIA history of the development of the rule does not even mention that any industry Alternative was even produced or shared with the CARB staff.

PMSA hereby requests that each of the issues raised in the Industry Coalition Proposed Alternative be addressed and responded to formally in response to their inclusion here.

Prior Unaddressed PMSA Comment Letters

52.6 PMSA has been engaged, and in fact pursued, amendments to the At-Berth rule for many years. During discussions with CARB staff and through workshops, PMSA has raised issues that have been formalized in a series of comment letters on the current At-Berth rule. Unfortunately, many of the issues raised by these letters have not been adequately addressed in the ISOR. Accordingly, that history of correspondence is attached to this comment letter as part of the supporting documentation of the industry coalition letter to the Department of Finance regarding the draft Standardized Regulatory Impact Assessment (see Attachment C).

To the extent that they have not already been otherwise addressed in this comment letter, PMSA requests that each of the issues raised in those letters, ranging from proposed alternatives to cost concerns and beyond, be addressed and responded to formally as part of CARB's regulatory process.

PMSA Alternatives Not Analyzed

52.7 As discussed in attached letters (see Attachment C), the ISOR fails to consider multiple additional alternatives submitted by PMSA. In 2017, PMSA submitted three possible alternatives at the request of CARB staff to consider. Those alternatives were never considered, analyzed, or discussed with

stakeholders by CARB staff. The alternatives include a fleet average approach that can achieve equivalent or even greater emission reductions than the proposed alternative. The alternatives also provide clearer lines of responsibility and eliminate the proposed byzantine VIE/TIE regulatory structure. CARB staff should evaluate the proposed alternatives and work with industry stakeholders to develop a structure that does not promote noncompliance.

Inconsistency with SIP Commitments and Plans

52.8 A key purpose for the Proposed Regulation is CARB's commitment under the State Implementation Plan (SIP) to amend the At-Berth regulation. The SIP strategy calls for a regulation that generates 2 tons per day (tpd) of NOx by 2031; however, the Proposed Regulation analyzed in the Environmental Assessment (EA) achieves 5.9 tpd, nearly triple what is necessary.

However, when analyzing the alternatives, the EA compares air quality benefits to the Proposed Regulation (5.9 tpd) rather than the stated project purpose (2 tpd), dismissing alternatives that might have achieved lesser – but still adequate – reductions.

Such inconsistencies are significant in the context of the actual language of the Mobile Source Strategy as included in the adoption of the 2016 SIP in March 2017. The ISOR correctly identifies (at II-7) that the "proposed measure directs CARB staff to consider increasing reductions by including additional vessel fleets, types, and operations," however the ISOR's claim that there is SIP direction that this was to be accomplished by "redevelopment of the Existing Regulation" with respect to the existing regulated fleet is a complete fabrication. No such redevelopment or replacement or other evisceration of the current regulation is mentioned or contemplated in the SIP.

Contrary to the claim that a complete elimination and replacement of the existing rule was consistent with the SIP, the ISOR correctly identifies the policy context for these changes: with respect to the preliminary CARB-staff produced Sustainable Freight Pathways document these were measures which "included amending the Existing Regulation" (II-6); in the ultimately adopted Sustainable Freight Action Plan implementing Executive Order B-32-15, amendments are directed to the Board in order to consider "strengthening the Existing Regulation" (II-7); and, concurrently with the adoption of the SIP in March 2017, the direction given to CARB staff was not to create new rule, but instead "to consider changes to the Existing Regulation" (II-8).

PMSA implores CARB to act only in a manner which is consistent with the adopted SIP strategy emissions targets and its adopted SIP Mobile Source Strategy and related regulatory policies.

Inconsistency with GHG Goals and Plans

52.9 The proposed regulation is also inconsistent with California's greenhouse gas (GHG) goals. The proposed rule will increase GHG emissions in the Ro/Ro fleet by 50% (see Starcrest analysis attached). This is an enormous increase in emissions that is contradictory to the California goals. This increase would be achieved for only a 40% reduction in criteria and toxic pollutant emissions. The regulatory uncertainty associated with the rule also has the potential to significantly increase the use of barge-

based systems by the existing regulated fleet in order to ensure compliance can be met. Every additional use of the barge-based equipment will significantly increase GHG emissions.

52.10 Curiously, while the ISOR mentions the adoption of the AB 32 Scoping Plan and the general goals of the adoption of SB 32 (II-6), the ISOR completely omits any reference to the fact that consideration of the feasibility and expansion of the existing At Berth regulation is included as a provision of the SB 32 Scoping Plan. This omission is material because, just as with the SIP measures referenced above, the newly proposed measure is inconsistent with the SB 32 Scoping Plan's description of future consideration of amendments to the current regulation: it does not direct any additional emissions reductions from the existing fleet, does not direct a rewrite or elimination of the current rule or fleet averaging, and it supports the conclusion that the expansion of the current rule to new fleets should occur consistent with the completion of feasibility studies.

Inconsistency with AB 617 Goals and Plans

52.11 The ISOR also mischaracterizes the relationship between the At Berth regulation and AB 617 and omits the inconsistencies with respect to the application of the proposed regulation and port communities. While it is true that the concept of the expansion of the At Berth regulation to potential new vessel fleets is a component of the AB 617 Blueprint, like the SB 32 Scoping Plan and SIP Mobile Source Measures and Sustainable Freight Action Plan, the ISOR materially omits the actual direction included in the AB 617 Blueprint, and therefore misstates the relationship between the At Berth policy and AB 617.

52.12 More importantly, while the ISOR points out that the rule is intended to help reduce emissions in priority neighborhoods, in several of these communities such as Barrio Logan in San Diego and Oxnard in Ventura County, the proposed Rule would actually result in short-term increases in DPM emissions according to current CARB emissions inventory results. (see "DPM Inventory," https://ww3.arb.ca.gov/ports/shorepower/atberth_ogv_port_specific_emissions.xlsx)

52.13 Moreover, as a rule adopted in 2007 and as of January 1, 2020 fully phased-in well before any actual implementation of any of the actual community plans under AB 617 – indeed only one Plan, in West Oakland, has been approved by the Board – the ISOR's characterization of the At Berth regulation as "one of the new statewide regulatory measures that is included under the CAPP to help reduce air pollution in impacted communities" (II-8) is a vast overstatement. Certainly the expansion of the rule to new fleets could be considered a new regulatory measure, but as an existing rule and with respect to currently regulated fleets this is certainly not a new regulatory measure and as there are few additional at berth vessel emissions to capture there is very little additional pollution to reduce.

Regulatory Structure

52.14 PMSA is concerned that CARB is continuing to propose a single regulatory structure to control emissions from multiple disparate vessel types. When the original At-Berth Regulation was adopted in 2007, CARB acknowledged the differences in vessels types and consciously adopted a rule framework that segregates by vessel type. Given the disparities in vessel type, berthing time, emissions, frequency of visits, and technical hurdles, this was an appropriate and proper decision. The same disparities which

existed at the time of the current rule promulgation persist and continue at the present time. Moreover, the currently regulated fleets and their Port and marine terminal partners were estimated by CARB to have needed to invest approximately $1.8 billion in shore power infrastructure under the current rule on the basis of this bifurcation of ocean-going vessel fleets.

The new proposed regulatory framework proposes a single structure for the regulation of disparate vessel types despite the persistence of the same disparities which existed at the time of the initial rulemaking.

52.15 Under the existing rule, container, cruise, and refrigerated vessels have been able to successfully comply through a fleet average approach that encourages long-term planning and incentivizes overcompliance in order to manage trade uncertainty. Carriers voluntarily over comply in order to preserve flexibility to accommodate trade surges (as seen in last year's extra loaders – see prior comment letters attached), vessel redeployments, or unexpected equipment repair/maintenance. The proposed structure would eliminate any incentive to over comply and encourage carriers and terminals to exhaust available Vessel Incident Event (VIE)/Terminal Incent Event (TIE) allowances to reduce cost.

CARB should maintain a fleet average approach for the existing regulated fleet in order to ensure its continued success and consider the creation of a separate regulatory structure for any expansion fleets.

The preservation of the existing regulatory structure for currently regulated fleets and consideration of a new regulation for expansion to new fleets can be achieved in a manner which does not impact any projected emissions reductions. It is simply an acknowledgment of the original bifurcation by CARB of vessel fleets over a decade ago and the continued investments and emissions reductions progress made by the currently regulated fleets in expectation of the durability and continuation of the current regulatory program for the foreseeable future.

PMSA respectfully requests that the Proposed At Berth Control Measure be bifurcated into one set of amendments for the existing fleet regulations and another entirely new regulation which is exclusively applicable to expansion fleets.

Rule Requirements are Unachievable

52.16 CARB staff have designed a rule that can be quantitatively determined to be impossible to comply with. The attached two Starcrest Analyses demonstrate that the proposed structure including the use of VIEs and TIEs will leave ocean carriers and terminal operators without compliance mechanisms for known circumstances under the proposed regulation.

The evaluation does not include unknown but anticipated circumstances like maintenance, equipment failures, required equipment inspections, vessel redeployments, and extra loaders, nor possible unknown and unanticipated events. As a result, the anticipated degree of noncompliance is likely to be substantially higher. These issues would be substantially avoided by preservation of a fleet average compliance mechanism when paired with an effective vessel compliance checklist.

It is inappropriate that CARB design a regulatory program where noncompliance is a rule feature. At the very least, the number of VIEs/TIEs should be increased to cover all known circumstances with a margin to cover anticipated issues (e.g., equipment maintenance, extra loaders) and/or the significant expansion of circumstances associated with eligibility for participation in a (properly priced) remediation fee program. More appropriately, the proposed rule should be restructured on a vessel fleet average approach, which can achieve greater emissions reductions.

Regulatory Timeline

52.17 The timeline proposed in the regulation is unachievable, particularly for the existing regulated fleet. In many cases CARB identifies additional improvements that must be completed in order to meet compliance obligations. In other instances, CARB identifies infrastructure inadequacies but fails to include them in their analysis or consideration of improvements that are necessary to achieve compliance under the regulation.

These issues are addressed in more detail in the Technical Analysis conducted by Starcrest Consulting Group attached to this letter. However, in all circumstances, it is impossible to deploy the necessary infrastructure within the seven to nine months that would be available from the adoption of the regulation. As Starcrest documents, the lead time for this infrastructure is measured in years, not months.

52.18 The timeline is so compressed as to produce some absurd and unrealistic results. For example, the plans for how terminals will meet the infrastructure needs for providing shore power to container, cruise, and refrigerated vessels are due six months after terminals must comply with the regulatory requirements. CARB has another three months to review the plans. As a result, the plans for ensuring compliance may not be approved for nine months after compliance is required. If the regulatory paper exercise cannot be completed before the compliance deadline, how can all the necessary infrastructure and alternative control technology that CARB identifies (though underestimates – see Starcrest analysis) be deployed by the compliance deadline in 2021?

US EPA Waiver Requirements Also Render 2021 Implementation Impossible

52.19 One of the primary reasons to amend the current rule (as opposed to creating an entirely new regulation in its stead) is to maintain the effectiveness of the existing regulation which already has a waiver from the United States Environmental Protection Agency (USEPA) granted under §209(e)(2) of the Clean Air Act in 2011. CARB sought and was granted the waiver from US EPA as the existing At Berth regulations implement emissions standards applicable to the running of auxiliary engines while at berth in California's ports. (76 FR 77515) This waiver was granted after previous auxiliary engine emissions standards were determined to be unenforceable by ARB without the prior issuance of a US EPA §209(e)(2) waiver. See *Pacific Merchant Shipping Association v. Goldstene,* 517 F.3d 1108 (9th Cir., 2008).

While contesting the waiver at the time, PMSA now believes that given the tremendous investment in the existing emissions reductions infrastructure on vessels, and on shore by ocean carriers, marine terminals, and ports under the existing waiver, that the preservation of the current regulatory structure is in the best interests of both the currently regulated vessel fleets and ARB.

Preservation of the current rule and existing waiver maintains the clear and unambiguous legal status of the existing emissions standards under the current law, avoids any disputes over the authority of ARB to enforce emissions standards on vessels at berth upon the new effective date for new amendments, and takes advantage of the existing waiver in order to foster continued national standardization of shore power rules for vessels which have made a substantial investment in the retrofits necessary to comply.

By contrast, the proposed rulemaking abandons the current rule and the current waiver, and instead promulgates a new emissions standard rule for not just the newly proposed regulated vessel categories but also for existing regulated vessel categories, ports, and marine terminals. This potentially leaves California in a position where all of its regulations for vessels at berth, including specifically any newly promulgated emissions standards, are legally unenforceable without the provision of a new waiver. Such a waiver request from CARB might not even be properly before the US EPA for consideration by January 1, 2021, and it certainly is not reasonable to expect that one would be granted in that time period.

PMSA views the elimination of the current rule and existing waiver as an unnecessary complication that should be studiously avoided. We would instead ask that ARB keep the current rule for the currently regulated fleets and make amendments to this existing rule which are either consistent with the existing waiver or which could be addressed with US EPA within the context of the existing waiver via future amendment.

If for no other reason than to maintain legal clarity and consistency within the at berth program, CARB should take every step possible to ensure that the existing US EPA waiver remains in place and controls the lawful extent of CARB enforcement until a new waiver is granted.

Proposed Rule's Indirect Source Approach to Mobile Source Emissions is Misplaced and Unnecessary

52.20 CARB and PMSA have agreed in the past that state attempts to create indirect source rules for mobile sources can be legally problematic. An indirect source rule is a regulation which assigns a liability and responsibility to a facility to reduce indirect mobile source emissions which that facility does not control, when the mobile source can be directly regulated to reduce emissions through a traditional emissions standard, engine standard, or other in-use standard.

We are concerned that many of these hallmarks are present in the proposed control measure when they were successfully avoided in the current regulation. While we appreciate that this new measure's provisions are at least in part an attempt by CARB staff to be responsive to the concerns of several of PMSA's ocean carrier members regarding the need for shared responsibility with ports and marine terminals, we believe that such the provision of shared responsibility for the success of the current

regulated fleets can be best addressed through amendments that provide for both parties to be responsible for those situations exclusively under their own control. Ports and marine terminals at present are responsible for the provision of shoreside power infrastructure and operational support and manning under the current rule, and that will not change under the proposed rule. These entities can be held accountable for such responsibilities in a new set of amendments to the current rule, but they cannot be held liable for an emissions standard violation by an off-road engine on a vessel over which they have no control.

Assigning a vessel's emissions standard liability to a port or marine terminal must be avoided. The creation of third party liability for vessel emissions for a terminal is just as misplaced as trying to hold a vessel operator responsible for the quality of the workmanship performed by a port in installing a power substation or a marine terminal operator not timely ordering the labor to plug-in a vessel once at berth. These should all be treated as independent bases of responsibility and given independent measures of reporting and review.

In many respects this highlights further the fact that ports are really not a good fit with a traditional view of how indirect sources should be regulated. The main purpose of a port and marine terminal is to provide a location where various parts of the intermodal supply chain can come and transact business and interchange equipment, but that interchange is the business activity which is the purpose of the marine terminal, not the operations of the truck, train, or vessel used to get the equipment to the terminal. Once that container is interchanged and on the premises at the terminal, the cargo handling equipment there is the responsibility of the marine terminal – and subject to direct regulation by CARB, rendering any need for an indirect source regulation unnecessary.

Application of Remediation Pathways Must Be Applicable to Numerous Conditions and Consistent With Actual Costs of Remediation

52.21 PMSA supports the application of a concept of a remediation fund compliance pathway and the flexibility that such alternative forms of compliance may represent in this and other rulemakings, generally. However, we are concerned that the application of the remediation fund alternative as proposed presents a fee of an arbitrary amount well in excess of the actual value of the remediation sought, is punitive in nature, and represents an excessive duplication of compliance costs for those already in compliance with the rule.

In addition, we believe that if a proposed rule is going to be based solely on a per vessel per visit basis, as opposed to a fleet based average, that such pathways should be provided to vessels on a much broader scale, with increased certainty as to award, and given a prospective value based on a rationalized approximation of marginal costs to avoid duplication of costs of compliance.

52.22 The ISOR provides in Table ES-3 (reference to §93130.15 (f), "Table 4") that various vessel types pay various remediation payment amounts in the circumstance of Terminal Equipment repairs, Vessel Equipment repairs, operational delays of a control strategy, or in the case of a terminal construction project. Please identify both the basis for a cost of equivalent emissions reductions claim with respect

to the rate of dollars per gram of emissions, and which emissions, per hour per vessel type, the nature of the equivalency with which these rates are set, and the relative values when applied to vessel engine sizes for various classes of vessels.

We note with some irony that by grouping these values by vessel type that CARB staff is proposing a method of compliance based on some presumptive average emissions rate per vessel type and then applying it fleet wide, thereby basing compliance for this section on a fleet averaging basis. If this is the correct methodology, please confirm.

52.23 In addition, we are concerned with the punitive nature of these remediation pathways as proposed. If one presumes, for example, that the average rate of auxiliary engine emissions (DPM) is 0.18 g/kWh and the average power of a vessel's auxiliary engines running at berth is 1,100kW, then the total amount of emissions per hour are approximately 198g DPM. There are 907,185 grams per ton, so 198g DPM is 0.0002 tons DPM. At the present Remediation Fund rate of $1,900 per hour, ***the effective rate of Remediation Fund compliance is $8,705,310 per ton DPM***.

While the ISOR explains that these amounts are "based on the cost of securing equivalent emissions reductions" (ES-34) there is no obvious justification or supporting data for this conclusion.

If these amounts were based on the actual cost of securing equivalent emissions reductions, and one was to use the general cost-effectiveness limits set at $30,000 per weighted ton of emissions reduction from the Carl Moyer program, ***the Remediation Fund rate should be approximately $120 per hour***. A Remediation Fund rate of $120 is 6.3% of the proposed rate of $1,900 per hour, therefore the current Remediation Fund rate is 93.7% higher than the accepted standard cost of securing equivalent emissions reductions. We can only conclude that the proposed remediation rate is not only wholly arbitrary but it is also punitive.

52.24 In addition, one additional consideration for a remediation rate that we believe is necessary to make the rate fair and reasonable is to subtract the existing and already incurred costs of compliance from any additional remediation fund rate so as to avoid the imposition of a duplicative compliance methodology on any one vessel. We agree with the ISOR's description of this provision as providing "another pathway for compliance that addresses circumstances where vessels or terminal operators who have already made an investment in a control technology and may not be able to reduce emissions from a vessel's visit for a limited period of time, such as construction projects, terminal and/or vessel equipment repairs, or delays in connecting to an emissions control strategy." (ISOR, IV-91- IV-92)

The Remediation Fund rate should reflect this justification as well, such that the cost of participating in the Remediation Fund as an Alternative Pathway is appropriately limited to the marginal costs of the vessel or terminal over-and-above both the baseline investment made in its regular control technology and the incremental cost of the limited event, such as the equipment repair or cost of hiring an alternative control provider, per call. By discounting the Remediation rate against an established baseline of costs per call for both the original investment in compliance and for the additional costs

invested in the additional compliance required by equipment repair or infrastructure construction, the Remediation Fund will ultimately be fair to the vessel or terminal attempting to comply in good faith by limiting the amount charged only to the marginal additional cost of compliance necessary.

Request for CARB to Clarify and Confirm Application of Proposed Fine Structure Consistent With Health & Safety Code Limitations on Penalties for Violations of Air Toxics Control Regulations

52.25 §93130.18(b) of the proposed regulation regarding Violations states that "any failure" shall constitute a single violation "for each day that a vessel operates without using a CARB approved emission control strategy" and (c) provides the same for violations of the "recordkeeping or reporting requirements" as a "separate violation of this section for each day." Given the various descriptions of potential violations are in various other time-blocks, for example the one-hour connection window, or other various potential violations may constitute a violation of checklist reporting and a substantive non-compliance, please clarify the application of this violation provision.

Is the fine or penalty based on the provision of one checklist per call or would a checklist with multiple missed criteria result in multiple fines for the same one day of non-compliance activity such that each checklist item is considered a separate violation?

52.26 Please confirm that the language of a separate violation "for each day" means that the amount of a fine is limited in a manner consistent with the penalties sections of the Health and Safety Code which are codified as "not to exceed" a certain amount "for each day in which the violation occurs." If so, please conform the language of the proposed rule such that violations per vessel per call are not cumulative for the same call in the same day. For example, if a vessel is out of compliance with a checklist item for a call in port that lasts for 10 hours between 9 am and 7 pm on one calendar day, that shall be considered only one event and the fine would be less than or equal to the statutory maximum for that entire call.

52.27 We also note that there seems to be a typo in §93130.18 (a) which should be corrected or clarified. PMSA presumes that the reference to Health and Safety Code §39764 is intended to be a reference to Health and Safety Code §39674.

Inclusion of Ro/Ro Vessels Not Supported

52.28 The proposal to include Ro/Ro vessels is not supported by the evidence. PMSA has commissioned a review of Ro/Ros by Starcrest Consulting Group (see report, Attachment B) that reveals the deep and fundamental flaws in the analysis supporting the inclusion of Ro/Ros within the expanded regulation. Broadly, the issues lie in two broad areas: the presumed emissions benefit and cost analysis.

The emissions benefit presented in the ISOR are overstated. It is expected that Ro/Ro vessels will use alternative control technologies that will result in excess emissions due to tug and bunkering activity. Every use of a barge-based system will require up to six tugboat moves. Those moves would occur only because of the Proposed Regulation resulting in significant emissions when compared to emissions the regulation seeks to control. The analysis presented by Starcrest conclusively shows that once these factors are taken into account, the emissions benefit is reduced to a net benefit of only 40%. Potentially

worse, GHG emissions increase by 50%. If properly accounted for, these emissions would reduce the cost-effectiveness of such systems.

These emissions have not been included in the assessment or accounted for in either the emissions benefit analysis, cost-effectiveness analysis, SRIA, health risk analysis, or incidences per ton analysis. These additional emissions cause cost-effectiveness values to rise, reduce mass emissions benefits, and reduce health benefits. These emissions are significant compared to the source and directly undercut the analyses presented in the ISOR.

52.29 The second area of concern is cost. The ISOR presents a cost of $900 per hour for alternative control strategies based on an anonymous conversation. The analysis presented by Starcrest includes actual redacted invoices that show the cost is substantially more. Because every $100 per hour change in the cost of alternative control technologies can swing the cost-effectiveness analysis by more than $12,000 per weighted ton, it is critical that the proper value be used.

Actual invoices show multiple different rates, but also show minimum charges and mobilization/demobilization costs. When considering all costs, the effective rate presented in the available invoices range from $1,100 to $1,522 per hour. This results in a substantially higher cost-effectiveness approaching $200,000 per weighted ton. For comparison, the acceptable Carl Moyer cost-effectiveness threshold for non-zero-emission technologies is $30,000 per weighted ton making Ro/Ros some of the most expensive emission reductions possible.

52.30 Finally, CARB staff have never supported their decision to include Ro/Ro vessels and exclude general cargo vessels. While we agree that like Ro/Ro vessels, it is exceptionally likely that general cargo vessels would not be cost-effective to control or would result in excess emissions from other sources, CARB staff has not disclosed their calculations or specific logic with respect to the potential cost-effectiveness of general cargo vessels. Much of the same logic for exemption would apply to Ro/Ro vessels. The disparate handling of these vessel cases could shift some cargo for construction and agricultural machinery to move from Ro/Ro vessels to general cargo vessels since both vessel types can provide the necessary service.

For all these reasons, CARB should remove Ro/Ro vessels from the proposed regulation until emission reductions can be cost-effectively achieved in a manner that does not result in increased GHG emissions and limited criteria and toxic pollutant benefit.

Emissions Inventory

52.31 The emissions inventory for At-Berth emissions raises serious issues with the way it presents the emissions projected under the existing rule and the benefits of the proposed rule. As can be seen in the Starcrest Analysis, the emissions inventory does not accurately estimate the future emission reductions under the proposed rule. Under publicly available data from the ports, approximately 95% of vessel visits are subject to the existing rule. The emissions inventory assumed that only 77% of vessel hours are subject to the existing rule in the Port of Los Angeles and only 74% in the Port of Oakland. The result

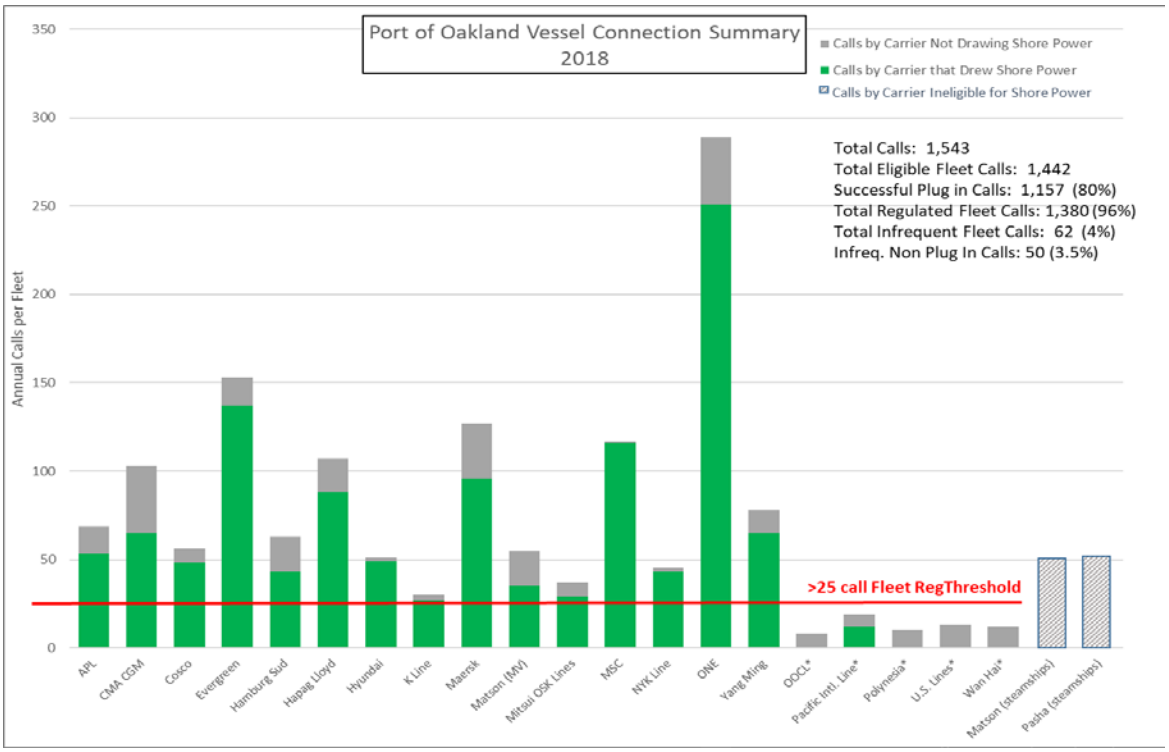
of this underestimation is twofold. First, the emissions benefit under the current rule is significantly underestimated. Second, the emissions benefit of the proposed rule is grossly overestimated.

In fact, the net benefit of the proposed rule for the existing regulated fleet is largely illusory. The rule moves from 80% fleet emission reduction to an 80 % individual vessel approach. The rule largely sacrifices flexibility for the existing regulated fleet in return for no meaningful emissions benefit.

52.32 The presentation also understates the benefits of the existing rule and overstates the benefit of the proposed rule for the existing regulated fleet by not including the benefits associated with Proposition 1B for shore power infrastructure. Proposition 1B provided funding to Ports and marine terminals for shore power infrastructure in return for contractual commitments that the emissions reductions from vessels calling on those facilities would exceed the requirements of the existing At-Berth Regulation. As a result, many of the emissions benefits attributable to the existing rule under the emissions inventory are largely attributable to vessels already captured under the existing rule but not accounted for, as described previously, and the Proposition 1B contractual commitments. Without properly accounting for these two major elements, the CARB staff analysis provides an inaccurate presentation of emissions benefits of the proposed rule from the existing regulated fleet.

52.33a The inventory analysis also does not model the existing rule's requirement that a vessel capable of connecting to shore power must do so. Again, if the at-berth inventory model did so, it would attribute more emission reductions to the existing regulation and fewer emissions benefits to the proposed rule impacting the results of subsequent supporting analyses, such as health risk, cost-effectiveness, and overall levels of emissions reductions.

52.33b To illustrate the limited availability of additional emissions to seek to control from existing regulated fleets as well as from emissions from current vessels connecting to shore power which are under the current fleet threshold, consider the 2018 vessel visits at the Port of Oakland – the Port which plugged in the most vessels in California (and in the entire world) that year – below:



In 2018, the scope of non-regulated vessel calls represented only 4% of total calls of non-steamship container vessels. And, after accounting for those vessels which also plugged in, the remaining potential scope of additional capturable vessel emissions left to address through potential rule expansion is further reduced to only 39 vessel calls out of 1,442 total calls, or 3.5%. Control of these emissions at an 80% control factor and application of some percentage of TIEs/VIEs (as these are the smaller, non-equipped vessels) are exceptionally small. PMSA has estimated that these calls represent a grand total of additional emissions to capture of only about 340 lbs/year DPM, or approximately 0.0005 tpd.

52.34 With regard to the expansion fleet, the inventory analysis overstates the benefits of the proposed rule by ignoring offsetting emissions from tug and bunkering activity as described in the Starcrest Analysis. The attached Ro/Ro analysis demonstrates that effectiveness of the rule is reduced to a 40% emissions reduction for pollutants while increasing GHG emissions by 50%. These emissions impacts are attributable to known, unavoidable consequences of the proposed regulation: increased tug activity and at-anchorage fuel bunkering. Whether you consider the net impact to be an increase in excess emissions or a decrease in the net benefit, the impact is the same to reduce cost effectiveness, reduce risk reduction, reduce benefits described in the Incidences per Ton analysis, and reduce the cost to benefit ratio. The ISOR does not properly account for any of these foreseeable outcomes in these analyses.

Cost/Health Benefit Analysis Deeply Flawed

52.35 Taken together, the flawed cost analysis with regard to alternative control technologies and flawed emissions analysis results in a flawed cost analysis. As the Starcrest analysis lays out, CARB has calculated the total cost of this regulation as $2.164 billion with $2.245 billion in health care benefits, which amounts to a thin margin of only $81 million. A more realistic hourly rate for barge-based control systems, based on actual invoices rather than anonymous conversations, alone would add $231 million to the costs of the Proposed Regulation for a total cost of $2.4 billion, exceeding the health benefits. If the emissions analysis properly accounted for excess emissions in its calculation of health benefits the cost/benefit analysis would swing even more negative.

52.36 In fact, the Starcrest Analysis reveals that CARB is using two inconsistent data sets, particularly in regard to the existing regulated fleet. One set for analyzing the cost of the rule appears to minimize the additional infrastructure and vessel retrofits necessary to comply with the proposed regulation. The other set appears to maximize the number vessels not subject to the rule, increasing the emissions benefit of the proposed regulation. Both of these circumstances cannot be true. Even worse, when the two sets are brought together to compare the total regulatory costs to the value of the health benefits, the discrepancy is magnified. A consistent data set should be used throughout the ISOR and its supporting documents. Please confirm if the data set used to determine costs is the same data set used to evaluate emissions.

Methodology for the Introduction of Marine Terminal and Port Responsibility Is Counterproductive, Costly, and Unnecessary

52.37 The universal experience at all of California's seaports under the current rule is that the berths with the highest levels of compliance are operating with existing shared responsibility by contract between ports and terminals with ocean carriers, not by regulatory requirement assigning specific costs or liability amongst the parties. The current regulation and complementary incentive programs provide that the marketplace shall drive Ports and marine terminals to provide an effective set of infrastructure facilities and safe, competent, reliable labor shoreside in order to allow oceangoing vessels to be compliant with the current regulation. The current numbers demonstrate that this model is not only effective at delivering compliance, but it effectively generates over-compliance.

While there are gaps in the provision of shoreside power at certain berths, and some recurring crowding or repositioning issues exist, the number of vessel calls which are impacted by these issues has proven to be very small. For example, year to date in 2019 at the Port of Oakland, "timing and crowding" issues only impacted 1.6% of all vessel calls. In some instances, the best remedy for these types of issues may be an investment in additional new substations and vaults or cable-reel systems when safe and available for use. To that end, CARB holds the purse for any number of funds for which at berth investments are eligible, but it remains to be seen if CARB would want to prioritize these types of multi-million dollar investments to try and capture emissions from an additional 19 vessel calls out of 1,175.

PMSA believes that there is a role for enhanced marine terminal and port responsibility on a check-list basis, but that such responsibility should be limited only to circumstances within the control of the port

or marine terminal, and should avoid the hallmarks of an Indirect Source Regulation. The parallel corollary to this is, of course, that a vessel should also only be held liable for the circumstances under the control of the vessel. The proposal is set up in a manner which creates unnecessary and counterproductive conflict and competing interests between marine terminals and vessels, will result in enforcement conflicts, disputes over the proper uses of TIEs and VIEs, and yield unnecessary and costly divergences in interests between customer and service provider. None of these changes improves emissions or air quality outcomes – all of them create new commercial complications, costs, and uncertainty that should be studiously avoided.

Specific Regulatory Language Issues

52.38 The proposed regulation also contains a number of problematic elements that make implementation difficult and will subject entities to non-compliance risks even when taking all reasonable steps possible to comply.

Distributed Generation

The proposed regulation includes restrictions on "Distributed Generation" that are problematic starting with the definition. Distributed generation is defined as power produced near the place of use. In industrial areas like ports that could refer to power plants sharing a fence line. The definition also does not include any element of control. If a terminal ends up using distributed generation, even if better defined, because their port authority or utility distributes the power to the terminal facility, the terminal operator likely has no ability to modify that. Additionally, if CARB envisions distributed energy as an alternative control technology, there should be no difference between the emission limits set for distribution generation over other alternative control technologies, apart from already existing CARB and local air district rules for permitting such distributed power. There is no logical basis to prefer similar emission profiles from alternative control technologies over distributed generation systems.

Approved Emission Control Strategies

52.39 The requirements identified under Section 93130.5 are potentially self-defeating in allowing additional control technologies to supplement shore power for rule compliance. The proposal envisions emission control systems operating interchangeably across different vessels, hopefully lowering capital costs. However, the rule establishes different allowable emission rates depending on vessel type ensuring that such systems cannot be used interchangeably. This requirement alone would drive up the number of units necessary and therefore costs and was not analyzed by CARB staff.

52.40 Potentially worse, CARB grants an effective five-year monopoly to the two existing alternative control strategies allowing them to continue to operate under existing Executive Orders (EO), while subjecting any competitor for the first five years to more stringent and costly requirements. It is also unclear whether existing alternative control technology suppliers would be allowed to build additional, identical equipment and be subject to the same five-year advantage or that advantage is only limited to extant equipment. In other situations, CARB provides the EO to the equipment type, not to individual pieces of equipment.

52.41 One of the requirements that CARB demands for alternative control technologies is a warranty. Similar to other air quality programs, warranties ensure long-term emission reductions. However, a warranty is only as good as the financial assets behind the company offering the warranty. CARB should require a demonstration of the financial wherewithal to provide a 10-year warranty or require a performance bond to ensure that warranty obligations can be made.

The provisions for emissions testing upon selling or leasing an approved emission control system are unnecessarily burdensome. The proposed regulation already includes a requirement for annual source testing. It is unclear why additional testing is necessary if the equipment changes ownership or leaseholder. Such a requirement would also discourage short-term leasing options as it would add costs every time the system is leased to a new user.

52.42 Regarding the annual emissions testing, the proposed regulation is unclear as to which entity is responsible for conducting the emissions testing: the manufacturer, warranty provider, owner, lessee, or operator.

Opacity Requirement

52.43 The proposed rule establishes an opacity limit for vessels at anchorage. Such a requirement conflicts with established International Maritime Organization (IMO) and USEPA emissions standards for vessels. USEPA rules preempt state and local emissions standards for oceangoing vessels. While not quantified as a typical numerical standard but a limit based on Ringelmann values, an opacity limit is clearly an engine emissions standard for an operating vessel – even if that operation is at anchorage. Such standards should be promulgated for new engines and done so through existing IMO/USEPA framework. Accordingly, CARB should eliminate the proposed emissions standard from the regulation.

One-Hour Connection Requirement

52.44 CARB staff proposes a one-hour limit on the connect and disconnect times for shore power. Such a requirement is arbitrary and capricious and not based on any evidence that it is safe or feasible. As we have said in previous letters, the existing rule permits multiple connection strategies, some of which will require more than one hour. More importantly, the shore power connection process requires individual people to manhandle heavy, high-voltage equipment and energize that equipment – sometimes in adverse weather conditions. Under no circumstances should that work be performed under a stopwatch. In addition, there is no need for the stopwatch. The labor crew on the scene will make the best determination, keeping in mind safety, of how to handle the connection process. The labor crew is there for the purpose of making the shore power connection and there would be no interest on their part to delay it. Finally, the one-hour requirement would likely be ineffective because any exceedance of the one-hour requirement would likely result in a safety exemption being sought, as having labor move faster handling high voltage equipment would be fundamentally unsafe.

One PMSA member, Maersk, had the ability to analyze shore power connection data using the parameters of the proposed connection requirement on 135 vessel calls back to May 7, 2019. Maersk determined that 38% of the calls would not have met the proposed 1-hour rule on arrival (27% in LA,

34% in Long Beach, and 54% in Oakland). CARB staff has provided no basis on which it can be assumed that connection times can be consistently and safely accelerated. In fact, no data is available from CARB justifying the one-hour connection window.

52.45 PMSA recommends that one-hour limit be replaced with a checklist approach. CARB has never identified an instance when labor was available that a vessel was not connected to shore power in a timely manner. All discussions regarding the connection process have not been about how fast people work, but verifiable steps were taken by responsible parties: did the terminal order labor? is the vessel-shore power capable? did the port authority send staff to energize the connection? As we have argued in past comment letters, these items can be successfully determined through a checklist approach without putting labor at risk with a stopwatch for handling heavy, high-voltage equipment.

VIEs/TIEs

52.46 The VIE/TIE structure proposed in the draft regulation is extraordinarily problematic and compounds problems in the existing regulation. One of the primary shortcomings of the existing regulation is that it unintentionally holds regulated parties responsible for outcomes outside their control. So far, industry and CARB staff have successfully managed this shortcoming. The proposed regulation does not solve this issue; instead it formalizes it.

One example of this is impacted schedules. For example, the Port of Oakland is very busy, with more vessel calls than either the Port of Los Angeles or Port of Long Beach. A vessel's time at berth is, however, much shorter in Oakland with a typical duration of less than 24 hours. It can be reasonably expected that a terminal in Oakland will plan to berth a vessel in a way that it will be able to connect to shore power. However, if a vessel is delayed by 24 or 48 hours, another vessel is likely to be at that same berth during its scheduled time. The terminal operator has two choices, move the vessel to anchorage to wait for that berth to become available or serve the vessel at an available berth where it may or may not be able to connect to shore power. If it is unable to connect to shore power directly, there are no alternatives. CARB has determined that alternative control strategies are not viable in Oakland and the proposed cable reel management systems has not been deemed safe for use (see prior attached comment letters). The proposed regulation holds the terminal responsible for the vessel's late arrival if the vessel is unable to connect, thus incentivizing the terminal to put the vessel to anchorage and resulting in a net increase in emissions. This is an absurd outcome if a terminal has taken the necessary steps to schedule and plan for vessels to connect to shore power.

52.47 The proposed rule even holds the terminal operator responsible for selecting alternative control technologies for vessels. A terminal operator cannot reasonably exercise proper engineering judgement to determine the suitability and compatibility of an emissions control system for a vessel. What would happen if a terminal operator selects a CARB-certified emissions control system, but a vessel operator does not allow it to be connected due to concerns of compatibility with the vessel? Even the regulation acknowledges that the terminal may not be compatible with the vessel's needed emission control strategy. Only the vessel operator can determine the suitability of alternative control technologies for vessels they control.

52.48 The proposed regulation even engenders disputes between ocean carriers and terminal operators. When no one is at fault, how will CARB resolve the dispute? Because the proposed regulation still attempts to hold a terminal or ocean carrier responsible for actions outside their control, disputes will invariably arise. What dispute resolution process will CARB put in place? How will it adjudicate the use of VIEs/TIEs when ocean carriers and terminals do not agree on fault? What will be the timeline for such a process?

52.49 A greater flaw in the VIE/TIE scheme is the fact, as demonstrated in the Starcrest analysis, that there are insufficient VIEs/TIEs available to ensure compliance for known issues identified by CARB. As discussed earlier, VIEs/TIEs will be needed to for unknown and unexpected changes in trade, vessel deployments or equipment failures and maintenance. This can only be corrected by greatly increasing the number of VIEs/TIEs, at the cost of reduced emissions reduction. A fleet average approach would avoid all of this.

52.50 Rather than holding parties responsible for issues outside their control, a checklist approach that establishes clear lines of responsibility should be used to manage compliance. Such an approach was detailed in an alternative submitted (and attached) by PMSA in 2017. Any approach that holds a party responsible for actions the party cannot reasonably control is likely to be unenforceable.

52.51 Other limitations of the VIEs/TIEs scheme are that is creates market problems. New entrants to the California market would have no VIEs/TIEs under the proposed scheme creating a significant barrier to entry. There have been several new entrants to the transpacific container market in the past few years. Under the proposed regulation, it would be almost impossible for them to enter the California market and grow their business due to the uncertainty new markets bring. Other issues include companies going bankrupt (which, again, has recently happened) that results in competitors attempting to claim that business, but would be virtually impossible without an increase in VIEs/TIEs to match that unexpected growth opportunity.

Commissioning

52.52 The proposed regulation imposes requirements on the vessel operator to seek approval, presumably ahead of time, for a vessel commissioning that requires more than one visit or instances where the terminal requires the vessel to be recommissioned. First, the language should recognize that it is often the port authority that imposes commissioning requirements and not the terminal. Second, an ocean carrier should not be held liable or required to seek CARB approval for imposed commissioning requirements. The ocean carrier has no ability to determine the extent of commissioning or the frequency imposed by a port authority. If CARB wishes to regulate commissioning, it should do so on the responsible party, which is not the ocean carrier. At most, the requirement should be revised to provide a notification to CARB within a specified period, but the ocean carrier's compliance should not be at stake as a result of another party's safety protocols.

52.53 The proposed regulation also places unnecessary burdens on terminal operators. The proposed rule requires that if a vessel is commissioned at a terminal in a given orientation (i.e., starboard or port) that

the terminal may never change operations in a way that would require vessels to berth in a different manner. Terminals must have the ability to modify operations, which can include changing berthing requirements. It is unnecessary for the rule to preclude this. These are commercial and safety decisions that should be left between the terminal operator and ocean carrier. Terminal operators have incentives not to alienate their customers and ocean carriers have multiple terminal options to serve their needs. CARB should not restrict the ability to modify their operations, possibly to the needs of a different ocean carrier.

Reporting Requirements

52.54 Reporting requirements should not be duplicative and data collection should only be sought from the responsible party that produces the data. The proposed regulation has requirements for both terminal operators and ocean carriers to provide the exact same information. In other instances, CARB does not seek information from the responsible party. In some instances, port authorities will have control over power consumption data, and in other instances terminals will have control over power consumption data, yet CARB assigns specific reporting requirements for this to only one party, thereby imposing a burden that some terminal operators may not be capable of fulfilling. CARB should simplify the reporting requirements to reduce redundancy and ensure that the party that actually generates the data is the party responsible for reporting.

52.55 Other reporting requirements include items that are irrelevant to the monitoring of rule compliance. CARB already has an OGV Fuel Rule in place to control and monitor fuel usage in oceangoing vessels within California waters. The proposed regulation needlessly adds reporting requirements that can be obtained through that rule's requirements without adding a permanent, redundant regulatory burden within this rule structure. The fuel reporting aspects of this rule should be eliminated.

52.56 Terminal plan reporting includes a requirement to list each berth with geographic boundary coordinates. Berths are not so precisely defined. As discussed in the Starcrest analysis, what constitutes a berth is dependent on the vessels that call a terminal. As the Starcrest analysis points out, the CARB assessment assumes a static world where vessel sizes do not change, and this reporting requirement reflects that. This reporting requirement should be eliminated and CARB should update the ISOR consistent with the attached analysis.

52.57 In completing all this reporting, the rule provides only seven days for reports to be submitted to CARB. This is too short a timeframe to consistently prepare reporting. CARB should increase the reporting period to 45 days. CARB staff should also work with industry in its development of the proposed online reporting tool. In order to ensure success, the functionality of the online reporting tool should be consistent with industry standard reporting practices.

Alternative Control Technology Provider Responsibilities

52.58 CARB staff have proposed a complex rule that imposes both certification and warranty requirements with multiple emissions standards for alternative control technologies that could be used in place of shore power. Yet the rule places the burden of equipment failure on the vessel and/or terminal

operator. The rule does not establish any VIE/TIE restrictions on alternative control technology operators. CARB-certified and -warrantied technology operators should be held to the same punitive standards as terminal operators and ocean carriers.

Reporting Requirements for General Cargo and Bulk Vessels

52.59 The reporting requirements for general cargo and bulk vessels add a real, quantifiable burden to bulk and general cargo vessel operators, but do not advance any emissions reduction program in California. The State should not impose costly reporting requirements for the sole sake of collecting more information, particularly when there is no planned use for that data. If CARB identifies a future need for such data, it is readily available through alternative sources such as marine exchanges or port authorities. There are even existing regulatory tools in place like the OGV fuel rule that CARB can use to obtain vessel information and ensure significant emission reductions. There is no reasonable basis to place a permanent, costly reporting burden for no measurable or identified benefit.

CARB staff should also be aware that aspects of the rule do not make sense for bulk vessels. For example, while the ready-to-work definition may be appropriate for container vessels, the definition is not appropriate for bulk and general cargo vessels. This is a further reason why the reporting requirements for bulk vessels are burdensome, even if such vessels are exempt from the emission reduction portions of the rule.

Ultimately, increased liability and uncertainty for bulk vessels will only harm California exports, particularly California agriculture that is dependent on bulk vessels to cost-effectively move their products to foreign markets.

Vessel Diversion Is Not Analyzed for Either Its Economic or Environmental Impacts

52.60 The ISOR and SRIA do not properly analyze the possibility of vessel diversions and their economic and environmental impacts. The costs of the rule are not limited to on site infrastructure and labor, ship retrofits or electricity rates, but they also include the value of lost business to local port communities and increased GHGs which occur when vessels are diverted away from the US West Coast.

Already the proposed rule has resulted in cancelled cruise calls to California ports based on prior proposals and the current proposal is only likely to continue that trend. The rule creates a level of uncertainty that vessel operators will find difficult to manage. For cruise and container vessels already frequently calling on California ports, compliance has and will continue to be a success story. But not all vessels call California regularly, much less frequently, which is exactly why CARB built the fleet-size thresholds into the current at berth regulation. The first effects of the elimination of the fleet rule and the fleet-size thresholds are being seen in the cruise industry, where passage is booked much earlier than for freight. As a result, cruise vessels are the “canary in the coal mine” of what can be expected across the maritime industry. Cruise calls that are part of world voyages or transitioning /repositioning voyages (i.e., extremely infrequent California port callers) have already been cancelled for 2020 and 2021. Based on current activity this is expected to impact 19 calls annually (12 in San Francisco, 6 in Los

Angeles and 1 in San Diego), resulting in tens of millions of dollars of economic impact to local communities.

The ISOR and SRIA should evaluate these impacts that have now occurred – they are not speculative – as a result of the proposed regulation and can be expected to broaden to other parts of the maritime industry as ocean carriers avoid California ports due to an inability to plan for rule compliance because of a lack of alternative control strategies and a demonstrated insufficiency of VIEs/TIEs. The simplest approach to address this issue of vessel diversion to return the proposed rule to a fleet average approach with an exception for fleets that have few California calls.

Likewise, with respect to diversion in the container industry, the ISOR should evaluate the global GHG increases and impacts which will occur with diversion of vessels away from the US West Coast. With the substitution of an every-vessel, every-call standard rather than a fleet average. CARB is well aware of and helped to affirm the methodology for the study commissioned by PMSA in 2017 which evaluated GHG impacts associated with container vessel diversions away from California's ports. (http://www.pmsaship.com/pdfs/PMSA%20carbon%20comparison%20context%20piece.pdf)

Relative Cost-Effectiveness Comparisons Between Existing Regulation and Proposed Regulation Are Missing from the ISOR to Help Assess the Need for Elimination and Replacement of Current Rules

52.61 The ISOR completely omits cost-effectiveness comparisons between the current regulation as applied to container, cruise and refrigerated vessels with the additional costs of the newly proposed regulation. We believe that this is a significant omission given the $400+ million price tag for the currently regulated fleets when compared to the relatively minuscule scale of remaining at berth emissions subject to control.

52.62 Further frustrating efforts at potential comparison, the ISOR for the current rule did not use in 2007 a weighted cost-effectiveness methodology, but the 2019 proposed rule ISOR does use a weighted cost-effectiveness. So a casual comparison of the two ISORs for these rules do not yield an apples-to-apples or oranges-to-oranges basis for evaluation. If one were to look at these two ISORs on their face, as apples-to-oranges, the public might conclude that the current regulation is much less cost-effective than the proposed regulation at reducing emissions from container and cruise vessels, even though the proposed regulations reduce only a very small amount of emissions in comparison to the existing rules.

PMSA has attempted to do an apples-to-apples cost-effectiveness comparison of the two rules. Utilizing the 2007 methodology, which is unweighted and instead assigns half costs to NOx control and half costs to DPM control to acknowledge the dual purposes of and effects of the rule. By our estimation the cost-effectiveness of the current regulation for container vessels calling at the Port of Oakland is roughly 10x more costly under the proposed rule than under the existing regulation. See Attachment E.

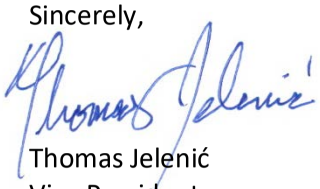
PMSA respectfully requests that CARB perform new cost-effectiveness calculations for all Ports, fleets, and sources utilizing the same methodology as the 2007 ISOR, to yield an apples-to-apples comparison, or reperform all 2007 cost-effectiveness data to the 2019 ISOR methodology, to yield an oranges-to-

oranges comparison, in order to effectively allow the public and Board to see the actual cost-effectiveness levels of the proposed regulation.

Conclusion

PMSA looks forward to continuing to work with CARB staff to improve the current proposal and to work on making discrete, effective, and surgical amendments to the existing at berth regulations through amendment, rather than deleting them off the books and starting entirely fresh with a brand new rule. As an industry which has invested billions of dollars in cleaning the air in California with tremendous success, we want to continue to partner with CARB to protect our investment in clean air, to improve existing compliance methodologies under the current regulation, and to continue to make progress towards the most cost-effective emissions reductions possible which achieve the best public health outcomes. The current proposal does not represent these goals, but we hope to have a regulation before the Board for its consideration which has our support which does result in the achievement of these common goals that we share.

Sincerely,



Thomas Jelenić
Vice President

Attachments

Attachment A: Technical Analysis: California Air Resources Board's Proposed Airborne Toxic Control Measure for Auxiliary Diesel Engines Operated on Ocean-Going Vessels At Berth in a California Port, December 2019
Attachment B: CARB At-Berth Regulation Cost Effectiveness Analysis for Auto Carriers and RoRo Ships at Port of Long Beach & Port of Los Angeles, December 2019
Attachment C: SRIA – Air Resources Board, Proposed Control Measure for Ocean-Going Vessels At Berth, August 26, 2019
Attachment D: Alternative Proposal for Amendments to At-Berth Regulations, February 15, 2019
Attachment E: Port of Oakland Cost-Effectiveness Comparison

Attachment A:
Starcrest Consulting Group
Technical Analysis: California Air Resources Board's Proposed Airborne Toxic Control Measure for Auxiliary Diesel Engines Operated on Ocean-Going Vessels At Berth in a California Port
December 2019

Technical Analysis: California Air Resources Board's Proposed Airborne Toxic Control Measure for Auxiliary Diesel Engines Operated on Ocean-Going Vessels At Berth in a California Port

Prepared for Pacific Merchant Shipping Association
December 2019

PMSA
PACIFIC MERCHANT SHIPPING ASSOCIATION

Prepared by:
STARCREST CONSULTING GROUP, LLC

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1.0 INTRODUCTION

The California Air Resources Board (CARB) has proposed amending its regulation, "Airborne Toxic Control Measures for Auxiliary Diesel Engines Operated on Ocean-Going Vessels At Berth in a California Port," otherwise known as the "At-Berth Rule." In October 2019, CARB released several documents to support the proposed regulation, including the proposed regulatory language, emissions calculations, the Initial Statement of Reasons (ISOR) and the Statewide Regulatory Impact Assessment (SRIA), among others.

The proposed regulation is intended, according to CARB, to address implementation issues with the existing at-berth regulation and to secure additional emission reductions from new vessel types. Vessels and terminals must use a CARB-approved control strategy to comply, which includes shore power or CARB-certified barge- and land-based control systems. CARB states the total cost of this regulation is $2.164 billion with $2.245 billion in health care benefits.

The proposed regulation includes the following elements:

- 100% control requirement beginning in 2021 for all container, reefer and cruise fleets with no exceptions for small fleets (previously unregulated fleets have until 2023 to comply);
- 100% control requirement beginning in 2025 for Ro-Ro and 2027 for tanker vessels in San Pedro Bay, 2029 for all other tankers
- 1 hour to begin emissions control from the time the vessel is "Ready to Work."
- Exceptions for safety events and commissioning as well as Terminal Incident Events (TIEs) and Vessel Incident Events (VIEs); TIEs are limited to 15% of a terminal's calls until 2024, then 5% of calls, and VIEs are limited to 5% of a vessel fleet's calls indefinitely.
- Payments into a remediation fund

1.1 Project Goals

PMSA retained Starcrest Consulting Group to conduct a technical analysis to validate CARB's technical assumptions; and, where assumptions cannot be validated, identify alternative assumptions supported by publicly available data and industry sources; and to analyze the impact of these revised assumptions on the regulation's outcomes. This analysis examines CARB's assumptions in the following areas:

- Technology
- Operations (Including Timeline)
- Infrastructure
- Cost
- Emissions
- Environmental Impacts

This report presents conclusions that may differ from those presented in the October documents released by CARB; our conclusions could change if CARB subsequently provides further clarification or new information.

1.2 About Starcrest Consulting Group, LLC

This technical analysis was prepared by Starcrest Consulting Group, LLC. Starcrest is dedicated to providing high quality technical, policy, and programmatic services in the field of air quality specifically as it relates to seaports and the maritime industry. Formed in 1997, Starcrest offers its unique perspective in resolving port- and maritime-related air quality and carbon emission issues by applying our extensive project experience and diverse professional backgrounds. Starcrest has conducted 50 port-related emissions inventories nationwide since 1997. It is widely considered an international expert in calculating, assessing, and identifying emissions associated with shipping.

2.0 DATA INCONSISTENCIES

This report relies primarily on data from CARB's own documents: ISOR, SRIA, Berth Analysis, Draft Environmental Assessment (Draft EA), Cost Analysis Workbook, and Emissions Inventory Spreadsheet. In some cases, this report uses information from publicly available documents, such as the emissions inventories from Port of Los Angeles and Port of Long Beach, and information provided by industry sources to Pacific Merchant Shipping Association.

Of note, we found several inconsistencies within CARB's documents, as noted below:

52.A.1

Vessel Visits and Newly Regulated Visits: In the cost analysis, CARB presents one set of numbers for total container/reefer vessel visits and newly regulated container/reefer visits; in the ISOR Table III-6, another set of numbers is used, as seen in Table 1. Additionally, CARB uses still another set of numbers to estimate emissions, assuming that roughly 25% of container/reefer at-berth hours are currently unregulated and will become newly regulated under the proposed regulation. The issues associated with these numbers, namely the inconsistency of these data with other publicly accessible datasets, is described in Section 0. All of these numbers vary significantly and using one set of numbers over the others will change the impacts. If the dataset used for the emissions analysis is correct, a large percentage of the fleet is currently unregulated and the proposed regulation will significantly increase emission reductions; however, this also means that a large number of vessels will need to control emissions at berth, driving up costs. If the dataset used for the cost analysis is correct, and most of the fleet is already regulated, the costs will be lower, but the emissions benefit also will decrease. CARB needs to clarify which numbers it used and remain consistent throughout all analyses.

Table 1: Data Inconsistencies in Annual Container/Reefer Vessel Visits and Newly Regulated Visits

	Cost Analysis		Table III-6	
Port	All Annual Vessel Visits	B. Newly Regulated Annual Vessel Visits - Unadjusted	All Annual Vessel Visits Proposed Regulation	New Visits with Control Requirements
Los Angeles	1029	123	1039	80
Long Beach	909	89	854	45
Oakland	1597	191	1481	127
San Diego	52	0	51	0
Hueneme	155	0	108	0
Total	**3742**	**403**	**3533**	**252**

52.A.2

Unique Vessels Needing Shore Power Retrofits: In the ISOR, CARB states that roughly 36 container/reefer/cruise vessels are in fleets not subject to the existing at-berth regulation and would require shore-power equipment retrofits (ISOR, III-11); however, in the Cost Analysis Workbook, CARB assumes that 57 additional unique container/reefer vessels and 26 additional cruise vessels would install shore-power equipment due to the new regulation (tab: "Berths, Terminals, Vessels"). It is possible the delta between these two numbers (47) represents the number of vessels in currently regulated fleets that would require retrofit, but it is not clear. CARB should clarify its estimates.

52.A.3

Harbor Craft Emissions: Barge-based control systems require tugboats to move them into position. CARB analyzes these emissions in the Draft EA but does not appear to have included these emissions in the ISOR regulatory analysis.

Vessel Growth: CARB acknowledges the increase in vessel size and activity when calculating emissions, at least for POLA and POLB, but does not factor this assumption into the berth analysis.

52.A.4

Wharf Improvements at RoRo Terminals: In the Draft EA, CARB assumes wharf improvements and electrical infrastructure upgrades when evaluating the construction emissions associated with land-side control systems at RoRo terminals; however, CARB does not assume these improvements for the cost analysis.

Where possible, we tried to reconcile these inconsistencies with other datasets or to parse out the numbers used in CARB's analyses; however, CARB's use of various datasets and numbers across multiple documents made it difficult to determine the exact metric used for a particular outcome, which in turn made it difficult to assess the real impact of the proposed regulation.

Should CARB clarify these inconsistencies, our conclusions may change.

3.0 TECHNOLOGY ASSUMPTIONS

Implementation of the proposed regulation is highly dependent on the development of new technologies to control at-berth emissions, particularly for RoRo and tanker vessels. By necessity, CARB makes a number of assumptions about these as-yet-developed technologies; several assumptions could benefit from additional justification, as described below.

52.A.5

- **Certified land-based capture and control systems do not exist today.** Compliance for RoRo terminals is predicated on the development of certified land-based capture and control systems, which do not exist today. CARB references a single "prototype" unit at the Port of Los Angeles (ISOR, I-33). Although CARB states the various component parts already exist, these components have not been integrated or marinized for use in the harsh port environment. Additionally, these control systems must be able to reach RoRo vessels of various sizes and configurations, which has not been evaluated, nor have such systems been tested in different terminal operating configurations; some RoRo terminals use the entire wharf for staging, maneuvering, and parking cargo, leaving little room for control systems. Technology developers will need to design, construct, test, and certify these new systems in a 5-year window; today's barge-based systems took nearly 10 years to complete this path.

52.A.6

- **Grid-neutral barge-based control systems may require batteries or fuel cells, which will make these systems larger and heavier than today's generation.** No new control system will be approved unless it is grid-neutral, and even the existing grandfathered systems will need to be grid-neutral by 2025. Technology developers may design for this requirement using batteries or fuel cells (ISOR, ES-26). These power systems may result in larger barges that pose a more significant navigational hazard, forcing some terminals to shift toward land-based systems, which is not contemplated in the regulatory analysis.

52.A.7a

  - **Charging Infrastructure:** CARB has not accounted for the potential need to recharge battery-powered systems when not in use. The barge-based systems will need wharf space with electrical outlets, and these costs are not reflected in the analysis.

52.A.7b

  - **Renewable Fuels:** Should CARB assume that renewable fuels will sufficiently meet the grid-neutral requirement, CARB should provide an assessment of the availability of renewable diesel or renewable natural gas with the technical specifications required for marine engines and include renewable fuel infrastructure in the cost analysis and implementation timeline.

52.A.8

- **CARB assumes control systems at RoRo terminals will be similar in size and scope to the existing land-based and barge-based control systems.** CARB should further evaluate the significant technological and infrastructure modifications that will be necessary to make today's systems grid-neutral by 2025. CARB projects these technologies will shift to grid-tied electric, battery- or fuel-cell powered to meet this requirement (ISOR, I-33), or transition to renewable fuels, but neither the cost analysis nor timeline reflects this assumption.

52.A.9

- **CARB cites cable-reel management systems as a potential solution with limited evidence.** Although CARB references cable-reel systems to potentially enhance shore-power access (ISOR, III-12), the Berth Analysis identifies that nearly every existing cable-reel system has not or cannot be used due to design flaws, wharf restrictions, or other operational constraints. Additionally, these systems have not been certified to longshore labor requirements or international shore-power standards. Absent additional technology development and wharf improvements, cable-reel systems may not provide additional compliance options.

4.0 OPERATIONAL AND TIMELINE ASSUMPTIONS

The proposed regulation includes elements that may not reflect operational realities or feasible implementation timelines. Where possible, CARB may want to clarify the rationale behind the elements noted below, particularly where other data conflict.

52.A.10

- **Access to shared barge-based systems assumes on-time vessel arrivals and departures and harbor craft availability, which may not always occur.** Vessels are often delayed due to weather or other scheduling conflicts. Additionally, tugs may not be available to deploy a barge-based system when needed, especially if a vessel is delayed. If a vessel is planning to use a barge-based control system for compliance and is then delayed, that control system may not be available for use. The unpredictable nature of vessel schedules could force operators to use VIEs or pay into the remediation fund despite full efforts to comply, or it may force terminal operators and ports to invest in back-up systems, which are not accounted for in the cost analysis.

52.A.11

- **CARB imposes a 1-hour connection timeframe for shore power, which could pose safety issues.** CARB has not provided justification for the selection of a one-hour timeframe to connect and disconnect shore power. For San Pedro Bay Ports, in 2017 and 2018, the average connect and disconnect time for container vessels was between 5 and 5.5 hours with a median time of roughly 3 hours. Table 2 shows the general statistics of auxiliary engine "on" time in 2018. It should be noted that the engine "on" time included in the table is from the time the vessel arrived at berth including the time it took for events such as positioning, first time commissioning or Customs clearance.

Table 2: Port of Los Angeles and Port of Long Beach Auxiliary Engine "On" Time – 2018

Port	Average Time hours	Median Time hours
POLA	5.55	3.27
POLB	5.04	2.6

Note: These data are informational from the Ports emissions inventories and should not be used to assess shore power compliance.

52.A.12

- **Shore power is the only compliance option for Port of Oakland.** Due to navigational constraints, CARB assumes any vessel visiting Oakland must use shore power, even if the vessel visits only once a year (SRIA, 73). This situation seems to conflict with CARB's stated goal of allowing flexibility for ports and operators to devise tailored compliance solutions. Additionally, CARB should evaluate the cost-effectiveness of shore power for this port, given the unique constraints.

52.A.13

- **At the outset, there may be a shortage of TIEs/VIEs owing to known infrastructure deficiencies and infrequent vessel visits not likely to retrofit for shore power.** Although CARB allows fleets and terminals to use TIEs/VIEs or potentially pay into the remediation fund if a vessel cannot connect to shore power, there are some terminals and container/reefer fleets projected to exhaust these exceptions at the outset, as shown in Table 3. These exceptions owe to the known infrastructure deficiencies at some terminals, which could limit shore power access, and to the infrequent callers unlikely to install shore-power equipment. Of note, the following information was taken from CARB's Berth Analysis, which represents CARB staff's research; Starcrest has not independently validated this information, and terminal operators may have different information not reflected in CARB's Berth Analysis and thus not known to Starcrest.

52.A.14a

  - **Known Infrastructure Deficiencies:** In the Berth Analysis, CARB notes that several terminals do not have sufficient shore-power infrastructure at the berth. In Long Beach, G235 has a shore-power installation built for a very specific vessel type, which is not compatible with all vessels, and Pier G may need to use TIEs for these 25 calls. At Pier T, the berth can only provide shore power to 3 ships at once, resulting in the potential for TIE usage. In Los Angeles and Oakland, CARB has identified the need for 5 new vaults total; until these vaults are constructed, it is likely these terminals will need to use TIEs. In total, 412 visits are at risk of using TIEs early on due to limited shore-power infrastructure, yet these terminals only have 253 TIEs to use.

52.A.14b

  - **Infrequent Callers.** CARB has calculated the number of infrequent callers unlikely to install vessel-side shore power equipment (less than 3 calls annually in Long Beach and Los Angeles and less than 4 calls annually for all other ports; all vessels calling Oakland are assumed to install shore power).[1] These calls will need to use VIEs, or a barge-based control system, which as discussed in Comment 0.□, may not be available right away. As shown in Table 3, at many terminals, there is projected to be a shortage of VIEs.[2]

Of note, for the terminals and fleets projected to face a shortage of TIEs/VIEs, this analysis assumes perfect compliance on all other calls, which is unlikely to occur. Thus, this analysis may understate the shortages. Indeed, some fleets, such as those calling Pier E in Long Beach, are already close to the VIE limit (4 allowable VIEs, 3 visits unlikely to install equipment), and other exception events could quickly force these fleets over the threshold.

[1] Standardized Regulatory Impact Assessment, page 73.
[2] We are calculating TIEs and VIEs in the same manner as CARB – as a straight percentage of number of calls. We recognize the actual number of VIEs may vary depending on how the fleets organize themselves at each port.

Table 3: Projected TIE and VIE Usage at the Start of the Regulation

Port	Container/ Reefer Visits	No. of Berths	No. of Vessels Able to Use Shore Power Concurrently	Known Deficiencies	Vessel Visits At Risk of Not Being Able to Access Shore Power	Allowable TIEs	Shortage of TIEs	Visits from Infrequent Vessels Not Likely to Install Shore Power	Allowable VIEs	Shortage of VIEs
Hueneme	155	3	3	None	0	23	No	0	8	N/A
Long Beach - Pier A	225	3	3	None	0	34	No	14	11	**Yes**
Long Beach - Pier C	82	2	2	None	0	12	No	0	4	No
Long Beach - Pier E	83	3	3	None	0	12	No	3	4	**No**
Long Beach - Pier G	146	3	2	G235 has limited shore power for a specific vessel type.	25	22	**Yes**	2	7	No
Long Beach - Pier J	138	4	4	None	0	21	No	11	7	**Yes**
Long Beach - Pier T	235	4	3	Can only plug in 3 ships at a time.	58	35	Yes	4	12	No
Los Angeles - APM	202	5	5	None	0	30	No	3	10	**No**
Los Angeles - Everport	142	2	2	None	0	21	No	2	7	No
Los Angeles - Fenix	132	4	4	None	0	20	No	10	7	**Yes**
Los Angeles - TraPac	99	3	3	None	0	15	**No**	1	5	No
Los Angeles - WBCT	233	4	4	2 additional vaults needed.	115	35	**Yes**	3	12	No
Los Angeles - Yusen	221	3	3	None	0	33	No	2	11	No
Oakland - Everport	153	2	2	None	0	23	No	N/A	8	**N/A**
Oakland - Matson	107	3	3	None	0	16	No	N/A	5	N/A
Oakland - OICT	1072	5	5	3 additional vaults needed	214.4	161	Yes	N/A	54	**N/A**
Oakland - TraPac	265	2	2	None	0	40	**No**	N/A	13	N/A
San Diego	52	3	1	Can only plug in 1 ship at a time. No overlap days in 2017.	0	8	No	0	3	No
TOTAL	**3742**	**58**	**54**		**412**	**561**	**4 terminals**	**55**	**187**	**3 fleets**

*CARB notes it needs to confirm how many vessels can plug in at same time at POLA Yusen and Fenix; for this analysis, assumed all berths have shore power.

Information Sources:
Container/Reefer Visits = CARB Berth Analysis
No. of Berths = CARB Berth Analysis
No. of Vessels Able to Use Power Concurrently = CARB Berth Analysis
Known Deficiencies = CARB Berth Analysis
Vessel Visits at Risk of Not Being Able to Access Shore Power = Calculated; number of visits to the berth that has a deficiency, or where number of visits to the deficient berth is not specified, total terminal visits/number of active berths
Allowable TIEs = Calculation; 15% of terminal visits
Shortage of TIEs = Calculation; Yes = number of vessel visits at risk of not being able to access shore power > allowable TIEs
Visits from Infrequent Vessels Not Likely to Install Shore Power = CARB Berth Analysis
Allowable VIEs = Calculation; 5% of total terminal visits
Shortage of VIEs = Calculation; Yes = number of visits from infrequent vessels not likely to install shore power > allowable VIEs

Assumptions and Notes
Scenarios represent 2021-2024 timeframe. Assume infrastructure deficiencies are remedied by 2024, and there would be no change in VIE percentages.
Assumes failure to provide shore power infrastructure is terminal responsibility (TIE).
Assumes failure to retrofit for shore power is vessel responsibility (VIE).
Vessels at risk of not using shore power could also use a barge-based control system.

- **The January 1, 2021, implementation timeline for container/reefer vessels in fleets currently subject to the regulation will not provide sufficient time for infrastructure buildout, control-system development and vessel retrofits.** For fleets subject to the current regulation, new requirements for 100% shore power begin January 1, 2021. Assuming passage of the regulation in May 2020, this timeline leaves roughly 8 months to meet the additional requirements. CARB has identified a number of infrastructure, control system, and vessel equipment improvements that would need to occur for 100% compliance, or else these vessels/terminals would need to use TIEs/VIEs or pay into the remediation fund. As shown in Table 4, these various improvements are likely to run past the January 1, 2021, deadline.

52.A.15a

- **New Shore Power Vaults:** CARB identified the need for 5 new shore-power vaults statewide to improve the connection rate. CARB assumes 4 months to construct a new vault (Draft EA); however, this estimate omits design, permitting, and procurement and understates construction time. Vault installation projects take closer to 31 months, including design, procurement, and construction, according to publicly available documents describing actual projects of this scope.[3]

52.A.15b

- **New Shore Power Berth:** The Port of San Francisco requires a new shore power berth to accommodate cruise vessels. These projects take roughly 4 years based on publicly available data for projects of similar scope.[4]

52.A.15c

- **New Barge-Based Control System:** CARB identified the need for 1 additional barge-based control system in Long Beach/Los Angeles for infrequent container/reefer callers. CARB estimates it takes at least 2 years for construction of these systems (ISOR).

52.A.15d

- **Vessel Retrofits:** CARB identified that 57 container vessels and 26 cruise vessels (total of 83) would need to be retrofitted for shore power (Cost Analysis Workbook). It is unclear how many of these vessels are in fleets currently subject to the regulation; however, in the ISOR, CARB states that 36 unique vessels without shore power are in fleets not subject to the existing rule (III-11), suggesting that 47 vessels (83-36=47) are in currently regulated fleets and would need to be retrofitted for shore power by January 1, 2021. This conclusion could change should CARB clarify its numbers. CARB allots an extra 2 years for unregulated fleets to install shore power on their vessels, indicating a 2-year retrofit timeframe.

[3] Port of Long Beach Harbor Commission Agenda, November 26, 2018: Modification of Existing Shore Power Vault at Pier T. Indicates that design takes 13-15 months, procurement and contracting takes 10 months, construction takes 10 months.

[4] Port of Long Beach Harbor Commission Agenda, April 12, 2010: Award of Design Contract for New Shore Power Berth at Pier A; Port of Long Beach Harbor Commission Agenda, May 14, 2012: Award of Construction Contract for New Shore Power Berths, demonstrating construction completion by December 31, 2013 for a total of 4 years, including design, procurement, construction, and testing.

These timelines suggest there could be a significant delay in the ability of currently regulated fleets to meet 100% compliance by January 1, 2021. During this delay, fleets and terminals can use TIEs, VIEs, or pay into the remediation fund. Alternative control systems will not be an option, as these systems also must be developed and are not feasible in all ports. Additionally, for some terminals and fleets, TIEs or VIEs may be quickly exhausted, as discussed in Comment 0.□ .

Table 4: Projected Completion Dates to Meet 100% Compliance, Currently Regulated Fleet

Activity	Quantity Needed	Completion Date
Shore Power Infrastructure - Vaults	5	December 2023
Shore Power Infrastructure - Berths	1	May 2024
Barge-Based Control System Construction	1	May 2022
Vessel Retrofits	47	May 2022
At-Berth Regulation Effective for Current Fleets		**January 1, 2021**

Parameters:
The time to construct a shore power vault is roughly 31 months.
The time to construct a shore power berth is 4 years, including design and procurement.
The time to retrofit a vessel is 2 years.
The time to construct a barge-based system is 2 years.
Start date is May 1, 2020.

52.A.16

- **The berth analysis reveals that a number of RoRo visits will remain uncontrolled and not accounted for with TIEs/VIEs due to overlapping vessel berthing.** CARB does not assume one control system for each RoRo berth but rather a mix of dedicated and shared control systems as well as some berths with no control system at all. As a result, some vessel visits will not be controlled because, as noted in the Berth Analysis, many visits occur at the same time and thus will not have access to a control system. Additionally, there will not be enough TIEs or VIEs to cover all of these exceptions (see Table 5). Note, terminals and vessels will need to use their TIEs/VIEs for other unforeseen events, such as routine equipment maintenance or inspections. As a result, this table understates the shortages.
-
  - To ensure 100% coverage, the state needs at least 17 control systems, not 9, as shown in Table 5, which significantly increases costs and the implementation timeline.
  - Or, CARB could assume that some visits, particularly at Port of Hueneme, will be out of compliance at the start of the regulation; such visits should be deducted from the emissions benefits and/or included in the remediation fund costs.

Table 5: Uncontrolled RoRo Vessel Visits and Control System Quantities for 100% Coverage

Port	Ro-Ro Visits	CARB Assumption: Number of Control Systems Needed	1 Berth In Use (# of days)	2 Berths in Use (# of days)	3 Berths in Use (# of days)	Uncontrolled Visits	Allowable TIEs or VIEs (2021-2024)	Allowable TIEs or VIEs (2025+)	Shortage of TIEs/VIEs	Number of Control Systems Needed for Full Coverage
Carquinez	122	1 (barge)	105	3	0	3	6	6	No	2
Hueneme - Wharf 1	19	none[1]	19	0	0	19	1	1	**Yes**	1
Hueneme - Wharf 2	212	1 (land)	213	31	2	33	32	11	**Yes**	3
Hueneme - Wharf 3	9	none[2]	9	0	0	9	0	0	**Yes**	1
Long Beach - Cooper T.	47	1 (barge)	98	15	0	15	5	5	**Yes**	2
Long Beach - Crescent	60									
Long Beach - Toyota	104	1 (land)	104	0	0	0	16	5	No	1
Los Angeles	94	1 (barge)	128	2	0	2	5	5	No	2
Richmond	71	1 (barge)	71	0	0	0	4	4	No	1
San Diego - Berths 2, 4, 5	201	1 (barge)	177	73	7	80	38	13	**Yes**	3
San Diego - Berths 10,11	52	1 (land)								
San Francisco	26	1 (barge)	26	0	0	0	1	1	No	1
Total	**1017**	**9**	**950**	**124**	**9**	**161**	**108**	**51**		**17**

[1] CARB states this berth is outfitted with shore power; unclear if ro-ros would use shore power.

[2] CARB proposes operational changes to avoid berthing vessels here.

[3] It is not clear which berths have overlapping visits; the uncontrolled visits could range from as little as 7 to as high as 80.

Assumptions

One day of overlapping berth usage equates to one uncontrolled visit. It may be only a portion of the visit is uncontrolled, but there is no way to know.
Where the assumed control system is land-based, assume TIE. Where barge-based, assume VIE. Where no control system proposed, assume VIE.
TIEs allowable 2021-2024 = 15% of visits; TIEs allowable 2025+= 5%.
A control system can service only one vessel at a time.
Where CARB has not identified a control strategy, all of those visits are uncontrolled.

5.0 INFRASTRUCTURE

In order to estimate the costs and implementation timeline of the proposed regulation, CARB made assumptions about the likely compliance path for each regulated port. These scenarios are found in the Berth Analysis, which is the basis of the cost analysis; as a result, erroneous assumptions or omissions in the Berth Analysis can have significant impacts on the projected costs and timeline of this proposed regulation. The following assumptions could benefit from additional justification, particularly where contrary data exist.

- **The berth analysis assumes no change in vessel size or operating conditions over the next 12 years.** The berth analysis assumes that shore power infrastructure suitable for today's fleet will be suitable for the 2032 fleet. As the ISOR indicates, since 2014, Ports have had to make significant investments in new shore power vaults and in some cases have lost berths entirely due to the rapid increase in vessel size between the adoption of the original at-berth regulation and implementation. This trend is expected to continue. CARB's berth analysis is based on an average container vessel size of 4,000 to 13,000 TEU in Los Angeles/Long Beach. By 2030, the Mercator report projects an average size of 10,000 to 16,000 TEU ships. Ports will need to modify and potentially add new shore power infrastructure to account for these changes, which should be reflected in CARB's analysis.

52.A.17

- **Information contained in the berth analysis does not always support CARB's conclusions.** In the following instances, CARB does not account for information that pointed to the need for additional or different infrastructure; thus, it is unclear how CARB arrived at its projected compliance scenarios:

  - **Long Beach:** CARB staff noted that Berth G235 has limited shore-power infrastructure designed for a specific vessel type and berthing position. Still, CARB concludes this berth requires no additional infrastructure.

52.A.18a

  - **San Diego**: Only one cruise vessel can plug in at any given time. Although CARB notes that two vessels are berthed concurrently 13 days of the year, CARB does not assume additional shore-power infrastructure here.

52.A.18b

  - **Carquinez**: The terminal operator notes that land-side and barge-based control systems may not be feasible due to cargo movement constraints and strong currents; however, CARB cites information from harbor pilots, who did not have concerns about a barge-based system if properly designed. Amid these conflicting accounts, CARB agreed with the harbor pilots to conclude that a barge-based system would be feasible rather than taking a more conservative approach.

52.A.18c

  - **Hueneme:** CARB assumes the RoRo terminal will use existing shore power installations at Wharf 1, even though CARB acknowledges the inherent challenges of shore power for RoRo vessels (ISOR, III-15).

52.A.18d

  - **Hueneme:** CARB assumes no infrastructure at Wharf 3 to control the RoRo vessels, instead proposing "operational changes" to berth these vessels elsewhere.

52.A.18e

- **Visual assessments of a wharf are not an accurate measure of what is feasible at a given terminal.** At several ports, CARB relies on Google Maps and its own staff's visual assessments to determine the likely compliance scenario. For example, in Long Beach, CARB assumes a land-based control system at Toyota based on looking at maps of the wharf, and in San Diego, CARB concludes that barge-based systems "look to fit…with no navigational concerns" at many berths. The accuracy of this approach has not been verified. Additionally, this approach does not consider the contractual constraints that may exist at a given terminal; for example, at some terminals, the operator may not have preferential berth access or must vacate the berth at the request of the lease holder, which may prevent development of a land-side control system.

- **Due to the inexperience with barge-based control systems, it may be inappropriate to rely on the opinions of harbor pilots.** Only two barge-based control systems exist, both operating in the same port complex. Harbor pilots in other ports are largely unfamiliar with the existing systems and have no familiarity with the systems yet to be developed. Without more data, it is difficult for pilots to know the true impact on navigational access.

52.A.18f

- **CARB has not accounted for supportive infrastructure, including berth space, for barge-based control systems.** Barge-based control systems must be safely berthed while not in use and will require wharf space for repairs, testing, and exchange of personnel. Many ports do not have vacant wharf space for the significant projected increase in barges, as many as 7 barge-based systems in Los Angeles/Long Beach (2 existing units, 1 new system for container ships, and 4 new systems projected for full coverage of RoRo visits).

6.0 COST ASSUMPTIONS

CARB has calculated a total cost of the proposed regulation as $2.164 billion, as articulated in the Standard Regulatory Impact Assessment (SRIA) with data inputs provided in the Cost Analysis Spreadsheet.

52.A.19a

52.A.19b

- **CARB has underestimated the hourly costs for barge-based capture and control systems.** CARB assumes $900 an hour for barge-based capture and control systems. This cost is based on an anonymous quote from one technology vendor to CARB; however, actual invoices provided by shipping lines indicate much higher rates (Attachment A). In addition to straight hourly rates as high as $1,100, these invoices point to additional charges and vendor-imposed 24-hour minimums, which effectively raises the hourly rate on short calls. At these higher rates, using CARB's assumption of a 20-hour average RoRo call statewide, the cost for a visit is as much as $28,440, far higher than the $18,000 CARB would assume (see **Error! Reference source not found.**). Additionally, at the highest effective rate, the total cost of the proposed regulation for RoRos (not assuming growth) is $231 million compared to CARB's assumption of $128 million, assuming a 20-hour at-berth average.[5] Further, in a separate study of barge-based control system costs at the Port of Long Beach and Port of Los Angeles, Starcrest found even higher hourly rates based on a 17-hour at-berth time, which is the average in San Pedro Bay.[6] This study suggests that per-hour costs will be even higher for some fleets and ports with shorter calls.

Table 6: RoRo Control Costs With Varied Hourly Rates

52.A.19c

Statewide Average - 20-Hr Call		
Hourly Rate	**Total Cost – RoRo Visit**	**Rate Source (assumes/indicated all inclusive)**
$900	$18,000	CARB SRIA Excel - "Cost Input Tab"
$1,080	$21,600	$900/hr for 20 hr call (avg.), includes 24-hr min. charge (Receipt #4)
$1,100	$22,000	Receipt #2, Attachment A
$1,208	$24,160	Receipt #1, Attachment A
$1,320	$26,400	$1,100/hr for 20 hr call (avg.), includes 24-hr min. charge
$1,422	$28,440	Receipt #3
San Pedro Bay Ports Average - 17-Hr Call		
Hourly Rate	**Total Cost - RoRo Visit**	**Rate Source (assumes/indicated all inclusive)**
$900	$15,300	CARB SRIA Excel - "Cost Input Tab"
$1,100	$18,700	Receipt #2, Attachment A
$1,208	$20,536	Receipt #1, Attachment A
$1,270	$21,600	$900/hr for 17 hr call (avg.), includes 24-hr min. charge (Receipt #4)
$1,422	$24,174	Receipt #3
$1,552	$26,400	$1,100/hr for 17 hr call (avg.), includes 24-hr min. charge

[5] Assumes 100% control of the 1,017 annual RoRo visits at $28,440 a visit for 8 years.
[6] "CARB At -Berth Regulation Cost Effectiveness Analysis for Auto Carriers and RoRo Ships at Port of Long Beach & Port of Los Angeles," December 2019.

➢ **The CARB cost analysis assumes no wharf upgrades for land-based capture and control systems at RoRo terminals.** Across documents, CARB presents various assumptions for whether RoRo terminals would require wharf upgrades to support land-based control systems. CARB should clarify its assumptions.

52.A.20a

- **Contrary Data:** CARB assumes RoRo terminals will not require wharf improvements for land-based capture and control systems (ISOR, IX-11); however, in Attachment B of the Draft Environmental Assessment (Air Quality Calculations), CARB calculates construction-related emissions from land-based control systems assuming these systems will tie into the grid and require wharf improvements and electrical infrastructure.

52.A.20b

- **Need for Electric Infrastructure:** Land-based capture and control systems are going to be built for the 2025 standard of grid-neutrality, which means they are likely to be powered by electricity to take advantage of fuel cost savings.

52.A.20c

- **Lack of Electrical Infrastructure:** Of note, RoRo terminals do not have a large amount of existing electrical equipment at the wharf, as noted by CARB (ISOR, page III-14). As a result, there are likely to be substantial electrical improvements needed to support land-based capture and control systems at RoRo terminals, including bringing additional power down to the terminals, which has been proven to be extremely expensive and time consuming to date, totaling tens of millions of dollars in San Pedro Bay alone.

52.A.20d

- **Structural Improvements:** Additionally, wharves are likely to need additional structural support to carry the weight of such systems, as CARB notes here for RoRo terminals: "Land-side systems may require some wharf infrastructure improvements due to the weight of the system (around 120,000 pounds) if existing wharf infrastructure is not adequate" (ISOR, III-16). The CARB-funded demonstration of a land-based control system at the Pasha Terminal points to the need for wharf strengthening at RoRo terminals. Land-based control systems will require large cranes to reach the ship stacks, and even at the Pasha terminal, which was designed for heavy on- and off-loading cranes, the Port of Los Angeles required a special permit to ensure the ShoreKat system did not damage the dock. Most RoRo terminals do not use cranes and are thus unlikely to have sufficient wharf support for this additional weight. Despite this evidence, CARB does not account for wharf improvements in the cost analysis or timeline. CARB assumes more than $50 million in wharf upgrades per berth for tanker-terminal land-based systems; RoRo terminals will likely incur similar costs.

52.A.21

➢ **CARB assumes no labor costs for operating land-based capture and control systems.** Similar to shore power, terminals are likely to use longshore labor to connect land-based capture and control systems. That has been the case at the Pasha terminal in Los Angeles, which is demonstrating the state's only land-based control system for non-container vessels and has seen a net labor increase as a result of its operation. For land-based systems at tanker terminals, CARB assumes $1 million annually per berth (Cost Analysis Workbook). There is no reason to believe RoRo terminals would be any different. Thus, at minimum, CARB should assume $1 million per berth annually for the 3 RoRo land-based control systems included in the Berth Analysis, which equates to an additional $24 million over the 8-year regulatory analysis period.

52.A.22

- **The non-annualized costs of this regulation point to a significant, concentrated expense in three 1-year periods, which may not be feasible for the industry.** In 2020, the industry will incur nearly $170 million in costs; in 2024, the industry will incur nearly $580 million in costs; and in 2026, the industry will incur $1.1 billion in costs. Contrary to CARB's methodology, previous at-berth projects, including shore power, were not financed over time but rather were incurred as one-time expenses partially offset with public subsidies (e.g., Proposition 1B, Carl Moyer Program, grants for barge-based systems).

52.A.22a

  - As the Department of Finance notes, considering the costs as one-time expenses in a given year rather than annualized costs dramatically changes the impacts. CARB cites two example ports – Port of Long Beach and Port of Hueneme. Using annualized costs, CARB asserts the proposed regulation would amount to 5% of Long Beach's annual operating revenues and 2% of Hueneme's annual operating revenues. But when considering the years in which most costs would incur (2026 for Long Beach and 2024 for Hueneme), the proposed regulation would amount to 23% of Long Beach's operating revenue and 15% of Hueneme's operating revenues in that year.

52.A.23

- **CARB does not account for the capital costs of barge-based capture and control systems.** For purposes of the cost analysis, CARB assumes a $900 per hour rate for vessel operators to use these systems; however, in the direct cost analysis, CARB omits the capital costs of developing these systems ($4.9 million according to CARB's estimates), which are borne by some entity – either the technology developers, terminals, or ports. These costs should be factored into the direct cost analysis.

52.A.23a

  - To date, no at-berth capture and control system has been privately funded; all of the existing systems have received significant public subsidy. CARB should evaluate the lack of private investment for these systems, which could be a major impediment to implementation.

52.A.23b

  - Additionally, CARB should analyze the capital costs of 14 barge-based units (not 6), which represents the number of barge-based systems needed for full coverage.

52.A.24

- **CARB assumes cargo growth factors can address uncertainty.** CARB acknowledges a significant amount of uncertainty in implementing this proposed regulation. Rather than refining the assumptions to minimize uncertainty, CARB applies the growth factors for vessel activity to all costs in an attempt to account for potential changes in vessel size, technology platforms, vessel at-berth duration, and terminal operations. This approach assumes a 1-to-1 relationship between costs and vessel activity, which has not been established, and overlooks the fact that costs are unlikely to increase gradually over time but rather accrue as large, one-time expenses.

52.A.25

- **CARB assumes no vessels will pay into the remediation fund as a result of vessel control equipment repair for container/reefer, cruise, or RoRo vessel types.** CARB did not provide a basis for why vessels would not undergo equipment repair necessitating remediation payments (SRIA, costanalysisworkbook.xlsx). In fact, as seen in Comment 0.□, some fleets will exhaust their VIEs at the outset of the regulation and need to pay into the remediation fund. CARB should assume some level of vessel payments into the remediation fund; the current omission understates the remediation cost.

52.A.26

- **CARB has not forecasted the statewide increase in energy use (or costs) resulting from electric- or battery-powered capture and control systems.** Using CARB's estimates, more than 30 barge-based and land-based control systems will be needed to comply with the regulation. The land-based systems are almost certain to tie into the grid (as noted in the draft EA), and the barge-based systems may similarly turn to electricity given the limited availability of renewable fuels. These systems will require designated charging locations. CARB has not projected the increased energy usage or costs associated with these systems.

7.0 EMISSIONS ASSUMPTIONS AND FORECASTING

CARB has projected significant emission reductions from the proposed regulation compared to the existing regulation; however, some of CARB's shore-power data conflicts with other publicly available data, and in other cases, CARB has overlooked potential emission sources that might lead to lower-than-expected reductions under the proposed regulation, as described below.

- **In 2021, under the Proposed Regulation, CARB projects changes in the emissions from currently regulated container/reefer and cruise vessels even though there should be no significant difference between the Existing and Proposed Regulation for these vessel types.** CARB should provide further explanation for the significant changes in emissions in 2021 (for most ports, there are fewer emissions, but for other ports, there are more emissions), as shown in CARB's OGV Emissions Spreadsheet, as the publicly available data suggest there should not be any significant change. First, most vessel visits are already covered under the Existing Regulation. Based on publicly available 2018 data for Los Angeles[7] and Oakland,[8] 98% of the Los Angeles calls and 96% of the Oakland calls are from vessel operators covered under the current regulation and subject to the 80% reduction requirements for at-berth auxiliary engine power because they made at least 25 calls in 2018.[9] Second, the Proposed Regulation is comparable to the Existing Regulation for currently regulated fleets given the availability of TIEs, VIEs, and exceptions in the early years, equivalent to 20% of calls. As stated by CARB: "If all TIEs/VIEs are used by both terminals and vessels in these four years, the Proposed Regulation would capture no less than 80 percent of the visits, which aligns with the Existing Regulation at full implementation in 2020" (ISOR, III-31). Thus, the increased emission reductions attributed to the Proposed Regulation over the Existing Regulation as calculated by CARB need further justification. Similarly, CARB should explain the increase in emissions from the Proposed Regulation over the Existing Regulation for the ports of Hueneme and San Diego.

52.A.27

- **CARB understates the at-berth hours subject to the Existing Regulation, which in turn, overstates the projected emission reductions under the Proposed Regulation.** According to CARB's OGV Emissions Inventory, there are roughly 104,000 at-berth hours in Los Angeles and Long Beach covered by the Existing Regulation (based on CARB enforcement data) compared to 136,000 total at-berth hours (based on State Lands data); in other words, according to CARB, only 77% of at-berth activity in Los Angeles/Long Beach is subject to the Existing Regulation, which conflicts with the publicly reported data described in Comment 0.□, showing coverage rates nearing 100%. Similarly, CARB's OGV Emissions Inventory assumes only 74% of at-berth activity at Port of Oakland is subject to the Existing Regulation, which conflicts with the publicly reported data described in Comment 7.1, showing

52.A.28

[7] Port of Los Angeles, 2018 AMP Summary, *https://kentico.portoflosangeles.org/getmedia/a4f6e02e-5df6-4f68-8a3c-1e6b2c099dd3/AMP-Containership-01-01-2018-to-12-31-2018*
[8] Port of Oakland 2018 Shore Power Usage, *https://www.oaklandseaport.com/wp-content/uploads/2019/11/2019-10_Oakland-shorepower.pdf*
[9] The 80% at-berth auxiliary engine power requirement may be closer to 90% due to the 10% additional shore power requirements for Proposition 1B-funded berths.

coverage rates nearing 100%. This difference will significantly understate the benefits of the Existing Regulation, and, as carried forward through the forecast methodology, significantly overstate the benefits of the Proposed Regulation. CARB should consider the data described in Comment 7.1 and reassess its assumptions about vessel hours subject to the Existing Regulation.

52.A.29

- **The overall compliance rate under the existing regulation is unclear.** From looking at "Table 20: Percent of Time on Shore Power by Year" (H-41), it is unclear what CARB assumed as the overall compliance rate in 2020 and 2030 under the existing regulation. Also, it is not clear whether Table 20 accounts for additional shore power usage (beyond 80%) for Proposition 1B-funded berths. CARB should confirm that for the existing rule, the analysis assumes that container and cruise vessels are meeting the 80% at-berth shore power requirement in 2020 and 90% requirement for Proposition 1B berths.

    - Additionally, CARB should clarify why there appears to be an increase in the percentage of time using shore power between 2020 and 2030 under the existing rule when the regulation stops at 80% in 2020.
    - CARB should clarify why the overall compliance rate for cruise ships at POLA and POLB is 54% in 2020 as well as in 2030.
    - Additionally, CARB should clarify whether it took into account the difference in average at-berth time between container/reefer/cruise vessels covered under the existing regulation versus those vessels not covered. Per Table H-20, small container vessels have a lower compliance rate under the existing regulation, and these vessels have a lower average time at berth compared to larger vessels. Depending upon the assumption of what container size vessels are covered under the proposed regulation that are in addition to those covered under the existing regulation, the emissions benefit of the Proposed Regulation will vary. A table similar to Table 20 showing compliance rate by vessel type and size will help understand how CARB estimated emissions reduction or increases due to the Proposed Regulation.

52.A.30

- **The projected compliance rate for 2030 does not look accurate, particularly for large container vessels; CARB should clarify its assumptions.** In 2030, under the existing regulation, CARB assumes less than 50% shore power compliance for POLA and POLB container vessels size 13000 TEU through 18000 TEU (14000 TEU is an exception). For Container 16K, 0% compliance is assumed in 2030. According to tables on H-71 and H-72, these vessel types have the highest growth rates and yet they are assumed to comply 0% under the existing regulation. CARB needs to clearly articulate how it calculated the compliance rate assumption for future years. Although it could be due to CARB's at-berth shore power time forecast methodology, a lower percentages of at-berth shore power time for larger vessels is not realistic because these are newer vessels operated by vessel operators making 25 or more calls and more likely to be equipped with shore power capability. The benefit of the Proposed Regulation could be overestimated because larger vessels tend to stay longer at-berth.

- **CARB needs to provide the overall compliance rate under the proposed regulation in the same format as provided in Table 20 for the existing regulation. CARB should clarify the inputs used in the "atberth_OGV_port_specific_emissions" spreadsheet, specifically the following:**

52.A.31

  - For each year, what is the compliance rate by vessel type assumed for the existing and proposed rule?
  - For each year, by vessel type, what percent of vessel calls was assumed to meet the 20 visits per terminal threshold and are not subject to proposed regulation?
  - What percent of calls by vessel type and vessel size were assumed for TIE/VIE?
  - In 2021, why is there an increase in POLA at-berth cruise emissions with proposed rule?

- **CARB should evaluate the emission reductions and cost-effectiveness of the Proposed Regulation for auto carriers and RoRo ships.** Starcrest conducted a detailed emission-reduction evaluation for CARB's Proposed Regulation for auto carriers and RoRo ships at Los Angeles and Long Beach using actual data from both ports' 2018 emissions inventories. Key findings:

52.A.32a

  - Reduction of PM (including PM10, PM2.5, and DPM) and NOx emissions in the 36%-40% range could be achieved from auto carrier and RoRo vessel control, but emissions of other pollutants (CO2e, SOx and CO) are estimated to increase in the range of 28% to 151% due to emissions from increased bunkering activities at anchorage and supporting activities such as tugs and generators needed to operate barge-based systems.

5.A.32b

  - Cost effectiveness (CE) calculations resulted in cost effectiveness between $115k and $200k for the barge rental scenario (varies based on effective hourly rate) and $54,987 for the scenario that includes the purchase of four barge-based systems to serve 100% of calls made to POLA and POLB. Both scenarios are far less cost effective than CARB's Carl Moyer Program (CMP), which has an upper CE limit of $30,000 per weighted ton of emissions reduced.

52.A.32c

    - It is noted that the CMP also allows for a second tier CE limit for the higher cost of advanced/emerging technology projects; this second tier CE limit is $100k per weighted ton. The $100k/ton limit is only applied to the small increment between today's technology and the advanced technology level, which in practice is zero-emission or near-zero emissions (i.e., 90% cleaner than current technology). Since barge-based systems are not using technology that is 90% cleaner than today's clean-up technology, these systems should be evaluated at the $30k/weighted ton CE limit.

52.A.32d

  - Currently most of the auto carrier and RoRo ships bunker while operating at berth. If rental barges are utilized during at-berth operations, bunkering will most likely take place at anchorage, resulting in emissions increases at anchorage. In addition to emissions increases due to use of harbor crafts to move barges and generators used on the barges, CARB should address the displacement of at-berth RoRo bunkering and associated emissions.

52.A.33

- **CARB does not account for efficiency changes in the growth analysis.** As stated in Appendix H, updated inventory, "CARB staff do not assume any vessel practice changes or system efficiency changes in the growth analysis except for POLA and POLB as discussed in section 4.2. Therefore, if tonnage increases 35 percent over 20 years for a vessel type in a specific region, the total activity from that vessel type was modeled as increasing 35 percent over the same period" (H-29). Applying growth factors without taking into account efficiencies will overestimate future at-berth emissions and thus overstate the emissions benefit of the proposed regulation.

52.A.34

- **CARB did not account for changes in vessel size over time for most ports.** CARB states: "This change in container vessel sizes was included for POLA and POLB as they were the only ports included in the study. Other ports may see a shift over time but could be limited by berth size and channel depth, port space and capacity, and other limiting factors. Any shifts in vessel sizes for other ports will be reviewed in future inventories" (H-32). Nearly all vessels calling San Pedro Bay also call the Port of Oakland; thus, the POLA and POLB container forecast by size will also apply to the Port of Oakland forecast and should be contemplated in the analysis. CARB could validate this approach by comparing the Port of Oakland liner service schedule to the POLA and POLB schedules.

52. A.35

- **CARB should include a table showing statewide NOx emissions by vessel and engine type.** In Figure 10, CARB displays "2016 Statewide At-Berth PM 2.5 Emission by Vessel and Engine Type" (H-46). A similar figure should be added for NOx, showing the magnitude of boilers NOx emissions reduced from tankers.

52.A.36

- **CARB should conduct a comprehensive GHG analysis related to barge-based control systems that includes the totality of GHG emissions, from the vessel and barge-based control system itself to the likely shift in bunkering activities.** First, vessels will continue to burn fuel and emit GHGs while connected to the system; these emissions must be taken into account. Second, barge-based systems will require a fuel source; even if this fuel source is grid-neutral, it may result in additional emissions not contemplated in CARB's current analysis. Third, barge-based systems will require harbor craft to move them into place, and these harbor craft will emit GHGs that must be included. Lastly, vessels that use barge-based systems may not be able to bunker at berth. These vessels will need to make additional trips to anchorage for bunkering; these emissions should be included in the analysis. Lastly, CARB should include power plant emissions owing to the switch to grid-based electricity. Only after including all of these parameters and likely impacts can CARB determine the net effect on GHG emissions.

52.A.37

-
  - Additionally, by 2025, there is a requirement for grid-neutral control systems; however, GHG emissions increase for tankers and RoRos in 2027 and 2031. CARB should clarify the reason for the emissions increase.

8.0 DRAFT ENVIRONMENTAL ASSESSMENT

The following comments refer to the Draft Environmental Assessment and compliance with the California Environmental Quality Act.

52.A.38

- **The Proposed Regulation exceeds the emission reductions necessary under the State Implementation Plan.** A key purpose for the Proposed Regulation is CARB's commitment under the State Implementation Plan (SIP) to amend the at-berth regulation. The SIP strategy calls for a regulation that generates 2 tpd of NOx by 2031; however, the Proposed Regulation analyzed in the EA achieves 5.9 tpd, nearly double what is necessary.

52.A.38a

  - When analyzing the Alternatives, the EA compares air quality benefits to the Proposed Regulation (5.9 tpd) rather than the stated project purpose (2 tpd), dismissing alternatives that might have achieved lesser – but still adequate – reductions.

52.A.39

- **CARB should analyze the emissions associated with constructing a new shore power berth at the Port of San Francisco.** CARB states there is uncertainty in the way San Francisco may proceed with the construction and thus deems these emissions "too speculative for evaluation" (EA, 24); however, emissions associated with shore-power berth construction can be estimated from the dozens of such projects already completed statewide and in a similar manner as CARB estimated emissions associated with shore power vault construction. This project is a "reasonably foreseeable compliance response" for the Port of San Francisco as it is included in the Berth Analysis, cost analysis, and based on information from the port, and as such should be analyzed.

52.A.40

- **Construction emissions exceed significance thresholds in the Bay Area Air Quality Management District.** CARB presents criteria pollutant and greenhouse gas emissions on a per-vault and per-control system basis in each air quality district to demonstrate this regulation will not exceed significance thresholds. CARB states: "While it is possible multiple installations could occur within a given district, it is not reasonably foreseeable at this time whether such installations would occur, specifically where they would occur, or whether they would overlap in time" (EA, 45). However, in order to meet the compliance deadlines, it is almost certain that multiple installations will occur concurrently. When considering all of the land-based tanker systems that must be constructed in the BAAQMD (11 units), the Proposed Regulation exceeds significance thresholds for NOx and GHGs, which is not reflected in the Draft EA and should be disclosed[10]:

[10] Note, emissions do not include construction of new shore power berth in San Francisco.

Table 7: Cumulative Construction Emissions in Bay Area Air Quality Management District, CY 2021+

Inputs	ROG/VOC ppd	NOx ppd	PM_{10} ppd	$PM_{2.5}$ ppd	GHG (MT/Year)
Unmitigated construction emissions - landside tanker*	4	36	2	2	447
Number of units needed - BAAQMD	11	11	11	11	11
Total	**44**	**396**	**22**	**22**	**4917**
Threshold	54	54	82	54	1100
Exceeded?	**No**	**Yes**	**No**	**No**	**Yes**

*Source: CARB Draft Environmental Assessment

52.A.41

- **CARB should analyze the impacts in the geographic location in which they are expected to occur.** CARB states: "Conducting a berth-by-berth emissions analysis for the hundreds of berths in California would provide information that could be misleading, should a different berth-by-berth scenario come to fruition" (EA, 91); however, the general location of these emissions and other impacts (i.e., by air district or city) is reasonably foreseeable. The compliance measures can only take place in the ports subject to the regulation. The locations, compliance options, and regulatory timeline are known and well-established.

52.A.42

- **CARB should analyze energy impacts by utility or region.** CARB evaluates energy demand on a statewide basis, finding that at full implementation in 2031, shore power will consume the equivalent of 0.001% of the grid's total power capacity (EA, 75); however, because the energy demand is concentrated in only a few key locations (seaports, primarily Long Beach/Los Angeles and Bay Area), a more refined analysis should consider the energy demand impacts in those known, reasonably foreseeable locations.

52.A. 43

- **CARB should analyze energy demand increases resulting from capture and control systems.** CARB states, "Some capture and control systems may be powered by electricity, but it is expected the additional electricity needed would be minimal" (EA, 74). In Attachment B of the Draft EA, however, CARB assumes significant electrical infrastructure is needed to develop and install land-based capture and control systems for RoRos and tankers. This is the likely scenario given the need for such systems to be grid-neutral.

52.A.44

- **CARB assumes capture and control systems would have no impact on utilities.** CARB states: "Shore-side and barge-based capture and control systems would be powered by clean diesel and would not be connected to public utility infrastructure" (EA, 134). This assertion conflicts with other references in the EA showing significant electrical infrastructure required for land-based control systems, specifically in Attachment B.

52.A.45

- **CARB should analyze vessel-traffic impacts associated with barge-based control systems.** As noted throughout the ISOR and Berth Analysis, barge-based control systems can impose navigational hazards in waterways. In Long Beach/Los Angeles alone, CARB assumes 5 total barge-based capture and control systems (2 existing units, plus 3 additional units for container vessels and RoRos, although an additional 2 systems are likely to be needed for full compliance, for a total of 7 units). These systems are likely to operate concurrently and may increase traffic in narrow waterways. CARB should acknowledge and analyze these impacts.

- **CARB has not demonstrated sufficient engagement of the utilities.** Of the 232 outreach meetings listed in Appendix F of the regulatory documents, only 3 meetings involved utilities, and 2 meetings included the same utility (San Diego Gas & Electric). This proposed regulation is certain to require a significant investment in electrical infrastructure by 2025 to power grid-neutral land-based capture and control systems and to charge battery-powered barge-based capture and control systems.

9.0 IMPLICATIONS OF ALTERNATIVE ASSUMPTIONS

By necessity, CARB has made a number of assumptions about the proposed regulation, its emissions benefits, and cost impacts. These assumptions were likely based on CARB's best information at the time. However, small changes in these assumptions can result in dramatically different projected outcomes. Below, we list a few key assumptions that, if updated to reflect more accurate data or other equally reasonable interpretations of the data, would lead to vastly different results. Of note, none of the costs have been annualized or adjusted for growth.

Labor Costs for RoRo Land-Based Control Systems:
If CARB were to include labor to operate land-based control systems at RoRo terminals, it would add $24 million to the Proposed Regulation (Comment 0.□).

Capital Costs for Barge-Based Control Systems:
If CARB were to include capital costs for barge-based control systems, at CARB's assumption of $4.9 million per barge and 6 barges needed, it would add another $29.4 million to the Proposed Regulation. If we were to assume a more realistic number of 14 barge-based systems to ensure full coverage (assuming 3 terminals use land-based systems as projected by CARB), the cost would be $68.6 million (Comment 0.□).

Hourly Rates for Barge-Based Systems:
If CARB were to assume a higher hourly rate for barge-based control systems, specifically $1,422 an hour, which is consistent with actual invoices, it would add another $231 million to the Proposed Regulation for all RoRo calls (Comment 0.□).

Projected Emission Reductions:
If CARB were to adjust its assumptions about the number of at-berth hours covered by the Existing Regulation in alignment with publicly reported data from major seaports, the Proposed Regulation would result in far fewer emission reductions than currently projected (Section 0).

Cost-Effectiveness:
If CARB were to modify any of the cost assumptions noted above and/or adjust its emissions estimates, the cost-effectiveness of the Proposed Regulation could swing dramatically. As it stands now, CARB has calculated the total cost of this regulation as $2.164 billion with $2.245 billion in health care benefits, which is a thin margin of error. A more realistic hourly rate for barge-based control systems alone would add $231 million to the costs of the Proposed Regulation for a total cost of $2.4 billion, exceeding the health benefits.

ATTACHMENT A: INVOICES FOR BARGE-BASED CONTROL SYSTEMS

Receipt Excerpt #1:

AMECS Emission Control Services Invoice

Bill To	[redacted]	Invoice#	[redacted]
		Invoice Date	[redacted]
		Amount	$ 145,519.00
Wire To	Advanced Environmental Group LLC 230-234 East C Street Wilmington, CA 90744	[redacted]	

Visit Summary

Record#	[redacted]	Visit Date	[redacted]
Company	[redacted]	Vessel	[redacted]
Location	[redacted]	IMO/Call Sign	[redacted]

Visit Data

Vessel First Line (estimate)		[redacted]
Barge Arrival		[redacted]
Barge First Line		[redacted]
Connection Time (start control)		[redacted]
Actual Disconnect Time (stop control)		[redacted]
Barge Last Line		[redacted]
Barge Secured at Home Berth		[redacted]
Mobilization Start		[redacted]
Mobilization End		[redacted]
Service Hours([redacted])		120.42
SubTotal		**120.42**
		-
Total Hours Billed		120.42
Hourly Rate	$	1,100.00
Emission Control Services Total (120.42 * 1100)	$	132,462.00
Other: HOLIDAY RATE - [redacted] 330.00 * 24	$	7,920.00
Other: System connection delays - hourly rate applies per contract		
Other: [redacted] = 4.67 hours	$	5,137.00
Total Additional Charges/Credits	$	**13,057.00**
Total Amount Due	$	**145,519.00**

Terms NET 15. Due By ([redacted] Interest on past due amounts will be charged at a rate of 1.5% per month.

AMECS

Effective Rate:
Total Cost/Vessel Stay
=$145,519/120.42
=$1,208/hour

Generated: [redacted]

Receipt Excerpt #2:

AMECS Emission Control Services Invoice

Bill To	[redacted]	Invoice#	[redacted]
		Invoice Date	[redacted]
		Amount	$ 87,450.00
Wire To	Advanced Environmental Group LLC 230-234 East C Street Wilmington, CA 90744	[redacted]	

Visit Summary

Record#	[redacted]	Visit Date	[redacted]
Company	[redacted]	Vessel	[redacted]
Location	[redacted]	IMO/Call Sign	[redacted]

Visit Data

Vessel First Line (estimate)		[redacted]
Barge Arrival		[redacted]
Barge First Line		[redacted]
Connection Time (start control)		[redacted]
Actual Disconnect Time (stop control)		[redacted]
Barge Last Line		[redacted]
Barge Secured at Home Berth		[redacted]
Mobilization Start		[redacted]
Mobilization End		[redacted]
Service Hours([redacted])		79.50
SubTotal		**79.50**
		-
Total Hours Billed		79.50
Hourly Rate	$	1,100.00
Emission Control Services Total (79.5 * 1100)	$	87,450.00
	$	-
Other:	$	-
Other:	$	-
Total Additional Charges/Credits	**$**	**-**
Total Amount Due	**$**	**87,450.00**

Terms NET 15. Due By [redacted]

Interest on past due amounts will be charged at a rate of 1.5% per month.

AMECS

Effective Rate:
Total Cost/Vessel Stay
=$87,450/79.50
=$1,100/hour

Generated: [redacted]

Receipt Excerpt #3:

AMECS Emission Control Services Invoice

Bill To	[redacted]	Invoice# [redacted]
		Invoice Date [redacted]2019
		Amount $ 19,200.00
Wire To	Advanced Environmental Group LLC 230-234 East C Street Wilmington, CA 90744	Chase Bank - Bank Contact: [redacted]
Visit Summary		
Record# [redacted]		Visit Date [redacted]/2019
Company [redacted]		Vessel [redacted]
Location [redacted]		IMO/Call Sign [redacted]
Visit Data		
Vessel First Line (estimate)		[redacted]/2019 14:30
Barge Arrival		[redacted]2019 17:50
Barge First Line		[redacted]/2019 18:15
Connection Time (start control)		[redacted]2019 19:01
Actual Disconnect Time (stop control)		[redacted]/2019 03:01
Barge Last Line		[redacted]/2019 03:16
Barge Secured at Home Berth		[redacted]2019 04:55
Mobilization Start		[redacted]/2019 15:30
Mobilization End		[redacted]/2019 05:00
Mobilization/Demobilization Hours		4.00
Service Hours [redacted]19 15:30 - [redacted]19 05:00]		13.50
SubTotal		**17.50**
Total Hours Billed		17.50
Hourly Rate	$	800.00
Emission Control Services Total (17.5 * 800)	$	14,000.00
Note: Minimum Charge of 24 hours 800* 6.5	$	5,200.00
Other:	$	-
Total Additional Charges/Credits	**$**	**5,200.00**
Total Amount Due	**$**	**19,200.00**

Terms NET 15. Due By [redacted]/2019 Interest on past due amounts will be charged at a rate of 1.5% per month.

HRLY Charge $1422

Generated: [redacted]

NOTE: Short Stay Vsl.
VSL STAY: 13.5 HRS
Tug Call: 4.0 HRS
Min Charge: 24 HRS
Effective Hourly Charge $19,200/13.5 hrs = $1422.22

Receipt Excerpt #4:

HOURLY CHARGE	$900 USD per hour. The Hourly Charge is inclusive of all tug services and/or other 3rd party services required for mobilizing, de-mobilizing, and positioning System to Customer's vessel. Notwithstanding the above, any and all charges for "Spacer Barges," "Fenders" and/or supplemental 3rd party crew boats are not included in the Hourly Charge and will be passed through to Customer at the actual cost to Operator + 20%. Additional charges may only be added upon written authorization by Customer. In the event Terminal may require a Spacer Barge between the VENDOR and Vessel.
EMISSION CONTROL SERVICE CHARGES	Service hours will be charged from the beginning of VENDOR mobilization to the end of VENDOR demobilization. Customer understands that Operator has a minimum charge of twenty-four (24) hours per vessel.

At an hourly rate of $900, applied across the minimum 24 hour billing requirement, the total cost is 24 x $900) / 17 hours (avg. call time) = $1,270 effective hourly rate.

Attachment B:
Starcrest Consulting Group
CARB At-Berth Regulation Cost Effectiveness Analysis for Auto Carriers and RoRo Ships at Port of Long Beach & Port of Los Angeles
December 2019

CARB At-Berth Regulation Cost Effectiveness Analysis for Auto Carriers and RoRo Ships at Port of Long Beach & Port of Los Angeles

PMSA
PACIFIC MERCHANT SHIPPING ASSOCIATION

Port of
LONG BEACH
The Green Port

LA
THE PORT
OF LOS ANGELES

December 2019

Prepared by:
STARCREST CONSULTING GROUP, LLC

CARB AT-BERTH REGULATION COST EFFECTIVENESS ANALYSIS FOR AUTO CARRIERS AND RORO SHIPS AT PORT OF LONG BEACH & PORT OF LOS ANGELES

Starcrest developed an emission reduction evaluation for CARB's proposed amendments to the at-berth regulation for Auto Carrier and RoRo ships at the Port of Long Beach (POLB) and the Port of Los Angeles (POLA), also referred to as the San Pedro Bay Ports (SPBP). Using this evaluation, Starcrest developed an Excel calculation tool (the Auto/RoRo Tool) to assess the emission reductions and cost-effectiveness of the proposed amendments for these vessels based on the SPBP 2018 Annual Emissions Inventories and Carl Moyer Program methodology. Based on this assessment, the cost of the proposed amendments as they relate to Auto Carrier and RoRo ships at the SPBPs is significant compared to other emission-reduction projects with similar benefits, and alternative more cost-effective emission reduction approaches should be explored.

The Auto/RoRo Tool currently utilizes the SPBP 2018 Annual Emissions Inventories for the emissions reduction analysis and the cost assumptions/information provided in Standardized Regulatory Impact Assessment (SRIA) for CARB's Proposed Control Measure for Ocean-Going Vessels at Berth released on August 20, 2019, for the cost effectiveness analysis. This tool was designed with flexibility to allow input modifications to explore alternative cost inputs. Two financing approaches are included in the tool: (1) hourly rental of barge-based emission capture and control (C&C) systems, and (2) capital investment of four barge-based C&C systems dedicated to treat Auto Carrier and RoRo ships The need for four (4) barge-based systems to control 100 percent of calls was established by an evaluation of 2018 calls from these vessel types. This evaluation is included as a worksheet in the Auto/RoRo Tool.

Project Goals

- Estimate emission reductions that may be achieved by barge-based C&C systems applied to the auto carrier and RoRo vessels calling at the SPBP.
- Assess cost effectiveness (CE) for barge-based treatment options to meet the requirements of the proposed amendments.
- Estimate the portion of auto carrier/RoRo at-berth emissions to all at-berth emissions in both mass and percent.
- Estimate the portion of auto carrier/RoRo at-berth emissions to all OGV emissions in both mass and percent.

Key Assumptions

- This review assumes that 100 percent of calls are treated by a barge-based C&C system (based on an evaluation of 2018 calls from these vessel types in the SPBP).
- Barge-based emission C&C systems will control 80% of NOx, ROG and DPM emissions.

Key Findings

52.B.1 Reduction of PM (including PM_{10}, $PM_{2.5}$, and DPM) and NO_x emissions in the 36%-40% range could be achieved from auto carrier and RoRo vessel control, but emissions of other pollutants (CO2e, SOx and CO) are estimated to increase in the range of 28% to 151% due to emissions from increased bunkering activities at anchorage and supporting activities such as tugs and generators needed to operate barge-based C&C systems. A summary of the proposed regulation's emission reduction benefits, based on the auto carrier and RoRo calls made at SPBP in 2018, is provided in Table A1 (tons per year (tpy)) and Table A2 (tons per day (tpd)). Negative numbers indicate increased emissions.

Table A1: Reductions from Barge-Based at-Berth Capture and Control, tpy

Port	PM_{10} tpy	$PM_{2.5}$ tpy	DPM tpy	NO_x tpy	SO_x tpy	HC tpy	CO tpy	CO_2e mt/yr
Emission Reductions (or increases)								
POLB	0.40	0.38	0.38	19.61	-0.66	-0.73	-5.04	-1,615
POLA	0.22	0.20	0.18	8.98	-0.37	-0.43	-3.30	-1,005
Total	**0.62**	**0.58**	**0.56**	**28.59**	**-1.03**	**-1.15**	**-8.33**	**-2,620**
Percent Reduction (or increase)								
POLB	36%	36%	38%	40%	-28%	-44%	-113%	-49%
POLA	39%	38%	39%	40%	-35%	-52%	-151%	-53%
Total	**37%**	**37%**	**38%**	**40%**	-30%	-47%	-125%	-50%

Table A2: Reductions from Barge-Based at-Berth Capture and Control, tpd

Port	PM10 tpd	PM2.5 tpd	DPM tpd	NOx tpd	SOx tpd	HC tpd	CO tpd	CO2e mt/yr
Emission Reductions (or increases)								
POLB	0.0011	0.0010	0.0010	0.0537	-0.0018	-0.0020	-0.0138	-4.4
POLA	0.0006	0.0006	0.0005	0.0246	-0.0010	-0.0012	-0.0090	-2.8
Total	**0.0017**	**0.0016**	**0.0015**	**0.0783**	**-0.0028**	**-0.0032**	**-0.0228**	**-7.2**
Percent Reduction (or increase)								
POLB	36%	36%	38%	40%	-28%	-44%	-113%	-49%
POLA	39%	38%	39%	40%	-35%	-52%	-151%	-53%
Total	**37%**	**37%**	**38%**	**40%**	-30%	-47%	-125%	-50%

To place these reductions in context, Tables B1 (tpy) and B2 (tpd) summarize the 2018 SPBP auto carrier and RoRo emissions at berth, all OGVs at berth, and all OGVs in all modes (at berth, maneuvering, transit). The tables also show the percentages that the auto carrier and RoRo emissions make up of all OGV emissions at berth and of the entire 2018 OGV inventory. **Overall, auto carrier and RoRo at berth emissions made up approximately one percent (1%) of all OGV emissions in the SPBPs' 2018 inventory or between 2% to 4.5 % of all at-berth emissions.**

52.B.2

Table B1: Auto Carriers and RoRo At-berth Emissions Contribution in CY 2018, tpy

Port	Vessel Type	PM	PM2.5	DPM	NOx	SOx	HC	CO	CO2e
		tpy	tpy	tpy	tpy	tpy	tpy	tpy	mt/y
SPBP	Auto and RoRo at Berth	1.7	1.6	1.4	69.9	3.4	2.4	6.5	5,001
SPBP	All vessels at Berth	60.1	56.3	31.4	1894.8	169.7	72.7	188.7	264,414
SPBP	All vessels	142.0	133.0	106.1	7078.5	323.3	270.9	590.3	503,286
SPBP	Percent of all OGV at Berth	2.8%	2.8%	4.5%	3.7%	2.0%	3.3%	3.5%	1.9%
SPBP	Percent of all OGV	1.2%	1.2%	1.3%	1.0%	1.0%	0.9%	1.1%	1.0%

Table B2: Auto Carriers and RoRo At-berth Emissions Contribution in CY 2018, tpd

Port	Vessel Type	PM10	PM2.5	DPM	NOx	SOx	HC	CO	CO2e
		tpd	tpd	tpd	tpd	tpd	tpd	tpd	mt/d
SPBP	Auto and RoRo at Berth	0.0045	0.0043	0.0039	0.1916	0.0092	0.0066	0.0179	14
SPBP	All vessels at Berth	0.1648	0.1543	0.0861	5.1914	0.4649	0.1993	0.5170	724
SPBP	All vessels	0.3891	0.3642	0.2907	19.3931	0.8857	0.7421	1.6172	1,379
SPBP	Percent of all OGV at Berth	2.8%	2.8%	4.5%	3.7%	2.0%	3.3%	3.5%	1.9%
SPBP	Percent of all OGV	1.2%	1.2%	1.3%	1.0%	1.0%	0.9%	1.1%	1.0%

A utilization analysis evaluated how many auto carrier or RoRo vessels were at berth in one of the ports during each day of 2018. A maximum of four concurrent calls took place on five days during the year, and three concurrent calls took place on 12 days. This indicates that four barge-based C&C systems would have been needed to accommodate all SPBP auto carrier and RoRo calls in 2018 and would be needed going forward assuming 2018 was representative of future call frequency at these two ports. Because three or four concurrent calls occur so infrequently, the C&C barge fleet would be utilized about 19 percent of the time.

52.B.3

Cost effectiveness (CE) calculations, discussed below, result in cost effectiveness between $115k and $200k for the barge rental scenario (varies based on effective hourly rate) and $54,987 for the scenario that includes the purchase of four barge-based C&C systems to serve 100% of calls made to SPBP. **Both scenarios are far less cost effective than CARB's Carl Moyer Program (CMP), which has an upper CE limit of $30,000 per weighted ton of emissions reduced.**

52.B.4

It should be noted that the CMP also allows for a second tier CE limit for the higher cost of advanced/emerging technology projects; this second tier CE limit is $100k per weighted ton. The $100k/ton limit is only applied to the small increment between today's technology and the advanced technology level, which in practice is zero-emission or near-zero emission (i.e., 90% cleaner than current technology). Since barge-based C&C systems are not using technology that is 90% cleaner than today's clean-up technology, these systems should be evaluated at the $30k/weighted ton CE limit.

52.B.5

Emissions Assessment

The key elements and the sources of information included in the emissions reduction evaluation include:

- OGV at-berth emissions for auxiliary and boiler engines are based on auto carrier and RoRo vessels that visited POLA and POLB in 2018 and are consistent with both Ports' 2018 annual emissions inventory. The average at-berth hours and emissions (in grams per hour) by port, by terminal and by anchorage are shown in Tables 1 and 2 of the Auto/RoRo Tool under the tab "2018 Data Summary".
- The frequency of auto carrier and RoRo calls per day in 2018 was analyzed and it was determined that four dedicated barges would be required to treat emissions for the entire auto carrier and RoRo fleet arriving at SPBP. Importantly, four barges would have been needed to ensure ALL calls were serviced in 2018, but for a large percentage of the year, most of the barges would have been idle because four (4) vessels were in port simultaneously on only five days. In addition, more than four vessels may call simultaneously in future years so having four barges available would not guarantee full coverage. This analysis is provided in the Auto/RoRo Tool on the "Utilization" tab.

52.B.6

- The emissions analysis scenario assumes that the use of a barge system would require additional emission-producing activities that would reduce the overall effectiveness of the system. These activities include the following:

52.B.7

  - **Additional trips from harbor craft** (**HC)** as follows:
    1. HC home base to barge home base
    2. Barge home base to terminal
    3. HC home base
    4. HC home base to terminal
    5. Terminal to barge home base
    6. Barge home base to HC home base
  - **Harbor craft idling time** during this process. The average emissions in g/hr for assist tugs and the average time per trip are shown in Tables 3 and 5 of the Auto/RoRo Tool under tab "2018 Data Summary." These values are based on SPBP 2018 EI data.
  - **Two small generator sets** to provide electrical power to the system. It was assumed that the generator sets will be similar to those used by the Alternative Maritime Emission Control System (AMECS) barge currently being operated at the SPBP ports. Table 4 of the Auto/RoRo Tool under tab "2018 Data Summary" shows the emission factors in g/hr for these generators.
  - **Additional time at anchorages for bunkering**. Currently most of the auto carrier and RoRo ships bunker while operating at berth. If C&C barges are utilized during at-berth operations, bunkering will most likely take place at anchorage resulting in increases in emissions at anchorage.

Control efficiencies of 80% for PM/DPM and NOx were assumed, based on CARB's SRIA. It was assumed that barge system will treat auxiliary as well boiler engines exhaust.

Cost Effectiveness Assessment

The CE assessment is based on CARB's CMP methodology. This methodology combines the annual emission reductions in terms of "weighted emission reductions," or WER, in tons per year (tpy) as follows:

$$\mathbf{WER = NOx + ROG^{1} + (20 * PM2.5^{2})}$$

The WER is applied to the project cost, which is annualized by multiplying by the capital recovery factor (CRF), which is based on a discount rate and the project life. Cost-effectiveness is calculated under the CMP as follows:

$$\mathbf{CE\ (tpy) = Project\ Cost\ (\$) * CRF\ /\ WER\ (tpy)}$$

Below is a summary of the two scenarios included in the Auto/RoRo tool, based on CARB's SRIA:

- Hourly Rental: As determined in the "Emissions Summary" worksheet of the Auto/RoRo tool and based on 2018 SPBP EI data, a total of 4,934 hours per year of RoRo operation would need to be treated by the rented barge-based C&C systems to fully comply with the proposed regulation.

52.B.8 In the Auto/RoRo tool, hourly rate is a variable to determine CE at different hourly rates for the estimated emissions reductions. Attachment A provides excerpts of four actual C&C service transactions that demonstrate the effective hourly rate is greater than CARB's assumption of $900 an hour. Two invoices in attachment A show that the vendor required a 24-hour minimum usage time, which effectively raises the hourly rate if the barge system is used for anything less. The CE at each of the four hourly rates documented in Attachment A, as well as both CARB's $900 assumption and our application of the 24-hour minimum to the lowest hourly rate that we could document, $1,100, is provided below in Table C.

Table C: Cost Effectiveness at Different Hourly Rates

Hourly Rate	Cost-Effectiveness ($/weighted ton)	Rate Source (assumes/indicated all inclusive)
$900	$115,707	CARB SRIA Excel - "Cost Input Tab"
$1,100	$141,419	Receipt #2, Attachment A
$1,208	$155,304	Receipt #1, Attachment A
	$163,275	$900/hr for 17 hr call (avg.), includes 24-hr min. charge
$1,270		(Receipt #4)
$1,422	$182,816	Receipt #3
$1,552	$199,530	$1,100/hr for 17 hr call (avg.), includes 24-hr min. charge

[1] CMP uses ROG for CE evaluation. Since EI tracks HC, not ROG, HC is converted to ROG using this formula: ROG = HC * 1.26639, per 2017 CMP Guidelines, CARB

[2] PM2.5 is used in this CE evaluation to be consistent with CARB's methodology.

Using CARB's assumption of a $900/hr rental rate, the CE to reduce the estimated 38.76 weighted tons per year (discount rate of 1%, project life of 1 year), is estimated as $115,707 per weighted ton. Note that at the rate of $900 per hour for 4,934 hours/year, a total annual investment of $4.4M would be required to reduce 38.76 weighted tons of emissions (as calculated by CMP as WER) per year from Auto carrier/RoRo vessels (based on 2018 data).

As shown in Table C, the CE of the hourly rental scenario is highly sensitive to the effective hourly rental rate, which fluctuates for each transaction based on how the billing is structured for each client. For each $100 over the estimated rental rate of $900/hr, the project CE increases by $12,856/weighted ton. For an average 17-hour call serviced at a rate of $1,100/hr, the effective rate is $1,552/hr to account for the 24-hour minimum charge, which results in a CE of nearly $200,000 per weighted ton.

52.B.9 As documented in Attachment A, C&C system pricing depends on a key factor that drives the hourly cost higher. The vendor requirement to apply a 24-hour minimum charge skews costs higher than those based on CARB's assumed hourly rate ($900/hr) for all vessels with calls less than 24 hours. Note that the average call length in 2018 across Auto carrier/RoRo vessels is approximately 17 hours – the need to pay for these additional hours that were not used will drive the hourly rental service costs higher than projected by CARB.

- Purchase and Operate: As determined by the Utilization analysis (see Utilization tab), for the 2018 calls by RoRo/Auto carriers, a total of four (4) barge-based C&C systems would be required to cover all SPBP calls. There are limited data on the capital cost to purchase and operate barge-based C&C systems.
  - In the SRIA, CARB assumes[3] the capital cost to purchase a barge-based system is $4.9 million. While not provided for barge-based C&C systems, CARB estimates the land-based C&C system operating costs as follows: annual maintenance cost of $17,500 and an hourly operating rate of $100. No additional terminal labor costs were
52.B.10 included, an assumption that merits further review. Using these values over a 20-year project life and a 5% discount rate (CARB's assumptions) the CE of purchasing and operating four units is estimated as $54,987 per ton, nearly double CARB's CMP limit of $30k per ton.
  - However, the only publicly available documentation of a barge-based C&C system is the Bay Area Air Quality Management District (BAAQMD) contract with Advanced Environmental Group, LLC for a project to design, build and operate a barge-based C&C system in Benicia. The total project cost is $8.844M. At this total project cost, assuming that this cost includes operation pursuant to contract requirements, the CE exceeds $73,012 per ton, well beyond the CMP limit of $30k per ton.

[3] CARB SRIA, page 80, *https://ww3.arb.ca.gov/regact/2019/ogvatberth2019/appc-1.pdf*

Discussion Based on Data and Assumptions Currently Included in the Auto/RoRo tool

52.B.11 ➢ CARB uses the CMP cost effectiveness methodology to evaluate the CE of the proposed amendment. While this methodology accounts for the increase in hydrocarbon (and therefore ROG) emissions, it does not take into consideration the increase in CO2e, SOx and CO. The regulatory amendment should address associated increases in other pollutants.

52.B.12 ➢ CARB estimates that just nine C&C systems would be needed statewide (seven of them barge-based), but 2018 call frequency analysis indicates four of these systems would need to be assigned to the Ports of Los Angeles and Long Beach to assure full compliance.

52.B.13 ➢ Based on SPBP EI 2018 EI data, and a conservative estimate of 80% reduction in NOx and DPM emissions from Barge based C&C, it is estimated that 100% compliance with CARB's proposed amendments to the at-berth regulation would result in the reduction of approximately 38.76 weighted tpy.

52.B.14 ➢ These reductions come at a very significant cost. As discussed above, the CE of the proposed amendments far exceeds the CMP CE limit of $30k/weighted ton. Under the CMP, emission reductions are achieved at far better CE levels. For example, repowering harbor craft such as tug, work and crew+supply boats (from Tier 2 to Tier 3) is far more cost-effective than including auto carriers and RoRo vessels under this proposed regulatory amendment. Specifically, at a one-time cost of about $800k-$900k, a tugboat repower will reduce from 4 to 15 weighted tpy of emissions[4] at a 10-year CE that ranges from $9k - $25k per weighted ton. This investment is well below the CMP CE limit of $30k/ton.

[4] This range is a function of engine horsepower, annual hours of operation, vessel type etc.

Attachment A

Receipt Excerpt #1:

AMECS Emission Control Services Invoice

Bill To	[redacted]	Invoice#	[redacted]
		Invoice Date	[redacted]
		Amount	$ 145,519.00
Wire To	Advanced Environmental Group LLC 230-234 East C Street Wilmington, CA 90744	[redacted]	

Visit Summary

Record#	[redacted]	Visit Date	[redacted]
Company	[redacted]	Vessel	[redacted]
Location	[redacted]	IMO/Call Sign	[redacted]

Visit Data

Vessel First Line (estimate)		[redacted]
Barge Arrival		[redacted]
Barge First Line		[redacted]
Connection Time (start control)		[redacted]
Actual Disconnect Time (stop control)		[redacted]
Barge Last Line		[redacted]
Barge Secured at Home Berth		[redacted]
Mobilization Start		[redacted]
Mobilization End		[redacted]
Service Hours([redacted])		120.42
SubTotal		**120.42**
		-
Total Hours Billed		120.42
Hourly Rate	$	1,100.00
Emission Control Services Total (120.42 * 1100)	$	132,462.00
Other: HOLIDAY RATE - [redacted] 330.00 * 24	$	7,920.00
Other: System connection delays - hourly rate applies per contract		
Other: [redacted] = 4.67 hours	$	5,137.00
Total Additional Charges/Credits	$	**13,057.00**
Total Amount Due	$	**145,519.00**

Terms NET 15. Due By ([redacted)

Interest on past due amounts will be charged at a rate of 1.5% per month

AMECS

Effective Rate:
Total Cost/Vessel Stay
=$145,519/120.42
=$1,208/hour

Generated: [redacted]

Receipt Excerpt #2:

AMECS Emission Control Services Invoice

Bill To	[redacted]	Invoice#	[redacted]
		Invoice Date	[redacted]
		Amount	$ 87,450.00
Wire To	Advanced Environmental Group LLC 230-234 East C Street Wilmington, CA 90744	[redacted]	

Visit Summary

Record#	[redacted]	Visit Date	[redacted]
Company	[redacted]	Vessel	[redacted]
Location	[redacted]	IMO/Call Sign	[redacted]

Visit Data

Vessel First Line (estimate)		[redacted]
Barge Arrival		[redacted]
Barge First Line		[redacted]
Connection Time (start control)		[redacted]
Actual Disconnect Time (stop control)		[redacted]
Barge Last Line		[redacted]
Barge Secured at Home Berth		[redacted]
Mobilization Start		[redacted]
Mobilization End		[redacted]
Service Hours([redacted])		79.50
SubTotal		**79.50**
		-
Total Hours Billed		79.50
Hourly Rate	$	1,100.00
Emission Control Services Total (79.5 * 1100)	$	87,450.00
	$	-
Other:	$	-
Other:	$	-
Total Additional Charges/Credits	**$**	**-**
Total Amount Due	**$**	**87,450.00**

Terms NET 15. Due By [redacted]

Interest on past due amounts will be charged at a rate of 1.5% per month.

AMECS

Effective Rate:
Total Cost/Vessel Stay
=$87,450/79.50
=$1,100/hour

Generated: [redacted]

Receipt Excerpt #3:

AMECS Emission Control Services Invoice

Bill To	[redacted]	Invoice# [redacted]
		Invoice Date [redacted]2019
		Amount $ 19,200.00
Wire To	Advanced Environmental Group LLC	Chase Bank - Bank Contact [redacted]
	230-234 East C Street	[redacted]
	Wilmington, CA 90744	[redacted]

Visit Summary

Record#	[redacted]	Visit Date	[redacted]/2019
Company	[redacted]	Vessel	[redacted]
Location	[redacted]	IMO/Call Sign	[redacted]

Visit Data

Vessel First Line (estimate)	[redacted]/2019	14:30
Barge Arrival	[redacted]2019	17:50
Barge First Line	[redacted]/2019	18:15
Connection Time (start control)	[redacted]2019	19:01
Actual Disconnect Time (stop control)	[redacted]/2019	03:01
Barge Last Line	[redacted]/2019	03:16
Barge Secured at Home Berth	[redacted]2019	04:55
Mobilization Start	[redacted]/2019	15:30
Mobilization End	[redacted]/2019	05:00
Mobilization/Demobilization Hours		4.00
Service Hours [redacted]/19 15:30 - [redacted]19 05:00		13.50
SubTotal		17.50
Total Hours Billed		17.50
Hourly Rate	$	800.00
Emission Control Services Total (17.5 * 800)	$	14,000.00
Note: Minimum Charge of 24 hours 800* 6.5	$	5,200.00
Other:	$	-
Total Additional Charges/Credits	$	5,200.00
Total Amount Due	$	19,200.00

Terms NET 15. Due B[redacted]/2019 Interest on past due amounts will be charged at a rate of 1.5% per month.

HRLY Charge $1422

AMECS

Generated: [redacted]

NOTE: Short Stay Vsl.
VSL STAY: 13.5 HRS
TUG CALLED: 4.0 HRS
MinCharge: 24 HRS
Effective Hourly Charge $19,200/13.5 hrs = $1422.22

Receipt Excerpt #4:

HOURLY CHARGE	$900 USD per hour. The Hourly Charge is inclusive of all tug services and/or other 3rd party services required for mobilizing, de-mobilizing, and positioning System to Customer's vessel. Notwithstanding the above, any and all charges for "Spacer Barges," "Fenders" and/or supplemental 3rd party crew boats are not included in the Hourly Charge and will be passed through to Customer at the actual cost to Operator + 20%. Additional charges may only be added upon written authorization by Customer. In the event Terminal may require a Spacer Barge between the VENDOR and Vessel.
EMISSION CONTROL SERVICE CHARGES	Service hours will be charged from the beginning of VENDOR mobilization to the end of VENDOR demobilization. Customer understands that Operator has a minimum charge of twenty-four (24) hours per vessel.

At an hourly rate of $900, applied across the minimum 24 hour billing requirement, the total cost is 24 x $900) / 17 hours (avg. call time) = $1,270 effective hourly rate.

San Pedro Bay Ports
At-Berth Auto and RoRo Cost-Effectiveness Analysis
CY 2018 Data Summary
04 October 2019
DRAFT

Table 1
CY 2018

Port / Location	Vessel type	Average Berth hrs/Call
POLB		
Terminal	Auto Carrier	15
Anchorage	Auto Carrier	18
POLA		
Terminal	Auto Carrier	16
Terminal	RoRo	36
Anchorage	Auto Carrier	45
Anchorage	RoRo	5

Table 2

			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
OGV Emissions CY 2018						**g/hr**	**PM**	**PM2.5**	**DPM**	**NOx**	**SOx**	**HC**	**CO**	**CH4**	**CO2**	**N2O**	**CO2e**
POLB																	
Terminal	Auto Carrier	Aux					321	302	321	15,259	573	503	1,385	10	863,331	37	874,513
Terminal	Auto Carrier	Auxiliary Boiler					45	42	0	646	200	33	65	1	301,594	25	308,945
Anchorage	Auto Carrier	Aux					145	137	145	6,965	260	228	628	5	391,338	17	396,407
Anchorage	Auto Carrier	Auxiliary Boiler					49	46	0	710	219	36	72	1	331,316	27	339,391
POLA																	
Terminal	Auto Carrier	Aux					201	186	201	9,612	256	327	900	7	560,928	24	568,193
Terminal	Auto Carrier	Auxiliary Boiler					44	41	0	664	142	34	67	1	309,929	25	317,483
Terminal	RoRo	Aux					192	180	192	7,907	342	300	826	6	515,111	22	521,782
Terminal	RoRo	Auxiliary Boiler					35	33	0	511	158	26	52	1	238,669	19	244,486
Anchorage	Auto Carrier	Aux					148	139	148	7041	225	238	653	5	407429	17	412,706
Anchorage	Auto Carrier	Auxiliary Boiler					43	40	0	633	156	32	64	1	295361	24	302,560
Anchorage	RoRo	Aux					111	104	111	4569	198	174	477	3	297680	13	301,536
Anchorage	RoRo	Auxiliary Boiler					34	32	0	495	153	25	50	1	231297	19	236,935

Table 3
Assist Tug Boat Emissions CY 2018

						g/hr	**PM**	**PM2.5**	**DPM**	**NOx**	**SOx**	**HC**	**CO**	**CH4**	**CO2**	**N2O**	**CO2e**
POLB							73	67	73	2,101	2	229	1,540	4	189,138	9	191,775
POLA							73	67	73	2,103	2	229	1,542	4	189,138	9	191,775
SPBP Average							73	67	73	2,102	2	229	1,541	4	189,138	9	191,775

Table 4

Emission Control System	**g/hr**	**PM**	**PM2.5**	**DPM**	**NOx**	**SOx**	**HC**	**CO**	**CH4**	**CO2**	**N2O**	**CO2e**
AMECS Gen Set		0.4	0.4	0.4	16	11	27	422	8	109,099	3	110,314

Table 5
Tug Boat Distance and Time Calculation

Sub Trip	From	To	Time in hr
1	HC Home Base	Barge Home Base	0.66
2	Barge Home Base	Terminal	0.66
3	Terminal	HC Home Base	0.66
4	HC Home Base	Terminal	0.66
5	Terminal	Barge Home Base	0.66
6	Barge Home Base	HC Home Base	0.66
7	Harbor Craft Wait	Harbor Craft Wait	1.00
Total			**5.0**

1 short ton	907,180	grams
1 mt	1,000,000	grams

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% Calls Barge Based Capture and Control (BCC)

POLB	100%
POLA	100%

Barge Reduction

Pollutant:	PM	PM2.5	DPM	NOx	SOx	HC	CO	CO2e
Reduction:	80%	80%	80%	80%	0%	0%	0%	0%

Barge set-up	3	hrs/call set-up and take-down
Assist tug (Y/N)	Y	
% of calls bunkering at anchorage	50%	
Average bunkering time, hrs	12	
# of barge genset engines on	2	Assumed current AMEC engines

Baseline - OGV emissions without control

Port	Terminal	Berth	Vessel Type	Engine Type	# of Berth Calls	Berth hrs/call	Tot Berth hrs	PM tpy	$PM_{2.5}$ tpy	DPM tpy	NOx tpy	SOx tpy	HC tpy	CO tpy	CO_2e mt	BC
POLB	LBA010	B83	Auto Carrier	Aux	83	15	1,245	0.44	0.41	0.44	20.94	0.79	0.69	1.90	1,089	
POLB	LBB030	F207	Auto Carrier	Aux	62	15	930	0.33	0.31	0.33	15.64	0.59	0.52	1.42	813	
POLB	LBB031	F205	Auto Carrier	Aux	41	15	615	0.22	0.20	0.22	10.34	0.39	0.34	0.94	538	
POLB	LBA010	B83	Auto Carrier	Auxiliary Boiler	83	15	1,245	0.06	0.06	0.00	0.89	0.27	0.04	0.09	385	
POLB	LBB030	F207	Auto Carrier	Auxiliary Boiler	62	15	930	0.05	0.04	0.00	0.66	0.20	0.03	0.07	287	
POLB	LBB031	F205	Auto Carrier	Auxiliary Boiler	41	15	615	0.03	0.03	0.00	0.44	0.14	0.02	0.04	190	
POLB	ANC		Auto Carrier	Aux	12	18	216	0.03	0.03	0.03	1.66	0.06	0.05	0.15	86	
POLB	ANC		Auto Carrier	Auxiliary Boiler	12	18	216	0.01	0.01	0.00	0.17	0.05	0.01	0.02	73	
POLA	LAO060	198	Auto Carrier	Aux	71	16	1,136	0.25	0.23	0.25	12.04	0.32	0.41	1.13	711.51	
POLA	LAO060	198	RoRo	Aux	0	36	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
POLA	LAO060	199	Auto Carrier	Aux	0	16	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
POLA	LAO060	199	RoRo	Aux	2	36	72	0.02	0.01	0.02	0.63	0.03	0.02	0.07	41.41	
POLA	LAC060	121	RoRo	Aux	25	36	900	0.19	0.18	0.19	7.84	0.34	0.30	0.82	517.65	
POLA	LAC060	126	RoRo	Aux	1	36	36	0.01	0.01	0.01	0.31	0.01	0.01	0.03	20.71	
POLA	LAO060	198	Auto Carrier	Auxiliary Boiler	71	16	1136	0.06	0.05	0.00	0.83	0.18	0.04	0.08	361	
POLA	LAO060	198	RoRo	Auxiliary Boiler	0	36	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	
POLA	LAO060	199	Auto Carrier	Auxiliary Boiler	0	16	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	
POLA	LAO060	199	RoRo	Auxiliary Boiler	2	36	72	0.00	0.00	0.00	0.04	0.01	0.00	0.00	18	
POLA	LAC060	121	RoRo	Auxiliary Boiler	25	36	900	0.03	0.03	0.00	0.51	0.16	0.03	0.05	220	
POLA	LAC060	126	RoRo	Auxiliary Boiler	1	36	36	0.00	0.00	0.00	0.02	0.01	0.00	0.00	9	
POLA	ANC		Auto Carrier	Aux	4	45	180	0.03	0.02	0.02	0.91	0.04	0.03	0.09	54	
POLA	ANC		RoRo	Aux	1	5	5	0.00	0.00	0.00	0.03	0.00	0.00	0.00	2	
POLA	ANC		Auto Carrier	Auxiliary Boiler	4	45	180	0.01	0.01	0.00	0.10	0.03	0.00	0.01	43	
POLA	ANC		RoRo	Auxiliary Boiler	1	5	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1	

Scenario						Vessel scenario									OGV emissions after control by BCC								
C Control	# of BCC	io-control	Barge Controlled	Uncontr.	Control	PM	$PM_{2.5}$	DPM	NOx	SOx	HC	CO	CO_2e		PM	$PM_{2.5}$	DPM	NOx	SOx	HC	CO	CO_2e
Y/N	Calls	Hr/Call	Hrs	Hr	%	CF	CF	CF	CF	CF	CF	CF	CF		tpy	tpy	tpy	tpy	tpy	tpy	tpy	mt
Y	83	3	996	249	80%	0.20	0.20	0.20	0.20	1.00	1.00	1.00	1.00		0.159	0.149	0.159	7.539	0.786	0.691	1.900	1,089
Y	62	3	744	186	80%	0.20	0.20	0.20	0.20	1.00	1.00	1.00	1.00		0.118	0.111	0.118	5.631	0.587	0.516	1.419	813
Y	41	3	492	123	80%	0.20	0.20	0.20	0.20	1.00	1.00	1.00	1.00		0.078	0.074	0.078	3.724	0.388	0.341	0.939	538
Y	83	3	996	249	80%	0.20	0.20	0.20	0.20	1.00	1.00	1.00	1.00		0.022	0.021	0.000	0.319	0.274	0.045	0.090	385
Y	62	3	744	186	80%	0.20	0.20	0.20	0.20	1.00	1.00	1.00	1.00		0.016	0.015	0.000	0.238	0.205	0.034	0.067	287
Y	41	3	492	123	80%	0.20	0.20	0.20	0.20	1.00	1.00	1.00	1.00		0.011	0.010	0.000	0.158	0.135	0.022	0.044	190
N	12	0	0	216	0%	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		0.035	0.033	0.035	1.658	0.062	0.054	0.149	86
N	12	0	0	216	0%	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		0.012	0.011	0.000	0.169	0.052	0.009	0.017	73
Y	71	3	923	213	81%	0.20	0.20	0.20	0.20	1.00	1.00	1.00	1.00		0.088	0.082	0.088	4.213	0.321	0.410	1.126	712
Y	0	3	0	0	0%	0.20	0.20	0.20	0.20	1.00	1.00	1.00	1.00		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0
Y	0	3	0	0	0%	0.20	0.20	0.20	0.20	1.00	1.00	1.00	1.00		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0
Y	2.0	3	66	6	92%	0.20	0.20	0.20	0.20	1.00	1.00	1.00	1.00		0.004	0.004	0.004	0.167	0.027	0.024	0.066	41
Y	25	3	825	75	92%	0.20	0.20	0.20	0.20	1.00	1.00	1.00	1.00		0.051	0.048	0.051	2.092	0.339	0.298	0.820	518
Y	1	3	33	3	92%	0.20	0.20	0.20	0.20	1.00	1.00	1.00	1.00		0.002	0.002	0.002	0.084	0.014	0.012	0.033	21
Y	71	3	923	213	81%	0.20	0.20	0.20	0.20	1.00	1.00	1.00	1.00		0.019	0.018	0.000	0.291	0.178	0.042	0.084	361
Y	0	3	0	0	0%	0.20	0.20	0.20	0.20	1.00	1.00	1.00	1.00		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0
Y	0	3	0	0	0%	0.20	0.20	0.20	0.20	1.00	1.00	1.00	1.00		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0
Y	2	3	66	6	92%	0.20	0.20	0.20	0.20	1.00	1.00	1.00	1.00		0.001	0.001	0.000	0.011	0.013	0.002	0.004	18
Y	25	3	825	75	92%	0.20	0.20	0.20	0.20	1.00	1.00	1.00	1.00		0.009	0.009	0.000	0.135	0.157	0.026	0.051	220
Y	1	3	33	3	92%	0.20	0.20	0.20	0.20	1.00	1.00	1.00	1.00		0.000	0.000	0.000	0.005	0.006	0.001	0.002	9
N	4	0	0	180	0%	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		0.029	0.021	0.022	0.907	0.039	0.034	0.095	54
N	1	0	0	5	0%	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		0.001	0.001	0.001	0.025	0.001	0.001	0.003	2
N	4	0	0	180	0%	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		0.008	0.006	0.000	0.098	0.030	0.005	0.010	43
N	1	0	0	5	0%	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		0.000	0.000	0.000	0.003	0.001	0.000	0.000	1

Barge gen scenario - additional emissions									Assist tug scenario - aditional emissions										
PM	$PM_{2.5}$	DPM	NOx	SOx	HC	CO	CO_2e		Assist Tug		Total	PM	$PM_{2.5}$	DPM	NOx	SOx	HC	CO	CO_2e
tpy	tpy	tpy	tpy	tpy	tpy	tpy	mt		Used	hrs/call	hrs	tpy		tpy	tpy	tpy	tpy	tpy	mt
0.0011	0.0010	0.0011	0.0432	0.0314	0.0747	1.1593	275		Y	5.0	415	0.03	0.03	0.03	0.96	0.00	0.10	0.70	80
0.0008	0.0007	0.0008	0.0323	0.0235	0.0558	0.8660	205		Y	5.0	310	0.02	0.02	0.02	0.72	0.00	0.08	0.53	59
0.0005	0.0005	0.0005	0.0214	0.0155	0.0369	0.5727	136		Y	5.0	205	0.02	0.02	0.02	0.48	0.00	0.05	0.35	39
0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0		Y	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0
0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0		Y	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0
0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0		Y	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0
0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0		N	0	0	0.000	0.00	0.00	0.00	0.00	0.00	0.00	0
0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0		N	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0
0.0010	0.0009	0.0010	0.0394	0.0287	0.0681	1.0578	251		Y	5	355	0.03	0.03	0.03	0.82	0.00	0.09	0.60	68
0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0		Y	5	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0
0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0		Y	5	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0
0.0001	0.0001	0.0001	0.0025	0.0018	0.0043	0.0670	16		Y	5	10	0.00	0.00	0.00	0.02	0.00	0.00	0.02	2
0.0008	0.0007	0.0008	0.0313	0.0227	0.0540	0.8380	199		Y	5	125	0.01	0.01	0.01	0.29	0.00	0.03	0.21	24
0.0000	0.0000	0.0000	0.0013	0.0009	0.0022	0.0335	8		Y	5	5	0.00	0.00	0.00	0.01	0.00	0.00	0.01	1
0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0		Y	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0
0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0		Y	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0
0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0		Y	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0
0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0		Y	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0
0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0		Y	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0
0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0		Y	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0
0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0		N	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0
0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0		N	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0
0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0		N	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0
0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0		N	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0

Vessel bunkering at anchorage - additional emissions

# Calls	Total hrs	PM	PM2.5	DPM	NOx	SOx	HC	CO	CO2e
		tpy	tpy	tpy	tpy	tpy	tpy	tpy	mt
42	498	0.08	0.08	0.08	3.82	0.14	0.13	0.34	197
31	372	0.06	0.06	0.06	2.86	0.11	0.09	0.26	147
21	246	0.04	0.04	0.04	1.89	0.07	0.06	0.17	98
42	498	0.03	0.03	0.00	0.39	0.12	0.02	0.04	169
31	372	0.02	0.02	0.00	0.29	0.09	0.01	0.03	126
21	246	0.01	0.01	0.00	0.19	0.06	0.01	0.02	83
0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0
0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0
36	426	0.07	0.06	0.07	3.27	0.12	0.11	0.29	169
0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0
0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0
1	12	0.00	0.00	0.00	0.09	0.00	0.00	0.01	5
13	150	0.02	0.02	0.02	1.15	0.04	0.04	0.10	59
1	6	0.00	0.00	0.00	0.05	0.00	0.00	0.00	2
36	426	0.02	0.02	0.00	0.33	0.10	0.02	0.03	145
0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0
0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0
1	12	0.00	0.00	0.00	0.01	0.00	0.00	0.00	4
13	150	0.01	0.01	0.00	0.12	0.04	0.01	0.01	51
0.5	6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2
0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0
0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0
0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0
0.0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0

Overall emission reductions (or increases, which are negative reductions)

PM	PM25	DPM	NOx	SOx	HC	CO	CO2e
tpy		tpy	tpy	tpy	tpy	tpy	mt
0.17	0.16	0.17	8.57	-0.17	-0.30	-2.21	-552
0.13	0.12	0.13	6.40	-0.13	-0.23	-1.65	-412
0.08	0.08	0.08	4.24	-0.09	-0.15	-1.09	-273
0.01	0.01	0.00	0.18	-0.12	-0.02	-0.04	-169
0.01	0.01	0.00	0.13	-0.09	-0.01	-0.03	-126
0.01	0.01	0.00	0.09	-0.06	-0.01	-0.02	-83
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0
0.07	0.06	0.07	3.69	-0.15	-0.26	-1.96	-488
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0
0.01	0.01	0.01	0.34	-0.01	-0.01	-0.09	-23
0.10	0.10	0.10	4.28	-0.07	-0.12	-1.15	-282
0.00	0.00	0.00	0.17	0.00	0.00	-0.05	-11
0.01	0.01	0.00	0.21	-0.10	-0.02	-0.03	-145
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0
0.00	0.00	0.00	0.02	0.00	0.00	0.00	-4
0.02	0.02	0.00	0.25	-0.04	-0.01	-0.01	-51
0.00	0.00	0.00	0.01	0.00	0.00	0.00	-2
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0

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Table A1: Reductions from Barge Based at-Berth Capture and Control, tpy

Port	PM_{10} tpy	$PM_{2.5}$ tpy	DPM tpy	NO_x tpy	SO_x tpy	HC tpy	CO tpy	CO_2e mt/yr	Barge Op hrs
Emission Reductions (or increases)									
POLB	0.40	0.38	0.38	19.61	-0.66	-0.73	-5.04	-1,615	2,790
POLA	0.22	0.20	0.18	8.98	-0.37	-0.43	-3.30	-1,005	2,144
Total	**0.62**	**0.58**	**0.56**	**28.59**	**-1.03**	**-1.15**	**-8.33**	**-2,620**	**4,934**
Percent Reduction (or increase)									
POLB	36%	36%	38%	40%	-28%	-44%	-113%	-49%	
POLA	39%	38%	39%	40%	-35%	-52%	-151%	-53%	
Total	**37%**	**37%**	**38%**	**40%**	-30%	-47%	-125%	-50%	

Negative indicates a net increase in emissions

Table A2: Reductions from Barge Based at-Berth Capture and Control, tpd

Port	PM10 tpd	PM2.5 tpd	DPM tpd	NOx tpd	SOx tpd	HC tpd	CO tpd	CO2e mt/yr
Emission Reductions (or increases)								
POLB	0.0011	0.0010	0.0010	0.0537	-0.0018	-0.0020	-0.0138	-4.4
POLA	0.0006	0.0006	0.0005	0.0246	-0.0010	-0.0012	-0.0090	-2.8
Total	**0.0017**	**0.0016**	**0.0015**	**0.0783**	**-0.0028**	**-0.0032**	**-0.0228**	**-7.2**
Percent Reduction (or increase)								
POLB	36%	36%	38%	40%	-28%	-44%	-113%	-49%
POLA	39%	38%	39%	40%	-35%	-52%	-151%	-53%
Total	**37%**	**37%**	**38%**	**40%**	-30%	-47%	-125%	-50%

Negative indicates a net increase in emissions

Table B1: Auto Carriers and RoRo at-berth Emissions Contribution in CY 2018 in tpy

Port	Vessel Type	PM	PM2.5	DPM	NOx	SOx	HC	CO	CO2e
		tpy	tpy	tpy	tpy	tpy	tpy	tpy	mt/y
SPBP	Auto and RoRo at Berth	1.7	1.6	1.4	69.9	3.4	2.4	6.5	5,001
SPBP	All vessels at Berth	60.1	56.3	31.4	1894.8	169.7	72.7	188.7	264,414
SPBP	All vessels	142.0	133.0	106.1	7078.5	323.3	270.9	590.3	503,286
SPBP	Percent of all OGV at Berth	2.8%	2.8%	4.5%	3.7%	2.0%	3.3%	3.5%	1.9%
SPBP	Percent of all OGV	1.2%	1.2%	1.3%	1.0%	1.0%	0.9%	1.1%	1.0%

Table B2: Auto Carriers and RoRo at-berth Emissions Contribution in CY 2018 in tpd

Port	Vessel Type	PM10	PM2.5	DPM	NOx	SOx	HC	CO	CO2e
		tpd	tpd	tpd	tpd	tpd	tpd	tpd	mt/d
SPBP	Auto and RoRo at Berth	0.0045	0.0043	0.0039	0.1916	0.0092	0.0066	0.0179	14
SPBP	All vessels at Berth	0.1648	0.1543	0.0861	5.1914	0.4649	0.1993	0.5170	724
SPBP	All vessels	0.3891	0.3642	0.2907	19.3931	0.8857	0.7421	1.6172	1,379
SPBP	Percent of all OGV at Berth	2.8%	2.8%	4.5%	3.7%	2.0%	3.3%	3.5%	1.9%
SPBP	Percent of all OGV	1.2%	1.2%	1.3%	1.0%	1.0%	0.9%	1.1%	1.0%

San Pedro Bay Ports
At-Berth Auto and RoRo Cost-Effectiveness Analysis
Cost Effectiveness Scenarios
22 October 2019
DRAFT

Blue font/blue background:	inputs on this sheet that can be changed based on assumptions
Black font/yellow background:	inputs on this sheet that are linked from this sheet or other sheets in this workbook
Red font/white background:	calculations performed on this sheet

Assumptions are in BLUE	Description	Notes
EMISSIONS REDUCTION/INCREASE PER YEAR		
0.58	change in PM2.5 emissions	
28.59	change in NOx emissions	
-1.15	change in HC emissions	Negative change means emissions *increase* .
-1.460	change in ROG emissions	ROG = HC * 1.26639, per 2017 CMP Guidelines, CARB
20	PM weighting factor	per CMP: weighted emissions = (20*DPM) + ROG + NOX reductions in tpy
38.76	weighted redux, tpy	
4,934	total hours / year	Hrs of vessel operation per year cleaned up by the barge C&C technology.

Case #1: Hourly Rental

1%	discount rate	
1	project life	
1.01	Capital Recovery Factor (CRF)	
$900	hourly rental rate	per CARB excel - "Cost Input Tab" (assumes all inclusive)
$4,440,600	total cost/yr to operate the system across total cleanup hours	
$115,707	annualized cost effectiveness, based on project life and discount rate	

Hourly Rate	Cost-Effectiveness	Rate Source (assumes/indicated all inclusive)
$900	$115,707	CARB SRIA Excel - "Cost Input Tab"
$1,100	$141,419	Receipt #2
$1,208	$155,304	Receipt #1
$1,270	$163,275	$900/hr for 17 hr call, includes 24-hr min. charge (Receipt #4)
$1,422	$182,816	Receipt #3
$1,552	$199,530	$1,100/hr for 17 hr call, includes 24-hr min. charge

Case #2: Purchase Barge-Based C&C System(s)

4	number of barge-based C&C systems to serve both ports	
38.76	tpy, weighted redux, tpy	
4,934	total hours / year	Hrs of vessel operation per year cleaned up by the barge C&C technology.
Capital Costs		
$4,900,000	barge-based C&C system - estimated capital cost	
5%	discount rate	ARB uses 5% and 20-yr life for the land-based system.
20	project life	
0.08	Capital Recovery Factor (CRF)	
$1,568,000	Annualized Capital Cost	
Operating Costs		
$17,500	Ann'l Maint. Cost per Barge, $ / hr	Per CARB SRIA excel - Assume each barge maint is needed, not a f(hours)
$70,000	Total Annual Maint. Cost, $/yr	Assumes same $/yr per system.
$0	Labor Cost, $ / hr	ARB assumes this is zero. Need to vet this.
$0	Annual Operating Cost, $ / yr	Applied to total hours, independent of # of barges.
$100	Hourly Operating Cost, $ / hr	Per CARB SRIA excel - cost inputs (consumables, etc., not labor)
$493,400	Annual Operating Cost, $ / yr	Applied to total hours, independent of # of barges.
$563,400	Annual Operating Cost, $ / yr for all	systems (cell A34)
Cost-Effectiveness		
$2,131,400	Annualized capital cost plus operating cost ($/yr)	
$54,987	Cost-effectiveness ($/ton)	

from CMP 2017 Guidelines : https://ww3.arb.ca.gov/msprog/moyer/guidelines/2017gl/2017_cmp_gl_volume_1.pdf

(d) EMFAC provides HC emission factors which are converted into ROG. ROG = HC * 1.26639.
(e) Emission Factors are based on zero-mile rates contained in EMFAC 2014.
(f) Deterioration Rate per 10,000 miles.
(g) All model year 2007 and newer engines with Family Emission Limits (FEL) from 0.21 g/bhp-hr to 0.50 g/bhp-hr NOx must use different emission factors from those listed for model years 2010 and newer engines certified to 0.20 g/bhp-hr NOx standards. FEL emission factors are based on EMFAC factors for model year 2010-2012 engines that include weighted averaging of 0.5, 0.35, and 0.20 g/bhp-hr NOx standards based on sales.
(h) Deterioration rates for 2013+ engines incorporate use of on-board diagnostic system.
(i) Factors for 2010+ engines are reduced values of 2013 factors by 50 percent, 75 percent, and 90 percent to correspond with 0.10 g/bhp-hr NOx, 0.05 g/bhp-hr NOx, and 0.02 g/bhp-hr NOx optional low NOx standards.
(j) Factors for 2006 or older engines are for unfiltered trucks.

06/20/2017 D - 1 EMISSIONS TABLES

Context

CMP CE to bring old tech up to current standards: $30k / weighted ton
CMP CE to bring tech that meets current standards to advanced tech (ZE / NZE): $100k / weighted ton

San Pedro Bay Ports
At-Berth Auto and RoRo Cost-Effectiveness Analysis
Barge Utilization Evaluation
04 October 2019
DRAFT

Number of RoRo and Auto Carier calls to both ports (LA/LB) combined. Note: a call is defined as an Arrival to berth or a Shift to berth from Anc.

Concurrent calls	2018 days	% of days
0	173	47%
1	130	36%
2	45	12%
3	12	3%
4	5	1%
	365	

4	barges (needed to accommodate busiest days)
1,460	barge days per year
	<-- longest stretch with no calls: once at 6 days
130	barge days with 1 vessel
90	barge days with 2 vessels
36	barge days with 3 vessels
20	barge days with 4 vessels
276	(billable) barge days per year
19%	billable barge days % of total barge days
90%	billable days basis of hourly rate (assumption)
4.8	hourly rate multiplier to account for low utilization

oc_datetime	num_calls
2018-01-01	1
2018-01-02	1
2018-01-03	2
2018-01-04	3
2018-01-05	1
2018-01-06	0
2018-01-07	0
2018-01-08	0
2018-01-09	2
2018-01-10	0
2018-01-11	1
2018-01-12	1
2018-01-13	0
2018-01-14	0
2018-01-15	2
2018-01-16	0
2018-01-17	1
2018-01-18	0
2018-01-19	0
2018-01-20	0
2018-01-21	1
2018-01-22	1
2018-01-23	0
2018-01-24	0
2018-01-25	2
2018-01-26	0
2018-01-27	1
2018-01-28	0
2018-01-29	2
2018-01-30	0
2018-01-31	0
2018-02-01	1
2018-02-02	2
2018-02-03	0
2018-02-04	1
2018-02-05	2
2018-02-06	1
2018-02-07	1
2018-02-08	1

2018-02-09	0
2018-02-10	0
2018-02-11	0
2018-02-12	3
2018-02-13	0
2018-02-14	0
2018-02-15	2
2018-02-16	0
2018-02-17	0
2018-02-18	2
2018-02-19	2
2018-02-20	2
2018-02-21	0
2018-02-22	1
2018-02-23	1
2018-02-24	1
2018-02-25	0
2018-02-26	1
2018-02-27	1
2018-02-28	0
2018-03-01	0
2018-03-02	0
2018-03-03	1
2018-03-04	0
2018-03-05	1
2018-03-06	1
2018-03-07	1
2018-03-08	2
2018-03-09	1
2018-03-10	0
2018-03-11	0
2018-03-12	4
2018-03-13	0
2018-03-14	1
2018-03-15	1
2018-03-16	0
2018-03-17	0
2018-03-18	2
2018-03-19	0
2018-03-20	1
2018-03-21	2
2018-03-22	1
2018-03-23	2
2018-03-24	1
2018-03-25	0
2018-03-26	1
2018-03-27	0
2018-03-28	1
2018-03-29	0
2018-03-30	0
2018-03-31	2
2018-04-01	0
2018-04-02	1
2018-04-03	1
2018-04-04	2
2018-04-05	2
2018-04-06	0
2018-04-07	0

2018-04-08	3
2018-04-09	2
2018-04-10	0
2018-04-11	0
2018-04-12	0
2018-04-13	0
2018-04-14	0
2018-04-15	3
2018-04-16	0
2018-04-17	0
2018-04-18	1
2018-04-19	0
2018-04-20	1
2018-04-21	0
2018-04-22	1
2018-04-23	4
2018-04-24	1
2018-04-25	1
2018-04-26	2
2018-04-27	1
2018-04-28	1
2018-04-29	0
2018-04-30	0
2018-05-01	0
2018-05-02	2
2018-05-03	0
2018-05-04	1
2018-05-05	0
2018-05-06	1
2018-05-07	2
2018-05-08	1
2018-05-09	1
2018-05-10	0
2018-05-11	1
2018-05-12	0
2018-05-13	0
2018-05-14	1
2018-05-15	1
2018-05-16	0
2018-05-17	0
2018-05-18	0
2018-05-19	0
2018-05-20	0
2018-05-21	3
2018-05-22	1
2018-05-23	1
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2018-05-25	0
2018-05-26	0
2018-05-27	0
2018-05-28	0
2018-05-29	0
2018-05-30	2
2018-05-31	0
2018-06-01	1
2018-06-02	0
2018-06-03	1
2018-06-04	1

2018-06-05	1
2018-06-06	0
2018-06-07	2
2018-06-08	0
2018-06-09	1
2018-06-10	1
2018-06-11	0
2018-06-12	1
2018-06-13	0
2018-06-14	1
2018-06-15	1
2018-06-16	1
2018-06-17	1
2018-06-18	2
2018-06-19	1
2018-06-20	1
2018-06-21	1
2018-06-22	1
2018-06-23	0
2018-06-24	0
2018-06-25	1
2018-06-26	0
2018-06-27	1
2018-06-28	1
2018-06-29	0
2018-06-30	0
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2018-07-02	3
2018-07-03	1
2018-07-04	1
2018-07-05	0
2018-07-06	1
2018-07-07	0
2018-07-08	0
2018-07-09	0
2018-07-10	1
2018-07-11	1
2018-07-12	0
2018-07-13	0
2018-07-14	0
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2018-07-18	1
2018-07-19	1
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2018-07-22	0
2018-07-23	0
2018-07-24	1
2018-07-25	0
2018-07-26	2
2018-07-27	1
2018-07-28	0
2018-07-29	0
2018-07-30	2
2018-07-31	1
2018-08-01	0

2018-08-02	2
2018-08-03	2
2018-08-04	0
2018-08-05	0
2018-08-06	3
2018-08-07	1
2018-08-08	0
2018-08-09	0
2018-08-10	0
2018-08-11	0
2018-08-12	1
2018-08-13	2
2018-08-14	0
2018-08-15	1
2018-08-16	1
2018-08-17	0
2018-08-18	0
2018-08-19	1
2018-08-20	0
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2018-08-22	0
2018-08-23	0
2018-08-24	2
2018-08-25	1
2018-08-26	1
2018-08-27	1
2018-08-28	0
2018-08-29	0
2018-08-30	1
2018-08-31	1
2018-09-01	1
2018-09-02	0
2018-09-03	0
2018-09-04	2
2018-09-05	0
2018-09-06	0
2018-09-07	1
2018-09-08	1
2018-09-09	0
2018-09-10	0
2018-09-11	1
2018-09-12	1
2018-09-13	3
2018-09-14	1
2018-09-15	0
2018-09-16	0
2018-09-17	1
2018-09-18	0
2018-09-19	2
2018-09-20	1
2018-09-21	1
2018-09-22	0
2018-09-23	2
2018-09-24	1
2018-09-25	1
2018-09-26	0
2018-09-27	0
2018-09-28	0

2018-09-29	0
2018-09-30	1
2018-10-01	0
2018-10-02	4
2018-10-03	2
2018-10-04	0
2018-10-05	0
2018-10-06	0
2018-10-07	0
2018-10-08	4
2018-10-09	0
2018-10-10	0
2018-10-11	0
2018-10-12	0
2018-10-13	0
2018-10-14	1
2018-10-15	1
2018-10-16	0
2018-10-17	0
2018-10-18	2
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2018-10-20	0
2018-10-21	0
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2018-10-23	1
2018-10-24	0
2018-10-25	0
2018-10-26	1
2018-10-27	0
2018-10-28	1
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2018-10-30	3
2018-10-31	0
2018-11-01	0
2018-11-02	1
2018-11-03	1
2018-11-04	0
2018-11-05	1
2018-11-06	2
2018-11-07	0
2018-11-08	1
2018-11-09	1
2018-11-10	1
2018-11-11	0
2018-11-12	1
2018-11-13	1
2018-11-14	1
2018-11-15	0
2018-11-16	0
2018-11-17	0
2018-11-18	1
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2018-11-20	3
2018-11-21	0
2018-11-22	0
2018-11-23	0
2018-11-24	2
2018-11-25	1

2018-11-26	1
2018-11-27	0
2018-11-28	0
2018-11-29	2
2018-11-30	0
2018-12-01	2
2018-12-02	2
2018-12-03	0
2018-12-04	0
2018-12-05	1
2018-12-06	0
2018-12-07	0
2018-12-08	1
2018-12-09	0
2018-12-10	0
2018-12-11	0
2018-12-12	4
2018-12-13	0
2018-12-14	0
2018-12-15	1
2018-12-16	1
2018-12-17	1
2018-12-18	1
2018-12-19	0
2018-12-20	1
2018-12-21	2
2018-12-22	2
2018-12-23	0
2018-12-24	1
2018-12-25	0
2018-12-26	2
2018-12-27	0
2018-12-28	2
2018-12-29	0
2018-12-30	1
2018-12-31	1

San Pedro Bay Ports
At-Berth Auto and RoRo Emissions Contribution
CY 2018 Data
04 October 2019
DRAFT

SPBP Table B for the document

Port	Vessel Type	PM_{10} tpy	$PM_{2.5}$ tpy	DPM tpy	NOx tpy	SOx tpy	HC tpy	CO tpy	CO_2e mt/yr
SPBP	Auto and RoRo at Berth	1.7	1.6	1.4	70	3.4	2.4	6.5	5,001
SPBP	All vessels at Berth	60.1	56.3	31.4	1,895	169.7	72.7	188.7	264,414
SPBP	All vessels	142.0	133.0	106.1	7,078	323.3	270.9	590.3	503,286
SPBP	Percent of all OGV at Berth	2.8%	2.8%	4.5%	3.7%	2.0%	3.3%	3.5%	1.9%
SPBP	Percent of all OGV	1.2%	1.2%	1.3%	1.0%	1.0%	0.9%	1.1%	1.0%

Port	Vessel Type	Mode	PM	$PM_{2.5}$	DPM	NOx	SOx	HC	CO	$CO2_e$	Units
POLA	Auto and RoRo	at-berth	0.6	0.5	0.5	22.5	1.1	0.8	2.2	1,799	tons
POLA	All	at-berth	24.3	22.6	12.8	766.9	58.8	30.7	82.2	109,452	tons
POLA	All	All	57.0	52.9	42.7	2909.4	110.0	119.5	249.5	205,486	tons
POLA	Auto &RoRo vs All OGV	at-berth	2.3%	2.3%	3.7%	2.9%	1.8%	2.7%	2.7%	1.6%	%
POLA	Auto &RoRo vs All OGV	All	1.0%	1.0%	1.1%	0.8%	1.0%	0.7%	0.9%	0.9%	%
POLB	Auto	at-berth	1.1	1.0	1.0	47.4	2.3	1.6	4.3	3,202	tons
POLB	All	at-berth	35.9	33.8	18.6	1127.9	110.8	42.1	106.5	154,962	tons
POLB	All	All	85.0	80.0	63.4	4169.1	213.2	151.4	340.8	297,800	tons
POLB	Auto &RoRo vs All OGV	at-berth	3.0%	3.0%	5.1%	4.2%	2.1%	3.8%	4.1%	2.1%	%
POLB	Auto &RoRo vs All OGV	All	1.3%	1.3%	1.5%	1.1%	1.1%	1.1%	1.3%	1.1%	%

Hourly Rate	Cost-Effectiveness ($/weighted ton)	Rate Source (assumes/indicated all inclusive)
$900	$115,707	CARB SRIA Excel - "Cost Input Tab"
$1,100	$141,419	Receipt #2, Attachment A
$1,208	$155,304	Receipt #1, Attachment A
$1,270	$163,275	$900/hr for 17 hr call (avg.), includes 24-hr min. charge (Receipt #4)
$1,422	$182,816	Receipt #3
$1,552	$199,530	$1,100/hr for 17 hr call (avg.), includes 24-hr min. charge

Attachment C:
SRIA – Air Resources Board, Proposed Control Measure for Ocean-Going Vessels At Berth
August 26, 2019

August 26, 2019

Irene Asmundson, Chief Economist
Department of Finance
State Capitol
Sacramento, CA 95814
Delivered via email to: *majorregulations@dof.ca.gov*

Re: SRIA – Air Resources Board, Proposed Control Measure for Ocean-Going Vessels At Berth

Dear Ms. Asmundson:

The Department of Finance has received a Standardized Regulatory Impact Assessment (SRIA) from the California Air Resources Board (CARB) for its Proposed Control Measure for Ocean-Going Vessels At Berth ("Proposed Regulation"). We submit these comments for your consideration during the review of the SRIA for this Proposed Regulation.

Over the past several years, the California Association of Port Authorities (CAPA), Cruise Lines International Association (CLIA), Pacific Merchant Shipping Association (PMSA), Western States Petroleum Association (WSPA), and World Shipping Council (WSC) (collectively, "Coalition") have been actively engaged with CARB staff on the development and assessment of amendments to existing regulations which exist for the regulation of emissions from vessels at berth and the possibility of a new set of regulations for additional vessel fleets.

52.C.1 In reviewing the SRIA for the Proposed Regulation, the Coalition's assessment is that it is lacking much of the analysis mandated by the SRIA regulations, and many of the conclusions are not accurate because they are based on flawed methodologies and flawed data on costs, emissions, and health benefits. Furthermore, in the absence of a feasibility evaluation study demonstrating that the required emissions controls are actually achievable and cost-effective at scale for the terminals proposed to be regulated, the conclusions of the SRIA are speculative at best.

The Department of Finance should review the SRIA with comments below and those attached and return the SRIA to CARB with a request that it be revised to accurately reflect the impacts of the Proposed Regulation and resubmitted before proceeding with their formal rulemaking.

The Coalition is attaching letters previously submitted by the Coalition or its members that address issues required to be discussed in the SRIA. The letters address the range of issues to be covered in the SRIA, including, but not limited to, cost assumptions, emissions benefit assumptions, labor issues, policy consistency, and proposed alternatives. This cover letter will briefly summarize these and other issues relevant to the SRIA that have been addressed in these letters and those issues covered in public workshops, industry workshops, and numerous conversations with CARB staff.

Regulatory History and Policy Setting

The CARB Proposed Regulation is intended to address two separate classes of ocean-going vessels under one new At Berth rule: fleets of vessels which are already covered by existing CARB at berth regulations (container, cruise, and refrigerated vessels) and vessels which were previously excluded by CARB from inclusion in the existing at berth regulations (breakbulk, bulk, tanker, and roll-on/roll-off vessels). In addition to the existing regulations on at berth engines, CARB, US EPA, and the IMO have adopted clean fuel rules which apply to nearly all standard vessel operating types. The state has also awarded to various seaports Proposition 1B grants for vessels at berth where emissions reductions are required to be reduced beyond and in excess of the existing regulatory baselines for ocean-going vessels.

The existing regulatory environment is already producing exceptional levels of emissions reductions from all vessel types. For instance, under clean fuel rules overall vessel emissions are down roughly 70% across all fleets. With those fleets which are further subject to the existing at berth regulation and Proposition 1B performance criteria, CARB staff has projected that total emissions reductions from currently regulated fleets will be at 96%.

52.C.2 Given that existing regulations already provide significant emissions reductions, CARB's Statement of Need in the SRIA (pg. 28) is inadequate. This is especially true because all current and relevant policy-setting documents previously adopted by CARB that address the reduction of emissions from vessels at berth acknowledge these existing rules and limit the nature of an expansion to exploring the viability of additional technology which may offer the potential of new fleet controls and minor amendments to fix compliance for existing fleets.

52.C.3 The SRIA claims that the Proposed Regulation is necessary to achieve the state's goals in multiple contexts, but the Proposed Regulation is inconsistent with those plans and policies. The Proposed Regulation goes beyond these existing enunciated policy aims or specific emissions reductions needed to achieve Clean Air Act, GHG, or community benefit targets already established. For example:

- 52.C.4 The SRIA asserts that the goals of this Regulation are necessary to meet NOx reductions standards in impacted areas (pg. 28, 34, 37), however the Proposed Regulation is not part of the State Implementation Plan, is not part of any localized Air Quality Management Plan, does not represent specific emissions reductions targets to meet under the Clean Air Act, and is inconsistent with the policy statement regarding vessel at berth provisions that were adopted by the CARB Board in the Mobile Source Strategy and adopted in the California Sustainable Freight Action Plan.
- 52.C.5 The SRIA references that this is intended to implement emissions reductions under SB 32 (pg. 28-29, 34-35, 38), but the Proposed Regulation is also inconsistent with the few at berth provisions in the SB 32 Scoping Plan.
- 52.C.6 The SRIA also asserts the need to reduce specific community emissions in part based on AB 617 (pg. 37), but the Proposed Regulation is once again inconsistent with the recently-adopted AB 617 Blueprint.

Cost Analysis

52.C.7 The SRIA is deficient in that it systematically understates the anticipated costs of complying with the At Berth Regulation. For example, the Ports of Long Beach and Los Angeles have substantial experience with the deployment of shore power infrastructure and alternative control strategies. Together, the two ports have installed more shore power infrastructure than the rest of the world combined. Additionally, the two ports are the only California ports that have experience testing and deploying alternative at berth control technologies at the scale required by the Proposed Regulation.

52.C.8 In response to the proposed regulatory language the two ports prepared detailed assessments of the additional costs that would be required if the Proposed Regulation were implemented. (see "Port of Los Angeles and Port of Long Beach Comments on February 22-23 Workshops for the "Control Measure for Ocean Going Vessels Operating At Berth and At Anchor", May 20, 2019"). The Ports conservatively estimated the total costs between the two Ports at nearly $300 million just for their portion of capital costs required to maximize vessel participation under the Proposed Regulation. (pg. 3, "In summary, the POLB and POLA estimates approximately $106 million and $147-$193 million respectively for additional electrical infrastructure. *These estimates are rough orders of magnitude, with many exclusions and limitations, so the actual cost could be much higher*.")

52 .C.9 The comment letters are included in the Appendices as back-up documentation of the real-world engineering costs the ports have actually incurred in deploying existing at berth technologies as a basis for their estimates. For instance, in Appendix B, the Port of Long Beach's extensive engineering review concluded that $106 million in additional costs were necessary in order to maximize electrification of its waterfront.

The SRIA unfortunately does not consider the POLA and POLB assessment. CARB's assessment simply assumes no additional infrastructure costs, citing to no evidentiary support, even though that is not consistent with the evidence and data in the record. For example, with respect to the Port of Long Beach (SRIA, pg. 99-100):

> "Staff has assumed no additional shore power capital projects would be required at POLB to meet the incremental increase of visits controlled with shore power under the Proposed Regulation. This is because the shore power infrastructure needed to meet the Existing Regulation's 80 percent requirement in 2020 and Proposition 1B's additional 10 percent requirement would provide sufficient shore power capacity to meet the requirements of the Proposed Regulation."

52.C.10 With respect to cost analyses as applied to other fleets, port complexes, and alternative technologies and alternative compliance methodologies, the assumptions used are also suspect and rely on weak or non-existent data. For instance, with respect to the barge-based alternative compliance systems proposed, the SRIA assumes that the cost is a bare $900 per hour. It appears that this estimate is based solely on phone conversations with a potential vendor of this technology. However, this methodology and estimate was contested by regulated parties who provided both specific billing and cost evidence to the contrary, in addition to methodological concerns including the lack of accounting for capital costs, standby costs, tug costs, variability of access up and down the coast, and unclear use of average costs across large fleet and geographic discrepancies.

Growth and Jobs

52.C.11 The statewide weighted compound annual growth factors used to estimate port growth are simply unrealistic and do not track the data that CARB staff had compiled on their own, much less the actual growth rates on the ground. The SRIA creates a presumption that growth factors would be scaled to growth in cargo and at Annual Industry Growth Factors starting in 2019 for Container, Cruise and Ro-Ro vessels on Table C2 (pg 67) of 8% and 7.5%. These are unrealistic approximations of continuous growth in cargo and of growth in vessels.

These numbers are not compared with the internal analysis provided by CARB staff for the ports of Long Beach and Los Angeles based on the ports' specific forecast, or with the Port of Hueneme, which are identified individually. CARB staff had the same opportunity to do so for the Port of Oakland but chose not to. Instead, CARB staff selected a compound growth rate for the Port of Oakland of 5% based on federal freight statistics that are NOT specific to the Port of Oakland.

This number is not supported by the facts. Looking historically, since 2007, when the original At Berth rule was adopted, the compound growth rate has been 0.59%. The number CARB has selected to use is nearly 10 times greater. Alternatively, CARB could have selected the Port of Oakland forecast which the BCDC Bay Area Seaport Forecast estimated at 2.2% or less than half the CARB estimate.

In either case, the SRIA's use of exaggerated growth rates has the effect of overestimating future emissions which in turn overstates future emission benefits, and significantly overstates the cost-effectiveness of the Proposed Regulation.

52.C.12 Additionally, the SRIA does not discuss potential negative impacts on growth or interstate/international commerce at the Ports and private terminals that may result from the extremely high costs of compliance and resulting cargo diversion (discussed further below). If real-world compliance costs end up being several times higher than CARB's underestimates, future development and expansion of the Ports and terminals could suffer, operations and transportation costs could increase, and cargo may seek other, less costly ports of entry (and indeed, documentation presented to CARB to date shows that such diversion is likely to occur). We are concerned that the SRIA omits any discussion of these risks or their potential impacts on the flow of commerce in and out of the ports and terminals.

52.C.13 In addition, the draft SRIA understates the potential negative impacts on jobs that could accompany the burdens discussed above. Consideration of the creation or elimination of jobs in the draft SRIA appears to be limited only to those construction jobs created by the requirement to install emission control systems and retrofit ports and terminals. The SRIA then minimizes the impact of anticipated lost jobs by pointing out that it will be small (0.01%) compared to the entire California economy. What the SRIA ignores is the potential impact of lost business or industry jobs associated with the extremely high costs of compliance for stakeholders, and/or potential loss of commerce due to cargo diversion. As stakeholders have pointed out to CARB, these impacts are likely to be significant and felt deeply, particularly to the thousands of Californians who rely on the business of the Ports and terminals for their livelihood. These impacts are real. They must be fully assessed and should not be minimized or dismissed by a simple comparison to the statewide economy at large.

Proposition 1B

52.C.14 The SRIA fails to account for the benefits of the emissions reductions that will result from the investment of Proposition 1B bonds and attributes Proposition 1B emission reductions to the proposed rule. Under Proposition 1B, the State made investments in shore power infrastructure that will ensure shore power emission reductions exceed the emission reductions required by the current At Berth rule. In funding the project, CARB determined that the emission reductions were real, surplus, quantifiable, and enforceable.

The SRIA, however, contains no accounting of those emission reductions. CARB acknowledges the fact that Proposition 1B infrastructure provides emissions benefits (see comments above), but has refused to quantify the emissions benefits or specify how grant compliance will be achieved. By failing to include the benefits of the Proposition 1B investment, the SRIA attributes the benefits to the proposed rule, overestimating future benefits and cost-effectiveness.

Emissions Benefits

52.C.15 The SRIA analysis also understates the documented emissions benefits resulting from the existing rule. The existing rule requires that if a vessel is capable of connecting to shore power it must do so. As a result, the current rule requires overcompliance. CARB staff have repeatedly acknowledged that under the existing rule, fleets must over comply to meet the 80% emission reduction requirement in 2020. No attempt to model this overcompliance has been made. Future emission benefits would be lower and the Proposed Regulation would not be cost-effective.

This trend is amplified by the time at berth for modern containerships, particularly in San Pedro Bay. Looking at the Port of Los Angeles' 2017 Emissions Inventory, the average time at berth for all containerships is 58 hours. Assuming the full three-hour allowance for connect and disconnect is taken under the current rule, the average vessel at the Port of Los Angeles would be connected for 55 hours out of 58 hours. Put another way, the average vessel would achieve a 94% emission reduction under the existing rule. Instead, by contrast, the forecast assumes without evidentiary support that after full implementation emission reductions will amount to only 65% for the ports of Long Beach and Los Angeles, with some vessel categories actually decreasing emission reductions as the existing rule tightens.

By minimizing the benefits of the existing rule, the SRIA overestimates future emissions, overestimates future emission reductions from the proposed rule, resulting in an unreasonable emission cost-effectiveness.

Safety and Reliability

52.C.16 The SRIA also does not discuss (and largely dismisses) the potential safety and reliability issues associated with land-based emissions control systems, and the additional costs that may be borne by regulated facilities to mitigate those concerns. Again, this is an area in which Coalition member WSPA and others have articulated serious concerns to CARB – concerns which further underline the need for a feasibility study. Without first conducting a feasibility study to determine if the proposed control systems can be safely and reliably operated at scale and under real-world conditions, the proposed At Berth Regulation risks creating unintended dangers that would need to be addressed or mitigated by regulated ports and terminals. The SRIA contains no discussion or analysis of the potential impacts of these issues.

Analysis of Harbor Craft Emissions

52.C.17

As discussed above, the SRIA cost-effectiveness conclusions depend on overestimations of the emission reductions predicted to be achieved under the Proposed Regulation versus the existing baseline. Unfortunately, they also depend on ignoring emissions increases likely to result from the Proposed Regulation. For example, the Proposed Regulation envisions expanded use of barge-based emission control systems. The use of barge-based systems requires the use of tugboats. Typically, tugboats use engines several times the size of the auxiliary engine the regulation seeks to control. Stakeholders have repeatedly pointed out that no information has been provided about the increased emissions that will result from increased harbor craft use.

During workshops, CARB staff has assured stakeholders that these emissions have been examined and an analysis would be presented. Unfortunately, however, tug emissions and costs are not reflected in the SRIA.

Every use of a barge-based system will require up to six tugboat moves. Those moves would occur only because of the Proposed Regulation resulting in significant emissions when compared to emissions the regulation seeks to control. In some areas, like the San Francisco Bay, a three-hour tugboat transit may be required. These emissions have not been included in the assessment or accounted for in the SRIA. These additional emissions cause cost-effectiveness values to rise, reduce mass emissions benefits, and reduce health benefits. These emissions are significant compared to the source and directly undercut the Incidences per Ton (IPT) analysis presented in the SRIA.

If the regulation results in emissions increases that offset emissions benefits, those emission increases should be deducted from the claimed health benefits presented in the SRIA. Given how small changes in the emissions benefit produce enormous changes in the cost of health outcomes, the IPT analysis needs to be reworked. *None of the benefits assessed in the SRIA are accurate without inclusion of offsetting harbor craft emission increases.*

No Analysis of Industry Alternatives Presented for Purposes of SRIA Analysis

52.C.18

The CARB SRIA notes that at industry work group meetings "staff specifically requested stakeholders to submit proposed regulatory alternatives for the economic analysis" and "staff again requested suggestions for regulatory alternatives" and "solicited alternatives for this SRIA" at its meetings in 2018 (pg. 43).

In February, the Coalition submitted a formal Alternative proposal in response to the solicitation of an industry alternative from the CARB program staff. This was in addition to at least four different alternatives which were presented to CARB staff for consideration prior to the formal solicitation by individual coalition members after previous workshops in 2017.

The SRIA does not acknowledge or analyze any of the alternatives submitted. Indeed, the SRIA's section on Public Engagement all but implies that in response to its requests for alternatives that none were received. This is not accurate.

Instead of analyzing the Coalition Alternative proposal, or the other submitted industry alternatives, only theoretical alternatives developed internally were considered (pg. 128-147), those were incorrectly analyzed (see comments regarding Harbor Craft and Ro/Ros), and summarily dismissed.

If CARB had evaluated the alternatives presented in the comment letters, we believe it could have found some of them to be superior to the Proposed Regulation, in that some or all of these alternatives would avoid unnecessary safety risks, reliability concerns, excessive costs, implementation delays and operational inefficiencies associated with mandating the potentially infeasible control strategies required by the Proposed Regulation.

The SRIA must be re-tuned in order to acknowledge the multiple alternatives that industry stakeholders have submitted through this ongoing process. The SRIA must then analyze and weigh those alternatives in a comprehensive manner, taking into account the issues raised in this letter and prior correspondence.

Economic Analysis Flawed

52.C.19 The CARB SRIA examines the impact of the regulation on the cost of a TEU, cost of a vehicle, or cost on a gallon of gas, but the proper analysis would examine the impact on the cost of transportation, not the impact relative to the value of the item being ultimately transported.

The impacted parties provide transportation services on a diverse array of economic activities which range from agricultural exports, to petroleum distribution, to automobile import and export, to tourism. As a result, by not examining the impact to the cost of transportation, CARB staff failed to accurately account for the economic impacts to the industries regulated. These costs are concentrated at seaports, but the CARB SRIA analysis looks only at the downstream distribution of costs across the entire supply chain. This is improper.

52.C.20 While CARB considered costs on a macro average per TEU as a measure of economic activity, CARB did not analyze California competitiveness on a macro average as a measure of competitiveness, which is a required step in a SRIA analysis. If CARB had done this, it would have found that this regulation will exacerbate an existing cargo diversion trend in the containerized cargo sector. California's container ports have been steadily losing market share for a decade due to reasons like increased cost and increased regulatory burden. California ports have lost approximately 20% market share over the last decade, that lost market share represents lost jobs, lost economic activity, and lost tax revenue. A proper analysis would compare increased cost against alternative transportation options, namely other port gateways.

The overwhelming majority of containerized cargoes entering California ports are discretionary intermodal and ultimately destined for use outside of California. As a result, other gateways are competitive on a cost-basis against California ports. The SRIA did not examine any of these potential and foreseeable economic impacts. In addition, cargo diversion also has dramatic environmental impacts discussed below.

The approach that CARB staff has taken would be the equivalent of assessing the cost of a taxi ride against the net worth of the passenger rather than against other transportation options like public transit or a personal vehicle. Unless the SRIA examines the economic impact on the service being provided, transportation, the SRIA cannot seriously examine the economic impacts.

52.C.21 We would also note that the per TEU metrics used in the CARB SRIA also seem to be focused exclusively on impacts to containerized imports and not to California's exports. This makes it difficult to fairly assess impacts to California agriculture and manufacturing sectors with respect to downstream impacts of this rule and is incompatible with the baseline requirements of the SRIA guidelines which require full competitiveness analyses on imports and exports.

52.C.22 In order to clearly demonstrate the actual costs and benefits, the SRIA must be revised to demonstrate comparative analyses applied on a port-by-port basis and on a vessel-type basis within each port.

Selective Analysis Distorts Conclusions

52.C.23 The analysis contained in the SRIA relies on selective analysis to achieve predetermined outcomes. As described in other sections, the analysis ignores the emissions benefits of Proposition 1B, the impact of harbor craft and bunkering operations, and the emissions benefit of the existing regulation that occurs as a result of the requirement that vessels capable of shore power must connect. But the analysis also does this at the macro level as well. In choosing to aggregate some analysis and segregating the analysis in others, the SRIA analysis hides the true cost and true benefits that would occur at the local level. For example, most benefits are analyzed on a statewide basis. The Port of Hueneme is not comparable to the San Pedro Bay ports in size, impact, or resources. Yet, the SRIA does not analyze the benefits or impacts to a port like Hueneme.

The difference between ports make the benefits of the Proposed Regulation extraordinarily disproportionate. Relying on average growth factors or state-wide cost-effectiveness masks the regulations effects in places like the Port of San Diego or Benicia. A port-by-port analysis would reveal if some ports could be excluded from the regulation while maintaining emission reductions. It is impossible to make that determination without that level of analysis. Similarly, an analysis that examined the benefits and costs of the Proposed Regulation on the different vessel types (i.e., current regulated fleet, tankers, Ro/Ros, and bulk), would reveal what vessel types could be cost-effectively controlled at each port. None of that crucial information on impacts, benefits, or costs are included in the SRIA.

Container Vessel Diversion and Related Economic and Greenhouse Gas Impacts Not Analyzed

52.C.24 As discussed above, CARB staff has been presented data documenting cargo diversion from California ports over the past decade. Regulations that increase cost and compliance uncertainty will also increase cargo diversion. With cargo diversion ultimately comes vessel rerouting, and CARB has not addressed diversion in its analysis.

PMSA has submitted data to CARB showing that when vessels reroute or are diverted from California ports it results in significant increases of greenhouse gas emissions. On average, these GHG emissions will increase 22%. None of these offsetting emission increases have been analyzed in the SRIA, even though such market competitiveness is a specific component of SRIA analysis.

Cruise Ship Diversion and Related Economic Impacts Not Analyzed

52.C.25 In addition to failing to analyze cargo diversion, CARB staff did not analyze lost economic benefits as a result of cruise ships avoiding California ports. Due to the nature of cruise ships, alternative control technologies are not a feasible compliance strategy, making shore power the only compliance option.

Vessels that regularly visit California ports are retrofitted for shore power. But other cruise vessels may call a California port as part of a repositioning move; these vessels would not be equipped for shore power. To the degree that these vessels are forced to avoid California ports there will be significant economic impact that has not been analyzed. For instance, each Port of San Diego turn around cruise call generates almost $2 million. A single stop of a transiting cruise ship generates nearly $600,000 for the San Diego region. In 2017, the Port had 88 cruise calls, generating a total of $46 million in direct economic output and 460 direct jobs. The SRIA should properly analyze these economic impacts.

Analysis and Alternative Consideration of Ro/Ros Costs vs Benefits Is Incomplete

The Coalition continues to believe that if the costs of controlling Ro/Ro at berth emissions using shore based or barge based control technologies are adequately assessed and compared to the very short time Ro/Ros are at berth, CARB would reach the conclusion not to regulate Ro/Ro auxiliary emissions in the expanded at berth regulation.

52.C.26

Ro/Ros have incredibly short times at berth, as little as 9 hours and on average less than 14 hours at the Port of Long Beach. Individual Ro/Ro vessels also operate similarly to tramp bulk vessels in that they make inconsistent and often infrequent port calls to California. Since Ro/Ros would be unable to use installed shore-power equipment in other ports, CARB has considered the use of shore and barge-based emissions capture devices for Ro/Ro visits. These options also pose problems. Ro/Ros sometimes use older, shared berths that may not be adequate for land-based emission control systems. Barge-based emission control systems pose operational problems because they impact a Ro/Ro's ability to take on a bunkering barge and some Ro/Ro stack configurations may not be accommodated by a barge-based emissions control technology.

The use of barge-based systems results in additional GHG emissions from the barge-based system itself and increased criteria and toxic emissions from the tugboat required to position the barge. Typically, a tugboat will use engines two to four times larger than the target auxiliary engines to be controlled. As a result, any tugboat activity can significantly offset emissions from Ro/Ro vessel calls.

CARB staff has not taken these offsetting emissions into account. The SRIA includes an alternative analysis that excludes Ro/Ros from the Proposed Regulation. By not taking tugboat emissions into account, emissions that would only occur as a result of the Proposed Regulation, the alternative analysis does not accurately report the impact of the exclusion of Ro/Ro vessels. A significant number of Ro/Ro vessels bunker at berth. But the analysis does not consider the impact on bunkering operations for Ro/Ro vessels and the increase in emissions that will occur as a result of bunkering taking place at anchorage instead of at berth, as described below.

52.C.27

If Ro/Ros are diverted – either to concentrated docks within the state or to out-of-state alternative ports - due to lack of technology, access to alternatives, or simply to avoid increased costs, CARB's SRIA needs to analyze the related emissions and costs of the delivery of automobiles by other intermodal methods, principally by rail for long-haul and truck for local distribution. Acknowledging that GHG emissions per ton vary widely by transportation mode, but with ocean going vessels always having the lowest emissions per ton per mile, it is likely that Ro/Ro vessel diversions will not only have significant economic costs to the state in terms of lost employment and activity but also increased criteria pollutants and GHG emissions from the use of alternative transportation for vehicle delivery.

No Consideration of the Impact on Bunkering

52.C.28 The San Pedro Bay ports are among the busiest bunkering ports. Vessels not even destined for San Pedro Bay will take advantage of the port complex to bunker. As result, many vessels that do visit San Pedro Bay will take on bunker while at berth. It is an efficient and safe way for a vessel to refuel within the protection of the harbor.

As mentioned, the Proposed Regulation envisions significantly increased use of barge-based emission control systems. The use of the barge-based system prevents a vessel from bunkering at berth. As a result, a vessel needing bunker will need to move to anchorage after discharging the vessel in order to receive fuel. While at anchorage, auxiliary engines will run uncontrolled. These emissions would not have occurred in the absence of the Proposed Regulation. For vessels like large containerships, the time bunkering at anchorage would be a portion of the time at berth, resulting in net emission reductions but less than if shore power was used. For a vessel with short visits like small containerships or especially Ro/Ro vessels, the entire emissions reduction of a barge-based system can be fully offset by the time spent at anchorage. This would result in a net increase of emissions from the tugboat and excess GHG emissions from the barge-based system itself.

None of the offsetting impacts from bunkering activities were analyzed as part of the SRIA. These activities directly impact the claimed emissions benefits, the claimed health outcomes, and the claimed cost-effectiveness. The alternative would be a net decrease in bunkering activity in San Pedro Bay and other California ports which would have an enormous economic impact, which was also not analyzed.

Analysis of Exclusion of Bulk and General Cargo Vessels Is Missing

52.C.29 The SRIA fails to include the analysis and methodology used to determine (correctly) that the application of this rule with respect to bulk and general cargo vessel fleets would not be cost-effective and should be avoided. All industry stakeholders have asked for this analysis and methodology to be included in order for the assumptions and conclusions applied to this specific fleet to be revealed and then compared to its potential application to other fleets, including the other currently non-regulated Ro-Ro and Tanker fleets.

Since the SRIA does not explain what the cost per ton of emissions reduced threshold is for determining whether a vessel class should or should not be covered by the at berth requirements it is impossible to discern how and by what standard of application CARB has decided to leave bulk and general cargo vessels out of the expanded list of regulated vessels but has proposed to keep Ro/Ro vessels and tankers on this expanded list. What threshold and other factors did CARB consider to justify these decisions?

Given the very similar fleet dynamics, economics and costs of compliance, and infrastructure challenges, it is likely that the same methodologies, and potentially the same conclusions, would reveal that the expansion of the rule is as similarly problematic for other non-regulated fleets as it was for bulk and breakbulk vessel fleets.

The SRIA continues the silence around this fundamental analysis, and it is conspicuous by its absence.

Conclusion

We would respectfully request that the SRIA for the "Proposed Control Measures for Ocean Going Vessels At Berth" be returned to CARB as facially inadequate and inconsistent with the requirements of the SRIA statutes and Department of Finance regulations. We would further request that the Department of Finance direct CARB to not resubmit any SRIA on this subject without first working with industry to address its Alternative proposals, fully analyzing all competitiveness and import/export impacts, and acknowledging and analyzing all facts and evidence of existing costs submitted for the record and any additional costs identified by the industry stakeholders in future processes.

Thank you for your attention to these very complex matters on the very short SRIA timeline within which you are provided. We appreciate the continued dialogue with state policymakers on these important subjects.

Sincerely,

California Association of Port Authorities
Cruise Lines International Association
Pacific Merchant Shipping Association
Western States Petroleum Association
World Shipping Council

Attachments:
In reverse chronological order

WSPA Comments on CARB Proposed At Berth Regulation Working Draft, August 15, 2019

Port of Los Angeles and Port of Long Beach Comments on May 14 & 16, 2019 Workshops for the "Control Measure for Ocean-Going Vessels Operating At-Berth and At Anchor", July 1, 2019

Comments on Proposed At-Berth Amendment Regulatory Concept, June 14, 2019

Comments on At-Berth Draft Regulation Order - 5/8 2019 Version, June 13, 2019

Port of Oakland Comments on May 10, 2019, Draft Proposed Control Measure for Ocean-Going Vessels At Berth and Supporting Documents, June 10, 2019

Preliminary Comments on Proposed At-Berth Amendments Cost Analysis, May 29, 2019

Port of Los Angeles and Port of Long Beach Comments on February 22-23 Workshops for the "Control Measure for Ocean Going Vessels Operating At Berth and At Anchor", May 20, 2019

Comments on Revised Draft Regulatory Concept, April 10, 2019

Industry Coalition Alternative Proposal for Amendments to At-Berth Regulations, February 15, 2019

Port of Los Angeles and Port of Long Beach Comments on Proposed Draft Regulatory Language, "Control Measure for Ocean-Going Vessels Operating At Berth and At Anchor", February 6, 2019

Comments on Preliminary At-Berth Cost Analyses Presented at "Workgroup Meetings to Discuss Costs of Proposed Amendments to the Ocean-Going Vessel At-Berth Regulation", September 14, 2018

PMSA Comments on CARB Proposed At-Berth Regulation Amendment Workshop, October 9, 2017

PMSA Comments on CARB Proposed At-Berth Regulation Amendment Concepts, August 4, 2017

WSPA Comments on CARB Proposed At Berth Regulation
Working Draft, August 15, 2019

WSPA

Duplicate see comment 22 WSPA

Thomas A. Umenhofer
Vice President

August 15, 2019

Ms. Cynthia Marvin
Division Chief, Transportation and Toxics
California Air Resources Board
1001 I Street
Sacramento, California 95812

sent via e-mail to: Cynthia.Marvin@arb.ca.gov

Re: Additional WSPA Comments on CARB Proposed At Berth Regulation Working Draft

Dear Cynthia,

Western States Petroleum Association (WSPA) appreciates the continuing opportunity to provide additional feedback on the California Air Resources Board (CARB) proposed California Code of Regulations, Title 17, Division 3, Chapter 1, Subchapter 7.5, Sections 93130-93134.14 (At Berth Regulation) Working Draft, dated May 8, 2019. WSPA is a non-profit trade association representing companies that explore for, produce, refine, transport and market petroleum, petroleum products, natural gas and other energy supplies in California and four other western states.

This letter follows up on our conversation with you and your staff on July 18, 2019 and provides additional information regarding the need for a comprehensive feasibility evaluation study before any At Berth Regulation is adopted. Enclosed with this letter is a general outline of the contents of such a study and additional information to explain why the current compliance deadlines of 2027 and 2029 on the At Berth Regulation Working Draft are not achievable.

WSPA and many other stakeholders share CARB's strong desire to see regulations that are legally supportable, can be feasibly implemented, and are likely to achieve real-world air quality goals. In our view, the key to meeting these goals is to set a realistic rulemaking schedule to obtain the necessary information, then to work openly with stakeholders and the public to carefully assess and incorporate that information as required to ensure workable regulations. Failure to properly account for the real-world feasibility of the At Berth Regulation, we believe, could lead to adopting requirements that simply cannot be met safely and in a cost-effective manner, or that are impossible to meet at all.

Evaluation of the Feasibility of Shore-Based Emission Control for Tankers

As we discussed with you and CARB staff, WSPA continues to have serious concerns that no version of the At Berth Regulation can succeed without ensuring that it can be technically, feasibly, cost-effectively, and, as important, safely implemented within the timeline that CARB is proposing. To that end, WSPA acknowledges CARB's engagement with stakeholders to date, but believes that it is critical to first conduct a study to evaluate the technical feasibility of the proposed control option (shore-based emission capture and control) for tankers before any compliance date can be set. This is because the technology, as proposed in the regulatory analysis, has never been implemented on tankers; assuming the technology is available when it has not been proven to succeed on a tanker is a flawed approach. There are several technical differences between tankers and cargo vessels, such as managing boiler pressures when exhaust is captured, and

the possibility of vapors from tanker cargo finding their way into the capture system. At a high level, this evaluation study should assess the safety, reliability, operability, and availability of the proposed control option as well as the ability of the proposed control option to meet the regulatory requirements within the proposed timelines.

WSPA believes that participation from CARB, as well as the numerous other regulatory agencies involved in permitting and evaluation of large-scale projects such as those proposed by the At Berth Regulation, is critical for the success of the study. Such participation is especially critical in that, not only are the technical and safety issues important, but the review and permitting timelines of local and state regulatory agencies for projects of this scope are crucial for everyone to understand and factor into any given regulatory time deadline. WSPA is proposing that this effort be undertaken collaboratively between WSPA, CARB, and other local and state permitting agencies with the goal of completing the study within 3 years from the adoption of the At Berth Regulation. Upon completion of the study, WSPA proposes that a detailed evaluation report be produced, and that CARB convene additional public workshops as necessary to adequately address the findings in the report and make any necessary revisions to the proposed Regulation.

To that end, attached is a proposed report outline for an Evaluation of At Berth Shore-Based Emission Control for Tankers at California Ports. This outline provides a basic framework for an evaluation study to assess technical feasibility that we believe will address critical questions that must be answered for the At Berth Regulation to satisfy legal criteria and ultimately accomplish the goals the At Berth Regulation set out to achieve.

The following is a list of critical questions that we believe must be answered, at a minimum, by the study:

- Is the type of shore-based emission control system envisioned by the proposed At Berth Regulation technologically feasible at this time? If not currently feasible, is there a reasonable basis, supported by significant evidence, to expect that such a system will become technologically feasible in the timeframes set forth in the proposed At Berth Regulation for tankers?

- What potential safety, reliability, and operability concerns need to be resolved before the type of shore-based emission control system and vessel interface envisioned by the At Berth Regulation could be installed and operated?

- Do any of the safety, reliability, or operability concerns identified create a significant risk to human health, safety or the environment?

- Can the type of shore-based emission control system envisioned by the At Berth Regulation meet the 80% reduction in NOx, Particulate Matter, and Diesel Particulate Matter required by the At Berth Regulation?

- Can the type of shore-based emission control system envisioned by the At Berth Regulation operate in compliance with all other applicable laws and regulations, including those related to interstate and international commerce?

- Is there room for the type of shore-based emission control system envisioned by the At Berth Regulation within the existing developed footprints of marine terminal facilities? If not, would installation of the systems require new construction in expanded onshore

footprints and/or installation of new facilities on fill or pilings in wetlands, tidelands and/or submerged lands, with significant impacts on coastal onshore and offshore habitat and other sensitive areas and resources? Will new tideland leases or lease amendments from the State Lands Commission be necessary?

- Will modifications to equipment on tankers be required? Boilers and auxiliary engine connections and controls should be considered.

- What potential safety, reliability and operability concerns needs to be addressed by ship owners, manufacturers, classification societies, USCG before such a modification is applied to vessels? How will CARB ensure third party vessels are modified to comply with shore-based emission control system before calling?

- If the type of shore-based emission control system envisioned by the At Berth Regulation can be feasibly built and operated, what timeframes would be required for such construction and operation, considering timeframes required for permitting and approvals by regulatory oversight agencies and local jurisdictions with land use authority, and including delays due to potential litigation?

- If the type of shore-based emission control system envisioned by the proposed regulation can be feasibly built and operated, what would be the costs to the regulated industry?

Timeline for Implementation of the At Berth Regulation for Tankers

Even under ideal conditions, WSPA does not believe that any marine terminal can meet the proposed compliance deadlines of 2027 for the Port of Long Beach (POLB) and Port of Los Angeles (POLA), or 2029 for all other marine terminals where tankers are berthed. Based on information received from WSPA member companies, we believe that the earliest a marine terminal could comply with the proposed regulatory requirements is 2033. Additional time would be needed, at least up to two years, for larger and more complex terminals requiring a compliance date no sooner than 2035 for those facilities due to in-water work window limitations and operational construction constraints.

As was discussed and requested by CARB during our meeting on July 18, 2019, enclosed with this letter are the aggregated results from our member companies showing the estimated timelines to meet compliance with the proposed regulatory requirements. Included in the enclosure is a chart showing how long (as a range) each major step is expected to take and what timeframe (as a range) that each of those steps is expected to occur within. In general, larger and more complex terminals will need more time to complete each step due to the larger scale of the engineering, design and construction effort and because additional time needed to complete each individual step compounds over the life of the project. Also included is a table which describes in more detail what activities are include in each major step.

The major steps for any facility to meet compliance with the proposed regulation are as follows:

- General and Site-specific Feasibility Evaluation Study
- Site-Specific Design
- Engineering
- CEQA Review
- Permitting and Other Approvals

- Contracting
- Construction (Crane, Emission Control System, and Support Systems)
- Commissioning

While there are several factors that drive a longer timeline for facilities than the timeline that CARB has proposed, the single largest factor is that, at present, the technology proposed is untested and unproven as safe for tankers. This means that significantly more work is needed up front to assess the risks and ensure that the project is feasible. If there existed a proven, off-the-shelf technology that was safe for use on tankers and boilers, many of the early steps could be bypassed or the timeline shortened. But that is not the case, as was communicated by vendors during the CARB vendor meeting held on April 16, 2019, as well as in the WSPA comment letter of June 14, 2019.

Based on our conversations with you and CARB staff, WSPA also believes that CARB has underestimated the time it takes to complete many of the steps needed to meet compliance with the proposed regulation. For example, WSPA believes that CARB has significantly underestimated the time it will take a facility to apply for and receive all the required permits for a project of this nature.

At a minimum, facilities will need to receive permits or regulatory and land use approvals from the local air quality control/management district, the California State Lands Commission, the San Francisco Bay Conservation and Development Commission (for northern Californian terminals), the United States Army Corps of Engineers, the local Regional Water Quality Control Board, the California Department of Fish and Wildlife and the U.S. Fish and Wildlife Service (if protected species are affected), the National Marine Fisheries Service (where marine mammals may be present), the United States Coast Guard, building permits and/or coastal development permits from the local city/county, and (if not delegated to the local city/county) coastal development permits from the California Coastal Commission, in addition to going through the California Environmental Quality Act (CEQA) environmental review process prior to receiving any permits and approvals.

Note that, separate from WSPA's timeline, many facilities are also in the process of updating terminals to comply with the Marine Oil Terminal Engineering and Maintenance Standards (MOTEMS) -- projects that have been in permitting, design and construction for many years. Due to the large variety of timelines for each terminal, WSPA has not included ongoing and proposed MOTEMS construction projects in our timeline.

While many of the activities can occur in parallel, those that must occur in series often will dictate the timeline. The most basic example of this occurs during permitting and construction. Construction cannot begin until permitting is complete, and permits cannot be issued until the CEQA review is complete. Construction and installation of any equipment on terminal cannot begin until such time that the support structure (foundation) is complete.

The nature of the proposed equipment, weights and locations can result in a terminal having to complete a seismic retrofit, which would extend well beyond the actual footprint of the equipment foundations. As you may recall, during our meeting WSPA members provided examples of how long it has taken to obtain permits and implement construction on marine terminal projects, such as MOTEMS. For one of our member companies, the MOTEMS initial audit was conducted in 2009 and, after design, California State Lands Commission peer review, and CEQA review and

resource agency permitting, construction was able to begin in 2018 – nine years later -- for a project that is much smaller than the size and scope proposed in the At Berth Regulation.

Below are other examples of steps that will hinder further progress on the project until completed:

- For any pilot test of the equipment installed at a port or Marine Terminal, permitting, design and construction will require additional time.

- Detailed engineering cannot begin until the feasibility evaluation study is completed, and the risks associated with the control technology are well understood, to allow for design of appropriate mitigation.

- CEQA review cannot begin until a lead agency is assigned and at least 30-60% of the design is complete, in order to provide an accurate and stable project description as the basis for review.

- Building and other permits are dependent on completing the CEQA analysis and certifying a final Environmental Impact Report (EIR) or Negative Declaration. Many responsible agencies with permit or approval authority will not begin processing applications before the CEQA document is approved.

- Contracting for construction and installation cannot be finalized until the permits and approvals are received; before that time, the conditions under which construction will occur remain yet unknown. Additionally, construction cannot commence until contracting is complete.

- CEQA lead agencies and responsible regulatory agencies may require completion of some mitigation measures before construction commences.

- In some cases, commissioning of individual pieces of equipment can occur in parallel with the construction; however, overall commissioning cannot begin until all construction is completed.

- And of course, no construction or installation can occur without first obtaining applicable permits.

It is important to note that the aggregated timeline that WSPA has attached to this communication is only an estimate. The results of the feasibility evaluation study will be necessary to refine the estimated timeline.

WSPA believes the Government Code, Health and Safety Code and other California laws and regulations require CARB to revise its current rulemaking timetable to allow for proper preparation and consideration of feasibility, cost effectiveness and timelines. See, e.g., Cal. Health & Safety Code §§ 38560, 39602.5, 39665, 43013; *see also* Gov. Code § 11346.36 & 1 C.C.R. §§ 2000-2004 (SRIA requirements to assess proposed regulation's cost impact on public health and safety, fairness and social equity, state's economy and other criteria). We would request that, at the very least, CARB include in its proposed At Berth Regulation language that allows for a feasibility evaluation study and an appropriate delay in regulatory implementation in the event the feasibility evaluation study concludes that shore-based technologies and/or other elements of the At Berth Regulation are not feasible in the regulatory timeframes provided.

WSPA also believes that the At Berth Regulation should include "off-ramp" scenarios that provide next steps for facilities that demonstrate an inability to implement all the required elements in the default timelines provided under the At Berth Regulation. In summary, WSPA requests that CARB:

1. Incorporate the feasibility evaluation study and the details included in the outline attached into the proposed regulatory language,

2. Include language in the At Berth Regulation that will provide an off-ramp or adjust the compliance deadlines based on the results of the feasibility evaluation study, and

3. Revise the proposed compliance deadlines in the At Beth Regulation to 2033 for typical terminals and 2035 for complex terminals where tankers berth.

WSPA appreciates this opportunity comment on the At Berth Regulation Working Draft. If you have any questions regarding this submittal, please contact me at (805) 705-9142 or via email at tom@wspa.org.

Sincerely,



Cc: Catherine Reheis-Boyd – WSPA
Richard Corey - CARB

Evaluation of At Berth Shore-Based Emission Control
for Tankers at California Ports
Report Outline

The evaluation study of Tankers At Berth Shore-Based Emission Control will be documented in a report that reflects the approach taken by California Air Resources Board (CARB) in the development of the document Evaluation of Cold-Ironing Ocean-Going Vessels at California Ports, dated March 2006.

The new study, to be entitled Evaluation of At Berth Shore-Based Emission Control for Tankers at California Ports will contain the following elements:

Executive Summary
I. Introduction
II. General Description of Tankers and Marine Terminals
III. Tanker Emission Inventory
IV. Technical, Safety, and Operational Review
V. Cost-Effectiveness and Economic Impact Review
VI. Conclusions
VII. References

An overview of the Sections I through VI is presented below.

Introduction

- Statement of purpose and objectives.
- Identify focus of analysis of the feasibility and cost effectiveness of shore-based emission control for tankers.
- Define shore-based emission control for tankers as capture of NO_X and PM emissions from boiler and auxiliary engines on tankers pursuant to § 93130.5 and § 93130.7 of CARB At Berth Regulation (currently Working Draft).

General Description of Tankers and Marine Terminals

- Identify unique characteristics of affected ports and marine terminals, while protecting any individual company competitively sensitive or proprietary information.
- Identify tanker classes, frequency of visits, ownership.
- Summarize tanker visit and duration information.

Tanker Emission Inventory

- Summarize updated CARB tanker sector NO_X and PM emission inventory taking into account the IMO regulations regarding Tier 3 ships and their predicted penetration into California.
- Assess by emission source types for NO_X and PM emissions.
- Review in context of overall California emission inventory.

Evaluation of At Berth Shore-Based Emission Control
for Tankers at California Ports
Report Outline

Technical, Safety, and Operational Review

Methodology

- Identify regulatory/legal requirements applicable to proposed regulations, including but not limited to:
    - Health & Safety Code (H&SC).
        - Technological and operational feasibility
        - Safety, reliability and effectiveness
        - Necessary to attain Ambient Air Quality Standards
        - Articulate potential adverse health, safety and environmental impacts
        - Show reductions are real, permanent, quantifiable, verifiable and enforceable
    - CEQA.
        - Identification of significant adverse impacts of regulations
        - Identification of reasonably foreseeable compliance alternatives/mitigation
    - U.S. Coast Guard Regulations (33 CFR)
    - PSM Regulations (e.g. 8 CCR 5189.1, 19 CCR 2762, RISO)
    - Marine Oil Terminal Engineering and Maintenance Standards (24 CCR)
- Identify regulatory agencies, local jurisdictions with land use authority, other agencies with permitting or approval authority and certification entities. Include them as stakeholders.
- Set criteria for demonstration of technical and operational acceptability (including consideration of site-specific limitations).
- Set criteria for demonstration of safety acceptability.

Analysis

The technical assessment will be prepared consistent with the criteria established through the methodology:

- Determine whether the installation of systems required to comply with the proposed regulation would satisfy or conflict with the safety, reliability, operability and effectiveness of vessels, marine terminals, the emissions control system, and supporting shoreside infrastructure, as required by regulations identified in the Methodology section.
    - Assess the effectiveness, reliability and safety of proposed methods of compliance.
    - Assess ability to attain ambient air quality standards and technological feasibility and adaptability, and potential preemption by federal law.
    - Assess whether the proposed methods of compliance are designed to achieve levels of exposure consistent with no significant adverse health impacts; identify risks of the toxic air containments (TACs) at issue and explain how the proposed ATCM will reduce risks; demonstrate the need and appropriate degree of regulation for the

identified TACs; and potential adverse health, safety and/or environmental impacts that may result from implementation.

- Assess reasonable and feasible mitigation measures and alternatives to reduce or avoid significant environmental impacts, identify permitting requirements and timeline for implementation of such mitigation measures and alternatives.

- If possible, identify applicable design standards that would comply with MOTEMS and other existing regulations that can foster vendor competition.

- Identify what changes to technology may be necessary to ensure feasibility for use in marine terminal application, safety, and/or operability.

- Conduct Risk Assessment/HAZOP for a shore-based design.

- Prepare anticipated timeline from planning through implementation, including timeline for obtaining all permits and approvals and potential litigation delay.

- Determine where, if any, a physical demonstration is required to validate the safety, reliability, operability, and effectiveness of vessels, marine oil terminals, the emissions control system, or supporting shore-side infrastructure.

Cost-Effectiveness and Economic Impact Review

Methodology

- Set economic/cost-effectiveness requirements pursuant to regulatory/legal requirements.

- Identify Standardized Regulatory Impact Assessment (SRIA) Requirements.

- Establish process for collection, de-identifying and aggregating individual company estimated capital, design, construction, CEQA review, permitting, and operational costs.

Analysis

- Determine whether systems required by proposed regulation would meet the criteria in the H&SC for cost-effectiveness.

  - Assess cost-effectiveness, relative to reliability and safety of proposed methods of compliance and ensure that the rule will result in a cost-effective combination of control measures.

  - Assess cost-effectiveness, relative to economic and noneconomic costs and public health benefits (including potential impacts on small businesses).

- Assess whether proposed regulation would meet SRIA requirements.

- True-up cost-effectiveness of achievable design and implementation schedule.

Conclusions

- Summarize findings and recommendations (including need for physical demonstration).

Evaluation of At Berth Shore-Based Emission Control
for Tankers at California Ports
Report Outline

Key Stakeholders including but not necessarily limited to the following:

- American Bureau of Shipping for class society and can perform HazOps (also involved in Cold Ironing Feasibility Evaluation Study.
- Maritime safety expertise (i.e., DNV GL, Bureau Veritas).
- Marine boiler, engine and exhaust gas cleaning system manufacturers who understand tankers (including but not limited to, Alfa Laval – familiar with ship-side issues, classification areas and largest provider of tanker boilers in the world), SAACKE – boilermaker, GmbH, Harris Pye – boiler retrofit, MAN and Wartsila - propulsion and auxiliary engine manufacturers).
- Emission abatement industry (i.e., existing technology vendors).
- OCIMF (Oil Companies International Marine Forum)
- U.S. Coast Guard
- California State Lands Commission - Marine Environmental Protection Division
- CARB, BAAQMD, SCAQMD, USEPA
- SF Bay Coastal Development Commission (BCDC)
- International Maritime Organization (IMO) - Marine Safety Committee (MSC), Marine Environment Protection Committee (MEPC) and supporting sub-committees
- Federal non-regulatory agencies: U.S. Navy, U.S. Maritime Administration (MARAD)
- University of California - Riverside
- California Maritime Academy
- International Association of Independent Tanker Ownership (INTERTANKO).

Estimated Timeline - CARB At Berth Regulation
Shore-Based Emission Control System

Major Tasks	Estimated Time (Years)	2020		2021		2022		2023		2024		2025		2026		2027		2028		2029		2030		2031		2032		2033		2034		2035	
		Year 1		Year 2		Year 3		Year 4		Year 5		Year 6		Year 7		Year 8		Year 9		Year 10		Year 11		Year 12		Year 13		Year 14		Year 15		Year 16	
		1H	2H	1H	2H	1H	2H	1H	2H	1H	2H	1H	2H	1H	2H	1H	2H	1H	2H	1H	2H	1H	2H	1H	2H	1H	2H	1H	2H	1H	2H
General & Site-Specific Studies	3.5 to 4																														
Site-Specific Design	3.5 to 5.5																														
Engineering	3 to 4.5																														
CEQA Analysis	3 to 5.5																														
Permits	2.5 to 3.5																														
Contracting	2.5 to 3.5																														
Crane Construction	3 to 5.5																														
Facility Construction	4.5 to 7.5																														
Commissioning	1 to 1.5																														

Legend

Anticipated average time needed to complete each task

Additional time needed for complex installations to complete the task

NOTES

1. The shaded areas of the bar chart which may be longer in duration than the expected time for a task as the start date of a task may vary from installation to installation.
2. The General and Site-Specific Studies are critical to evaluate the feasibility of various elements of compliance requirements to each installation (technological, safety, efficiency, cost-effectiveness etc).
3. The results of General and Site-Specific Studies may necessitate further refinement of the anticipated compliance options and timeline.
4. With unknown permitting timelines and delays, contracting and vendor timelines, the earliest compliance demonstration for most facilities is estimated to not occur before 2033.
5. For complex installations, this date could be further out; there could also be unexpected delays that are beyond operator control.

Timeline Survey Summary

Major Tasks (note tasks that can be run concurrently to help determine total lapse time from project design to commissioning)	Additional Information (provide sufficient information to break down the activity so that it is clear what it includes and its expected duration)	Estimated Years							
		Average	Min	Max	Range (Min to Max)	Range (Average to Max)	Begin Year	End Year (Avg)	End Year (Max)
General & Site-Specific Studies	General Evaluation Study	2.0	2.0	2.0	2.0	2.0	2020	2021	2021
	Site-specific Study including Safety review and possible field test	1.6	0.8	2.0	0.8 - 2	1.6 - 2	2022	2023	2023
Site-Specific Design (preliminary and final, includes assessments on utilities, siting for egress and safety as well as infrastructure)	Front End Engineering Design, Preliminary and Detailed Design, Crane, Scrubber, Electrical Design, Shipside Modification Design, Determine footprint, electrical calssification and unit supply requirements, Coordinate with engineering, construction and technology companies, Review of utilities and existing infrastructure to support future terminal projects, Requirements for and consideration of MOTEMS.	3.5	1.0	5.5	1 - 5.5	3.5 - 5.5	2022	2025	2027
Engineering (engineering drafts for construction ex. built-for purpose, ship-to-berth variable height for loading and unloading operations, utility and infrastructure details)	Marine analysis of current and future vessels (MOTEMS Review), Detailed engineering calculations for process, energy and structural integrity, Coordination with utility providers that supply electricity, water and natural gas to the facility, Engineering Design Issued for Permit, Engineering Design Issued for Construction, Engage Classification Society to Develop Standards for Shipside Modifications	2.9	1.8	4.5	1.8 - 4.5	2.9 - 4.5	2023	2026	2027
CEQA Analysis (engineering and site-specific details will be evaluated under CEQA to determine whether additional mitigations are required including preparation of an EIR, public comment periods, hearings, review of the EIR until a final adopted EIR results with specific mitigations for impacts if any)	Initiate Multi-Agency Process, Prepare applications, Initiate EIR, Develop EIR, Develop Mitigation Strategy, Finalize and Approve Mitigation Strategy, Public comment review, possible re-engineering of design to meet public concerns, Re-evaluation of both Site specific design and engineering (as needed), Purchase Mitigation Credits	2.9	1.2	5.5	1.2 - 5.5	2.9 - 5.5	2024	2026	2028
Permits (local, state, federal – CSLC, Bay Conservation and Development Commission, ACOE, CF&W, RWQCB, National Marine Fisheries Service, Air Districts, Port permits includes: preparation, review by agency, approval, development of mitigation plans and other recommendations made by agency.)	Coordination with multiple permitting agencies, at various locations within the state, Includes time for review, comments and any necessary requested changes which may require some re-design and engineering, Submit Environmental Applications, Environmental Applications Approved, Submit Building Applications, Building Applications Approved	2.5	1.1	3.5	1.1 - 3.5	2.5 - 3.5	2025	2027	2029
Contracting (bid process, selection, procurement)	Multiple RFPs (General Engineering, Specialty Engineering, Marine Engineering, Emissions Control Equipment, Pumps/Blowers, Crane and Scrubbers Design and Fabrication, Construction RFPs including general, marine, electrical, crane installation), Contractor vetting and selection, Insurance and procurement of long lead items such as steel, pre-fab materials	2.2	0.6	3.5	0.6 - 3.5	2.2 - 3.5	2026	2028	2030

Timeline Survey Summary

Major Tasks (note tasks that can be run concurrently to help determine total lapse time from project design to commissioning)	Additional Information (provide sufficient information to break down the activity so that it is clear what it includes and its expected duration)	Estimated Years							
		Average	Min	Max	Range (Min to Max)	Range (Average to Max)	Begin Year	End Year (Avg)	End Year (Max)
Crane Construction / Installation	Install Crane Foundations and Cranes - Consider extensive lead times, Multiple locations, Limited availability of construction equipment, Delays when ships at berth	2.7	0.7	5.5	0.7 - 5.5	2.7 - 5.5	2028	2031	2033
Facility Construction (including deck modifications, pilings, gangway construction, additional/new ducting, piping, , seismic retrofit, new power infrastructure)	Multiple phases of construction at various locations (Limited ability to overlap construction at different locations, constrained by contractor availability and safety oversight and continuation of business, Assumes construction at one facility at a time), Consider extensive lead times, Piling, foundation, civil/structural steel works, electrical upgrades, Fabrication and Transport of Cranes & Scrubber, Procurement of Other Materials, Prep and Demo Work, Install Central Gas Collection System, Scrubbers, Support Systems (Piping/Electrical), Shipside Modifications, Consider confined construction activity for few months per year (power supply, threatened species protection)	4.5	0.7	7.5	0.7 - 7.5	4.5 - 7.5	2029	2033	2035
Commissioning and Compliance Demonstration (verification of CARB compliance along with other federal and state requirements)	Consider longer commissioning durations for new technology, Commissioning for Terminal Operations and Operator-owned ships, Operator training and oversight, modifications to ensure proper operation to achieve compliance, Multiple agencies would either witness compliance testing or perform their own (CARB, local Air District, etc.)	0.9	0.2	1.5	0.2 - 1.5	0.9 - 1.5	2033	2034	2035

Port of Los Angeles and Port of Long Beach Comments on May 14 & 16, 2019 Workshops for the "Control Measure for Ocean-Going Vessels Operating At-Berth and At Anchor", July 1, 2019

SAN PEDRO BAY PORTS

CLEAN AIR ACTION PLAN

July 1, 2019

Duplicate See Comment Letter 60 Port of LB

Bonnie Soriano
Chief, Freight Activity Branch
California Air Resources Board
1001 "I" Street
Sacramento, CA 95814

SUBJECT: PORT OF LOS ANGELES AND PORT OF LONG BEACH COMMENTS ON MAY 14 & 16, 2019 WORKSHOPS FOR THE "CONTROL MEASURE FOR OCEAN-GOING VESSELS OPERATING AT BERTH AND AT ANCHOR"

Dear Ms. Soriano:

The ports of Los Angeles and Port of Long Beach (Ports) appreciate this opportunity to provide comments on the concepts and draft regulation language presented at the California Air Resources Board's (CARB) May 14 and 16, 2019 workshops regarding the "Control Measure for Ocean-Going Vessels Operating At Berth and At Anchor."

We want to thank CARB for continuing to work with the Ports and our tenants during this regulatory development process to obtain the best available data and to craft a regulation that achieves significant public health benefits. The Ports continue to appreciate the open dialog with CARB staff to discuss the regulatory concepts and share our comments and concerns.

The purpose of this comment letter is to respond to the May 8, 2019 version of the Draft Regulation Order provided at the May workshops. In Appendix A, CARB will find specific information relative to Port of Los Angeles.

The following summarizes the Ports' comments regarding the regulatory concepts presented at the May 2019 workshops:

- **The Proposed Implementation Timelines Are Still Too Aggressive** – In the May 8, 2019 draft regulation, container terminals are still required to control ship emissions for every

Port of LONG BEACH
The Green Port
Port of Long Beach | Environmental Planning
4801 Airport Plaza Drive | Long Beach, CA 90815
562.283.7100

THE PORT OF LOS ANGELES
Port of Los Angeles | Environmental Management
425 S. Palos Verdes Street | San Pedro, CA 90731
310.732.3675

visit by 2021, with 10% flexibility split evenly between Terminal Incident Exception (TIEs) and Vessel Incident Exception (VIEs), by 2021, with further reduction to 6% flexibility split between TIEs and VIEs for 2022 and beyond. This timeline is unreasonable. While the TIEs and VIEs provide some flexibility for terminals and vessels to avoid compliance action for a limited number of unforeseen circumstances that result in a vessel not being able to plug in, that flexibility does not avoid the need for infrastructure to be installed to allow for access to shore power for 100% of all calls. Given the anticipated schedule for finalization of the proposed regulation, there will be less than a year from adoption to when this implementation requirement comes into effect, which does not allow for any of the necessary shore power improvements to be constructed.

If CARB hopes terminals and fleets will opt for shore power, a greenhouse gas reduction strategy, to meet their increased compliance requirements rather than the alternative emission control devices, which are known to increase greenhouse gases, this timeline does not allow for that compliance path to materialize for at least several years. The Ports have provided documentation in their previous letter dated May 20, 2019 that shore power projects take 5 years on average to complete. In addition, there are still considerable feasibility concerns regarding the ability of terminal operators, and/or third party vendors to develop and deploy alternative emission control devices on a stringent time line of one year.

The Ports are encouraged that CARB plans to have an interim evaluation in 2023 for tankers and Ro-Ros, but this evaluation should not replace a technical feasibility assessment to better inform this regulation, as described below. We also believe more than one evaluation maybe necessary. We ask that a feasibility assessment be updated in 2025 and beyond to evaluate the state of the technology and industry's ability to comply with the regulation. The Port of Los Angeles has specific concerns for tanker terminals as detailed in Appendix A.

- **A Technology Feasibility Assessment Process Is Needed** – The Ports continue to urge CARB to develop a technology feasibility assessment of the alternative At Berth technologies, which would look at the state of technological development and their readiness to be deployed in the marketplace to support efforts to achieve public health benefits. The berth analysis developed by CARB should not be misconstrued as a technical document at the level of detail upon which regulation should be formed. It is an aggregation of terminal operator and harbor pilot opinions (no data), and Google Maps research, and is not founded upon any engineering assessment of the infrastructure required at the terminals. Further, there are challenges associated with the technologies upon which this regulation depends which, by all appearances, are too costly, technologically and operationally infeasible in some cases, and/or unsafe to use.

In addition, this necessary feasibility assessment should include an evaluation of: (i) state of technology and deployment readiness for both shore power and alternative emission control devices; (ii) the requisite timeline to design, build, test, and deploy shore power and alternative control technologies for each California port to achieve at minimum 95% compliance, and identification of any associated constraints such as wharf space; (iii) safety and navigation of harbor waters space due to applications of new technologies for unregulated vessel types; (iv) number and types of alternative control technologies, which would be needed at each California port; (v) the cost of the various types of technologies and availability of incentives to encourage early demonstration of such technologies; and importantly, (vi) the appropriate remediation fee to encourage investment in ship- and shore-side infrastructure and alternative emission control devices, while not driving business out of California.

- **All Terminals Should Be Required to Submit Terminal Plans** – The proposed regulation language allows terminals to have the ports submit plans on their behalf. The Ports should not be responsible for the submission of each terminal's plans on their terminal operators' behalf. All terminals should submit their own terminal plans. Ports do not have control over the financial and operational decisions terminals will have to make in order to comply with the regulation, and Ports cannot be liable for terminal infrastructure deployment under the new rule. In addition, if the terminal operator intends to install the shore power infrastructure themselves, they should be required to provide the elements outlined in the proposed port plan requirements rather than the Port.

  In the past, the Ports have supported shore power deployment by providing the design, bid, build, and services. In some cases, the investment was recouped through terminal leases. This was a service to our terminals, particularly for the initial installations under the original 2007 shore power regulation, but is not necessarily the path forward given the Ports' current capital project commitments and the extensive electrical infrastructure required to achieve the zero emission goals of the Clean Air Action Plan (CAAP) at the terminals.

  If the Ports are still required to submit port plans in the proposed regulation update, then the terminal plan deadlines must be set at least six months prior to port plan deadlines to allow the Ports sufficient time to review the submitted terminal plans, negotiate lease terms with their terminals, and compile the necessary information CARB has requested for the Ports to submit port plans. There is no guarantee that agreements will be reached in time to meet the timeline for this part of the proposed regulation. Many of these leases have several years remaining and terminals may be reluctant to renegotiate lease terms, especially for strategies that have no CARB certification.

  If terminals determine they need to construct more infrastructure, project initiation will not commence until the proposed At Berth Regulation goes into effect. It is unrealistic to

expect terminals or the ports to have design or schedules for equipment installation completed by June 2020. The earliest date according to CARB's timeline for project initiation is January 2020, assuming terminals do not use the first six months to evaluate their best compliance option. Given that project initiation, consultant selection for design, preliminary design, CEQA approval, and final design can take 23-30 months, it does not make sense to anticipate a schedule and estimation of the electrical infrastructure required at a terminal in just six months. If the terminals/Ports submitted plans solely based on preliminary design, which is a vastly premature estimate of project scope and timeline, it would take 11-15 months. This challenge once again points to the impossibility of meeting the 2021 timeline with shore power, the most mature, emission-efficient, technological solution.

- **Exceptions to Delays in Port Plan Schedules** – If ports are still required to submit port plans, then CARB should provide exceptions to any possible enforcement action if port plan schedules are not met. The port plans can only provide an estimated schedule of installing equipment and/or necessary construction projects. Delays can and will happen outside of the control of the Ports. For example, delays due to permitting, equipment acquisition, environmental assessment, and other events that may cause schedules to not be met should be given exemptions to enforcement action in this regulation. It is unfair to hold the Ports liable for mobile source operators' actions and emissions outside of our direct control.

- **Specifics on Remediation Fund** – The Ports request that CARB revise the fees for payment into the remediation fund for longer-term outages due to construction projects or repairs. CARB has set remediation fee costs as shown below in Table XVIII of the "Control Measure for Ocean-Going Vessels At Berth Cost Analysis Inputs and Assumptions for Standardized Regulatory Impact Assessment."

Table XVIII. Remediation Fee Costs

<table>
<tr><th>Data Input</th><th colspan="3">Value</th><th>Basis</th></tr>
<tr><td rowspan="6">Hourly remediation fee for terminal and for vessel, for each vessel type</td><td>Vessel Type</td><td>Vessel Hourly Fee</td><td>Terminal Hourly Fee</td><td rowspan="6">Staff analysis using Carl Moyer formula to calculate average emissions in tons per hour by vessel category. Product and crude tanker values were averaged for cost estimation purposes, however the fee would be dependent on the vessel type. Note that these values are estimates based on current Staff analyses at the time this document was prepared, and do not necessarily represent the exact fees that would apply.</td></tr>
<tr><td>Container/ Reefer</td><td>$2,395</td><td>$2,395</td></tr>
<tr><td>Cruise</td><td>$12,879</td><td>$12,879</td></tr>
<tr><td>Auto/Ro-Ro</td><td>$1,515</td><td>$1,515</td></tr>
<tr><td>Product Tankers</td><td>$1,783</td><td>$1,783</td></tr>
<tr><td>Crude Tankers</td><td>$9,873</td><td>$9,873</td></tr>
<tr><td>Which terminals would offer the remediation fee as an option?</td><td colspan="3">All (100%)</td><td>Staff assumes that all terminals would offer the remediation fee as an option.</td></tr>
</table>

CARB has set the remediation fee cost at an unreasonable level for long term construction projects. Appendix A gives an example of how the remediation fees using Table XVIII would have more than doubled the cost of a recent Port of Los Angeles construction project,

which increased shore power capabilities, by upgrading electrical infrastructure at their World Cruise Center. If terminals decide that their strategy to meet this regulation is to install more shore power infrastructure, then similar situations are likely.

The Ports are also concerned that unforeseen repairs that may take several months or more could occur. In these types of prolonged incidences, the remediation fund fees set per hour will become so prohibitively high that terminals may have to shut down or turn away vessels during the repair. Ports again encourage CARB to conduct a feasibility study that would help set the rates for the remediation fund and determine the state of alternative emission control technology.

There are currently a total of two certified alternative emissions control systems in use at this time, and those systems are only certified for use on container vessels. The Ports are uncertain in how many, if any, additional systems will be deployed in the next few years. This limited number of options makes it difficult for terminals or shipping lines to secure exclusive service of these systems, which would mean most construction or repairs would cause the payment of large fines pursuant to the remediation fee fund.

The Ports encourage CARB staff to set up the remediation funds for use specifically in technology research, development, demonstration, and deployment of emissions reduction technologies specific to ocean going vessels rather than for general emission reduction use. As stated in our previous letters, in order to accelerate the development and deployment of shore power and alternative control options, including infrastructure for non-container terminals and vessels, the Ports request that CARB prioritize funding as they did for the currently regulated fleet through Proposition 1B in 2006. The remediation fund can be better utilized to accelerate emission reductions from this under-represented category.

- **Compliance May Hinder CAAP Efforts** – Lastly, the Ports remain concerned that the cost to comply with CARB's proposed Rule will affect our ability to meet the goals under the 2017 CAAP Update given the significant upfront costs of an At Berth Infrastructure Program. The costs shown in the May presentation were annualized, but much of the costs will be upfront rather than spread over the ten years. CARB staff has also assumed that minimal infrastructure changes will be needed to meet the regulation. Our joint letters to CARB have included cost estimates that we feel are representative of the infrastructure costs that would be necessary to meet compliance and fulfill the Ports' obligations as currently written in this draft regulation. CARB has not included any of these costs in their revisions, even with the provision of invoices and information directly from the Port of Long Beach financial system.

  In addition, Port staff resources are limited. The staff that are currently designing the zero-emission terminal infrastructure for technology demonstration projects, and future full-scale deployments are the same staff members who would be responsible for designing the

infrastructure to support the new At Berth Regulation. This underscores the need for prioritizing programs and funding, as described above and in previous letters, in order to determine how to most effectively allocate our resources to participate in the development and implementation of CARB's regulatory program.

The Ports thank CARB staff for hosting additional workshops, engaging with us directly, and their consideration of the comments contained in this letter as well as in the attached Appendix.

We look forward to continuing to meet with CARB staff in the future to further discuss the proposed amendments to the At Berth Regulation. Please feel free contact us with any questions or concerns regarding this letter.

Sincerely,

CHRISTOPHER CANNON
Director of Environmental Management
Port of Los Angeles

MATTHEW ARMS
Acting Director of Environmental Affairs
and Planning
Port of Long Beach

Attachment

cc: CARB, Cynthia Marvin (Cynthia.Marvin@arb.ca.gov)
CARB, Angela Csondes (Angela.Csondes@arb.ca.gov)
CARB, Nicole Light (Nicole.Light@arb.ca.gov)
CARB: Kaylin Huang (Kaylin.Huang@arb.ca.gov)

CC:LW:TD:AC:yo
APP No.: 010227-517

THE PORT
OF LOS ANGELES
425 S. Palos Verdes Street Post Office Box 151 San Pedro, CA 90733-0151 TEL/TDD 310 SEA-PORT www.portoflosangeles.org

Eric Garcetti *Mayor, City of Los Angeles*
Board of Harbor Commissioners: Jaime L. Lee *President*; Diane L. Middleton *Commissioner*; Lucia Moreno-Linares *Commissioner*; Anthony Pirozzi, Jr. *Commissioner*; Edward R. Renwick *Commissioner*
Eugene D. Seroka *Executive Director*

Duplicate See comment letter - 60 Port of LB

APPENDIX A
Port of Los Angeles
Response to CARB At Berth Regulation Berth Draft Regulation (version May 8, 2019)

The Port of Los Angeles (POLA or Port) appreciates this opportunity to provide more detailed comments on the California Air Resources Board (CARB) draft regulation "Control Measure for Ocean-going Vessels At Berth" (version May 8, 2019). The Port has some concerns regarding tankers and the remediation fees.

Tankers

POLA had provided specific information about our tanker terminals in our previous joint letter with Port of Long Beach on May 20, 2019. Many of our tanker terminals are being redesigned to meet California State Lands Commission (CSLC) Chapter 31.F 2016 California Building Code, Title 24, Part 2, Marine Oil Terminal Engineering and Maintenance Standards (MOTEMS) requirement. MOTEMS is a comprehensive set of codes and standards for analysis, design, inspection/maintenance, and operation of existing and new marine oil terminals in the State of California. MOTEMS requirements will ensure better resistance to earthquakes, protect the public and the environment, and reduce the potential of an oil spill, while maintaining the operation and viability of the marine oil facility.

The new terminal designs will limit the number of emission control strategies that our tanker terminals will be able to utilize. A majority of the new designs do not leave any space for a land-side alternative emission control technology strategy. There is also no shore power infrastructure in the design drawings at this time, nor have there been any discussion from our tanker terminals to install shore power. Finally, as stated in POLA's appendix in the joint letter to CARB on May 20, 2019, there are various areas throughout the Port where navigation of the waterways would preclude the use of a barge-based system.

Two of our terminals have completed their environmental document and design (Shell and PBF). Construction will soon begin at these terminals and is unlikely to be halted due to this regulation to redesign the terminals. CSLC would be averse to any delays to these construction projects as they are meant to protect the public and the environment. Other terminals currently working on their environmental documents and designs are also unlikely to redesign their terminals for CARB's At Berth regulation as there is currently no CARB certified emission control technology for tankers. The terminals would not be able

to wait for the technology to become available in order to design their terminals as they already need to meet MOTEM standards.

The Port stresses the need for CARB to conduct a feasibility assessment to better inform this regulation, especially for tankers due the many variables and restrictions associated with this industry.

Remediation Fund

CARB has set remediation fees in Table XVIII of the "Control Measure for Ocean-Going Vessels At Berth Cost Analysis Inputs and Assumptions for Standardized Regulatory Impact Assessment," that would be used for construction and repair projects.

Table XVIII. Remediation Fee Costs

Data Input	Value			Basis
Hourly remediation fee for terminal and for vessel, for each vessel type	Vessel Type	Vessel Hourly Fee	Terminal Hourly Fee	Staff analysis using Carl Moyer formula to calculate average emissions in tons per hour by vessel category. Product and crude tanker values were averaged for cost estimation purposes, however the fee would be dependent on the vessel type. Note that these values are estimates based on current Staff analyses at the time this document was prepared, and do not necessarily represent the exact fees that would apply.
	Container/ Reefer	$2,395	$2,395	
	Cruise	$12,879	$12,879	
	Auto/Ro-Ro	$1,515	$1,515	
	Product Tankers	$1,783	$1,783	
	Crude Tankers	$9,873	$9,873	
Which terminals would offer the remediation fee as an option?	All (100%)			Staff assumes that all terminals would offer the remediation fee as an option.

POLA owns and maintains shore power infrastructure at our terminals. Construction and repairs to shore power infrastructure are conducted through the Port. We are concerned that the mechanism used to determine the amount paid to the remediation fund is unreasonable for long construction or repair projects. There are instances where unforeseen repairs may take longer than a few months due to the need to order equipment, coordinate times for terminal shutdown during repairs, or other issues that may come up. The current scheme for calculating payment to the remediation fund is based on an hourly basis per a call. For extended periods where shore power will not be accessible, the cost will be extraordinarily high for industry or the Port as shown in the example provided below.

The Port recently upgraded our World Cruise Center to allow for 11 kV and 6.6 kV shore power connections for cruise vessels. This construction required a new transformer at the Cruise Center. The goal of the construction was to provide enough power for the large cruise ships to plug into shore power at POLA. The construction occurred from June 30, 2017 through April 23, 2018, and during the electrical upgrade no visiting cruise vessels were able connect to shore power. Alternative shore power was not an option either since there are no CARB-certified alternative emission control technologies for cruise vessels. The total number of hours for cruise vessels berthed at the World Cruise Center during the construction was 1,056.55 hours. Based on the hourly fee for cruise in Table XVIII, the hypothetical remediation fee for this construction project would have cost $13,607,307 (1,056.55 hour x $12,879/hour). The total cost of the electrical upgrade itself

was about $11 million. This hypothetical remediation fee would have more than doubled the cost of this construction project that took less than a year to complete.

Since there are currently only two CARB-certified alternative emission control systems available at the Ports of Los Angeles and Long Beach, for long periods of construction or repair, there is uncertainty with respect to the availability of these systems in the future. In cases where a system cannot be secured, the remediation fee compliance mechanism would have to be utilized. As shown in our example above, the fee could increase to amounts that are not sustainable to industry or the Port. In our previous and current comment letters, the Ports request that CARB conduct a feasibility assessment. This will help determine the rate for the remediation fund as the current remediation fee costs will be too high for these prolonged instances of shore power construction or repair.

Comments on Proposed At-Berth Amendment Regulatory Concept, June 14, 2019

June 14, 2019

Bonnie Soriano
California Air Resources Board
1001 I Street
Sacramento, California 95812

Subject: Comments on Proposed At-Berth Amendment Regulatory Concept

Dear Ms. Soriano:

Thank you for the opportunity to provide comments on the revised regulatory concept for the At-Berth Regulation Amendments. The industry coalition appreciates that California Air Resources Board (CARB) staff has continued to revise the regulatory concepts in response to comments provided and looks forward to continuing this dialogue with the CARB staff.

Due to the workshop schedules and time constraints, each of the associations of this industry coalition and their members reserve the right to revise and expand the questions and comments contained herein. Some initial comments and questions on the regulatory concept follow.

No Response on Industry Proposal

52.C.30 Earlier this year, an industry-sponsored proposal for amending and expanding the At-Berth Regulation was sent to CARB staff for consideration. That alternative proposal establishes a path forward to increase compliance and continue to ensure further emission reductions from vessels while at-berth in California ports. The Proposal includes measures to ensure compliance and emissions reductions consistent with current CARB emissions goals, expand investments in port infrastructure, and increase vessel compliance.

Unfortunately, the industry coalition has not been provided any feedback on the proposal that has been submitted. No comments have been provided and no concerns raised. The industry coalition strongly believes that the proposal produces the emission reduction benefits that CARB staff is seeking while providing a regulatory framework that meets the dynamic needs of the industry. As a result, the industry coalition renews our request that CARB staff consider the alternative proposal and discuss the proposal through a collaborative process.

Regulatory Proposal Imposes an Indirect Source Rule

52.C.31 The industry coalition remains strongly opposed to any regulatory framework that establishes an indirect source rule. By creating regulatory liability on one party for the actions or emissions of another party, the regulatory concept creates an impossible regulatory burden. It is important that any regulatory framework only hold entities responsible for actions or emissions under their direct control.

Clear lines of responsibilities are the only way an amended At-Berth Rule can be successful and avoid the failures of the existing rule.

Proposed Schedule is Unrealistic

52.C.32 The proposed compliance schedule is unrealistic to achieve for the existing regulated fleet. Under the current rule, implementation was phased in beginning with 50% in 2014, increasing to 70% in 2017, and allowing three years for the industry to improve compliance by 10% to 80% in 2020. From the time the final rule becomes effective to January 2021, there will be less than a single year to increase compliance by 20%. Staff has argued that this is achievable because nearly the entire fleet will need to be retrofitted to achieve the 2020 requirements and that there are significant emission reductions to be gained through the requirement. But these two positions are incompatible with each other; only one can be true. Because the existing rule has a requirement that all equipped vessels must use shore power, either the vessel fleet needs additional retrofitting to meet the proposed requirements resulting in additional emission reductions or the fleet is already equipped to meet the proposed requirements in which case few additional emission reductions can be achieved.

In either case, the certainty that the proposed rule requires means that either additional shoreside infrastructure or alternative control options will be necessary. The less than one-year timeframe from the time the rule becomes effective until January 2021 is unrealistic. The ports of Long Beach and Los Angeles have submitted two extensive letters discussing the additional infrastructure necessary to come into compliance with the proposed regulation. In short, years of additional preparation is necessary. The proposed rule must reflect this reality.

52.C.33 For tankers, CARB has established a schedule that a primary manufacturer of emissions control equipment has told CARB staff is unrealistic. In an apparent effort to force the short circuit of the technology development timeframe, the proposed regulatory concept has established unrealistic goals for developing new technology for the tanker industry.

52.C.34 Equally important, there is insufficient time to prepare terminal and port plans. From the effective date of the rule, until June 2020, will leave less than six months' time to prepare appropriate plans. Terminals and ports will need to coordinate on the development of any plan in order for the plan to be credible. In order to complete the plans, port and terminal operators will likely need to retain outside consulting services. Any such work will be subject to a public contracting process. An port that does not have such services available through on-call contracts would be subject to the State-mandated process to retain outside expert consulting services, which will likely take nearly the entire six months available: preparing a request for proposals, solicitation, proposal review and selection, and contracting. It has been estimated that the design work alone will take 12 months.

From plans through every aspect of implementation, CARB staff has established an unrealistic timeline for implementation that will be impossible to successfully complete.

Proposal Continues to Hold Regulated Entities Responsible for Actions Outside Their Control

52.C.35 The proposed rule continues to be plagued by fundamental problems in its framework. Key among those problems (and with the existing rule) is the rule's attempt to hold one party responsible for the failure of another party or for issues outside the control of any party. As the industry has repeatedly raised time and again, there are multiple parties that are responsible for ensuring a successful shore power connection. While key among the parties are the ocean carrier and terminal operator, an incomplete list of other independent parties involved in the process include utilities, union labor, which is independently responsible for dispatching labor, port authorities that at some ports dispatch labor to energize connections, pilots who determine when a vessel is ready to sail, and tub boat operators. Despite repeated discussions on these issues, the CARB proposal holds terminals and carriers responsible for the possible failures of these other parties.

52.C.36 Far worse, the proposed rule continues to hold marine terminals and ocean carriers responsible for issues completely outside their control. At large terminals, berth space is assigned based on a planned schedule. Those berth assignments allow the terminal to provide shore power and the vessel the ability to reach the shore power connection point. Unfortunately, schedules can be impacted by weather, prior port delays, labor issues, extra loaders, or a host of other issues. However, in the base case, the ocean carrier arrived ready to connect and the terminal assigned space ready to connect the vessel. Impacts such as weather delays (or any issue outside the direct control of the parties) that result in an inability to make a shore power connection should not result in either party being held responsible. While the concept of Terminal Incident Exceptions (TIEs) and Vessel Incident Exceptions (VIEs) may prove useful in a final regulatory framework, the concept should not be used as a bandage for areas that the proposed concept holds regulated parties responsible for issues outside their control.

VIEs/TIEs

52.C.37 As mentioned previously, VIEs/TIEs may prove useful in the regulatory framework. Unfortunately, the current proposal uses VIEs/TIEs to hold carriers and terminals responsible for actions outside their control. As an example, a carrier would need to expend a VIE when a CARB-sanctioned alternative control technology fails. The ocean carrier relies on CARB to verify alternative control technology as the carrier does not have the flexibility to use non-CARB sanctioned equipment. The ocean carrier should not be held responsible for third-party operator equipment failure, nor should they be required to "remediate" any impact through the fees. Any mitigation should be the responsibility of the third-party provider, after all that is the service they are providing.

52.C.38 A similar problem may likely be dispute resolution. When there is a failure to connect shore power, there may be disagreement between terminal operators, ports, and ocean carriers as to the cause. If the parties cannot come to agreement to cause, how will such disputes be resolved. The mechanisms associated with the use of VIEs/TIEs engender finger-pointing. This is due in part to the fact that the regulatory framework continues to hold parties responsible for actions outside their control (as described above). It is also due to the fact that their may not be clear cut answers in all situations. A focus on clear lines of responsibility, as proposed in the industry alternative, as opposed to an attempt

to micromanage all possible circumstances would avoid these problems inherent in the proposed structure.

52.C.39 Also concerning is that CARB is proposing no VIEs for new fleets entering the market. Without a doubt that will put new entrants at a significant disadvantage. New fleets are seen entering markets throughout California. Those fleets should be granted the opportunity to compete with existing fleets on an equal playing field. In the same vein, existing fleets serving California markets would be at a competitive disadvantage if it chose to make a significant expansion within an existing market. If two different fleets serving California offered the same level of service in a given year but one fleet had fewer calls in the prior year, the fleet with fewer calls would be at a measurable competitive disadvantage even though the two fleets were now offering the same level of service. The same scenario is equally applicable for terminal operators. For either new services or expanded services, the allocation of VIEs/TIEs should not create such distortions that favor dominant incumbents over others.

52.C.40 Another concern regarding VIEs/TIEs is the requirement of reporting prior to vessel departure. In some cases, that would give responsible parties less than 10 hours to complete the reporting requirements. In other cases, it may simply be impossible because the cause of a failed connection may not be known immediately. In general, the reporting requirements of the proposal cannot rely on the assumption that the port, terminal, and vessel operators have perfect knowledge. As has been demonstrated multiple times, circumstances outside the control of any of the parties can arise and will leave the responsible parties working to identify all the necessary details to provide a complete report to CARB. At a minimum, responsible parties should have seven days to complete reporting, which would allow time for internal review of the reports.

52.C.41 The declining availability of VIEs/TIEs does not seem to consider the impact of aging equipment over time. Today, the shore power equipment is still relatively new. As it continues to age in a harsh marine environment, equipment failures and the need for repairs/replacements will increase, not decrease. CARB staff should evaluate the foreseeable impact of equipment aging on the need for VIEs/TIEs and propose a VIEs/TIEs schedule that reflects that need. Separate from aging equipment is the fact that many vessels that have been retrofit are approaching their mandatory five-year drydocking. There will be difficulty in finding shore power-capable charter vessels for a short-term substitution. The proposed rule should account for this with in the allocation of VIEs/TIEs. In addition, vessels should not be automatically prohibited from remediation fees when a vessel is not shore power-capable as it is not always possible to secure shore power-capable vessels for short-term charters.

One-Hour Connection Window Unnecessary, Unachievable, and Unsafe

52.C.42 CARB staff has arbitrarily added a one-hour connection requirement to the checklist requirements of the proposed rule. There is no basis for this time limit and there has been no demonstration that it can be done safely for all the connection configurations that are **permitted** under the existing rule. The existing rule permits multiple connection strategies, some of which will require more than one hour. It would be harmful, after five years of experience with existing systems to require vessels to retrofit existing shore power-capable vessels to allow a new connection procedure. Doing so, will take existing shore power-

capable ships out of service for retrofit, decreasing emission reductions in order to save minutes during the connection time.

Ultimately, the shore power connection process requires individual people to manhandle heavy, high-voltage equipment and energize that equipment. Under no circumstances should that work be performed under a stopwatch. In addition, there is no need for the stopwatch. The labor crew on the scene will make the best determination, keeping in mind safety, of how to handle the connection process. The labor crew is there for the purpose of making the shore power connection and there would be no interest on their part to delay it. Finally, the one-hour requirement would likely be ineffective because any exceedance of the one-hour requirement would likely result in a safety exemption being sought, as having labor move faster handling high voltage equipment would be fundamentally unsafe.

Alternative Control Technologies

52.C.43 The proposed language states that "[p]rior to entering into any agreement or contract, vessel operators or terminal operators shall follow due diligence in selecting third party control operators." It is unclear what this language requires. CARB is the sole determiner of whether a technology is verified or not. In addition, ocean carriers and terminal operators are not experts on CARB-certified control technology and would need to rely on the word of the CARB-certified third-party operator that the operator can provided the needed service. If such language remains in the regulation, the onus should be on the third-party operator to seek vessel operating parameters and certify that they are capable providing service consistent with the CARB Executive Order verifying their technology.

52.C.44 In addition, the proposed regulatory concept relies on a number of assumptions regarding the availability of additional alternative control technology options. It is impossible for sufficient additional alternative control technology options to be available by January 2021 in order to support the increased connection requirements proposed for the existing regulated fleet. In addition, no technologies currently exist that can serve the needs of cruise ships or the proposed expansion fleets of tankers and roll-on/roll-off vessels. CARB staff is aware of the limitations of the currently available control technology providers. In addition, CARB staff has heard directly from the manufacturers of the emissions control technology that the horizon for developing control technology is well beyond the proposed compliance dates for the tankers and roll-on/roll-off vessels. CARB is betting the compliance of an entire industry on technology that has not been proven sufficiently reliable over the past five years.

52.C.45 Even more troubling, in regard to greenhouse gases (GHG), CARB has defined an approved emissions control strategy as one that is "grid-neutral, emitting no more carbon emissions than if the strategy were powered by the California gird for the year that the technology is granted an Executive Order." Currently, no alternative control technology can meet this standard today. As a result, upon the effective date of the proposed rule, no alternative control technology will be

available. The language also implies that Executive Orders will only be granted on an annual basis. A temporary Executive Order will create uncertainty about the future availability of alternative control systems. It is unlikely that any company will be able to plan not knowing what the following year's GHG standard for an alternative control technology will be and whether a given technology will be granted an Executive Order.

Vessel Commissioning Should Not Have Limitations

52.C.46 All vessel commissioning should be fully exempt from the provisions of the rule. The purpose of vessel commissioning is to identify problems that **cannot** be identified earlier. If all issues could be resolved with certainty before vessel arrival, there would be no need for commissioning. Commissioning is necessary to protect both the vessel's shore power infrastructure and the shoreside infrastructure, preserving both for long-term successful use. Commissioning is also a function of the technology's high-voltage nature not malfeasance on the part of the port, carrier, or terminal. It should be recognized as a necessary part of supporting this regulation.

Vessel Shore Power Equipment

52.C.47 Shore power connections are located in proximity to electrical panels, therefore, cruise ships and cargo ships currently in the regulation are **not** typically equipped to connect from both Port and Starboard side. The industry coalition opposes a provision in the draft regulatory language that could be used to require a vessel to have shore power equipment on both the starboard and port side of a vessel. The current practice of assigning berths to accommodate the location of vessel shore power connections is manageable by industry and essential for maximizing utilization of shore power.

Expanded Exemptions Are Necessary

52.C.48 The exemptions provided in the proposed regulation are too narrow and do not envision the multiple areas that other government agencies have competing requirements. Often, ocean carriers or terminal operators are required to perform actions at the direction of a government agency that would prevent a shore power connection. Just one example of this might be U.S. Coast Guard testing of auxiliary engines. The regulation should include a broad exemption for actions ordered by a government agency that prevents a shore power connection. Again, TIEs/VIEs should not be necessary for issues that arise outside the control of the regulated parties, whether caused by events like nature or at the direction of governmental agencies.

Ocean-going Vessel Opacity Requirement

52.C.49 The industry coalition opposes the inclusion of an opacity requirement for ocean-going vessels at anchorage. Establishing such a standard infringes upon the exclusive jurisdiction of the International Maritime Organization and the international engine standards established by treaty through MARPOL Annex VI to which the United States is a party. CARB does not have the jurisdiction or authority to implement such requirements. Finally, it is inappropriate to include such a requirement in an At-Berth Rule. There has been no demonstration of need, no estimation of benefit, and no cost to implement. Basic questions on enforceability have not been discussed such as how enforcement would occur or

even how an inspector would distinguish smoke from steam. Such a requirement needs its own rule with evaluation of impacts, benefits, and costs.

Physical Constraints

52.C.50 CARB has defined a "Physical Constraint" as an avoidable barrier that the U.S. Coast Guard has, in writing, made a safety determination that prevents the use of a CARB approved control strategy. Has CARB affirmatively established that the U.S. Coast Guard is willing to provide such letters? Government agencies are often reluctant to prospectively provide an opinion on a set of circumstances and may only provide consultative guidance. Since the definition relies upon the action of another government agency, it is incumbent upon CARB to affirmatively establish that the U.S. Coast Guard will provide such documentation.

Reactive Organic Gases

In the latest draft regulatory proposal, control for Reactive Organic Gases (ROG) has been added. This is the first time ROG has been included as a targeted pollutant within the At-Berth Regulation. It does not appear that any of the normal supporting information that addresses the need to control specific
52.C.51 emissions has been prepared. That leaves industry stakeholders with multiple questions regarding the need and feasibility of the proposal. What is the demonstrated need to control this pollutant? What are the benefits of the control? How will control equipment be impacted by the need for control? What is the cost-effectiveness of control for ROGs? Neither of the currently approved alternative control systems are verified to control ROG. Upon the amended rule coming into effect, the existing alternative control systems will no longer meet the regulation's requirement, eliminating the systems as a viable option. What is the potential impact of the inclusion of ROG on the availability and viability of alternative control systems?

Emergency Events

52.C.52 The definition of an Emergency Event has been unreasonably limited to utility related issues. The definition of an Emergency Event, in regard to both vessel and terminal operators, should preserve the judgement of the operator to identify an emergency and take appropriate steps to protect people and property.

California Voyage

52.C.53 The draft regulatory language includes a definition for a California Voyage that could cause confusion with the term visit. The industry coalition recommends that definition be modified to state: "'California Voyage' means a vessel trip to the West Coast of North America that includes one or more vessel calls to California ports or marine terminals." In the revisions to the proposed regulatory language, the use of the term "California Voyage" has been dropped from the regulation. The regulation should use the term to make clear that any corrective action that is needed would be required for a subsequent California Voyage. Otherwise, shifts within a single port or visits to a subsequent California port during the same California Voyage may be subject to penalty before corrective action is possible.

52.C.54

Necessary Infrastructure

Within the section on Terminal and Port Plans, the draft regulatory language includes a concept of "necessary infrastructure". What does this mean? How is it measured? How will it be enforced?

52.C.55

Impact of Harbor Craft Emissions

The draft regulatory language includes many instances where increased tug activity will be necessary, sometimes significant increases. However, there is no analyses of the impact of these emissions or how the emissions reduce the effectiveness of the rule.

In one example, four tug movements would be required for the placement (two movements) and removal (two movements) of a barge-based alternative control system for a Ro/Ro vessel. Main tug engines are significantly larger than auxiliary engines on a Ro/Ro vessel. Given the short visit of Ro/Ro vessels, typically 10 hours, the tug emissions will significantly erode the benefit of the control system, increase greenhouse gas emissions, and reduce the cost-effectiveness of the effort. CARB staff has not shown the impact of these tug emissions for Ro/Ro or any other vessel category. Before proceeding, the analyses should be re-run to determine what emissions benefit remains after the impact of tug emissions.

In another example, there could be significant impact from the requirement that vessel be relocated to a shore power capable berth if one becomes available. Depending on the remaining time of the vessel call, the combined excess emissions from delaying the vessel through the move and the tug emissions to support the move, may exceed any benefit resulting in a net increase in emissions. While terminal operators have taken steps to relocate vessels to ensure the use of shore power whenever possible, a blanket requirement may result in negative as well as positive outcomes. The proposed language should reflect this reality or be removed from the regulation.

52.C.56

Notification for Malfunction

The proposed regulatory language includes a "Notification for Malfunction" section. The section is indicative of the many fundamental problems with the proposed regulatory language. The proposed Notification language is typical for stationary sources. However, the draft rule proposes to impose operational controls on a mobile source. The application of stationary source approaches to emissions control is inappropriate and unworkable. The entire section should be removed from the draft.

52.C.57

Regulatory Language Ambiguities

The draft regulatory language contains several ambiguities in the Ocean-going Vessel Requirements, Terminal Operator Requirements, and the Terminal and Port Plans sections. Due to the regulatory construction it is not always clear what categories are subject to what requirements. This is often due to placement of requirements for vessels or terminals in a parallel structure to the applicability of provisions to vessels and terminals in a given section. Instead, the regulatory language should place requirements in a subsection to applicability. Throughout these sections, the regulatory language should be revised to make clear the relationship between requirements and applicability.

Severability

52.C.58 The proposed regulation contains a severability clause. The proposed regulatory framework is very complex. That complexity has given rise to many unanswered questions regarding implementation and enforcement. Should any portion of the rule be rendered inoperable, the remaining rule would likely be unworkable. As a result, the rule should not contain a severability clause.

ATB Classification

52.C.59 With the proposed expansion of the At-Berth Rule, Articulated Tug-Barges (ATBs) may now fall under both the At-Berth Regulation and Harbor Craft Regulation. It is likely that this was an unintended consequence resulting from the peculiarities of how the rules were separately constructed. CARB staff should revisit the rule construction with regard to ATBs to ensure that the vessels are not captured under both rules.

Conclusion

The industry coalition appreciates the opportunity to submit these comments and looks forward to continuing to work with CARB staff on the development of amendments to the At-Berth Regulation.

Sincerely,

California Association of Port Authorities
Pacific Merchant Shipping Association
Cruise Lines International Association
Western States Petroleum Association

Comments on At-Berth Draft Regulation Order - 5/8 2019 Version, June 13, 2019

June 13, 2019

Ms. Bonnie Soriano
California Air Resources Board
1001 I Street
Sacramento, California 95812

Transmitted via email

Subject: Comments on At-Berth Draft Regulation Order - 5/8 2019 Version

Dear Ms. Soriano:

Thank you for the opportunity to comment on the most recent draft At-Berth Draft Regulation and for the additional time to submit the comments. CLIA also appreciates the meeting with you and your staff to discuss specific issues related to the regulation of concern to the cruise lines. CLIA will be signing on to the PMSA Coalition comment letter and agree with their comments. This letter reiterates the concerns (outlined below) with the At-Berth draft regulation that CLIA brought to your attention at the meeting that are cruise-line specific:

- 52.C.60 THE REGULATIONS SHOULD CONTINUE THE EXISTING NON-FREQUENT FLIER EXEMPTION FOR CRUISE SHIPS: CLIA remains concerned that the draft regulation is so rigid with every vessel, every call and mitigation of every emission at 100% that it will impact the cruise markets in California. This could result in world and transitioning cruises which cannot justify the millions of dollars to add shorepower equipment on vessels that visit California only a few times per year, to skip California ports, causing major financial impacts for those ports. CLIA requests that CARB reinstate the non-frequent flier exemption for cruise ships making four or fewer visits per year. CLIA is willing to discuss other potential options to the non-frequent flier exemption such as a major expansion of the types of situations that would qualify to pay a mitigation fee to offset emissions and avoid violations, if the fees are reasonable and based on the emissions of the vessels.

- 52.C.61 CRUISE LINES WILL NOT "PLAN TO BE NONCOMPLIANT" AND CANNOT USE EXISTING ALTERNATIVE COMPLIANCE OPTIONS: The reality is that companies will not "plan to be noncompliant" and be subject to a violation should these issues with non-frequent fliers not be resolved. These issues are of particular concern to cruise vessels because they cannot use the existing approved alternative compliance options.

- 52.C.62 VIES WILL NOT ADEQUATELY COVER NON-FREQUENT FLIERS OR CRUISE FLEETS ENTERING MARKETS IN CALIFORNIA: The VIEs (Vessel Incident Exceptions) as structured are not adequate to ensure that all non-frequent fliers can avoid violation should they come into California. The calculations that CARB will use to determine the number of VIEs available to a fleet will particularly disadvantage smaller fleets which will not be able to receive in some cases any VIEs, and the VIEs would be non-existent for vessels that did not call on California in the previous year, including scouting voyages for companies pursuing or adding new markets in the state. The CARB decision to treat the Ports of Long Beach and Los Angeles as separate ports is also a major impediment to the usefulness of VIEs for non-frequent fliers or for any other purpose for which the VIEs are allowed to be used.

52.C.63

- THE REGULATIONS SHOULD CLARIFY THAT THE DEFINITION OF "COMPATIBLE" AND "COMPATIBILITY" DO NOT REQUIRE INSTALLATION OF SHOREPOWER ON THE SECOND SIDE OF THE SHIP: Ships should not be required to have shorepower equipment on both sides of the ship -- nor should ships already in compliance with the current regulation to be shorepower-capable be penalized or required to pay a mitigation fee should a berth not be available that can connect to the shorepower already installed on the ship on a specific side. Shorepower connections are located in proximity to electrical panels and cannot easily cross over the bow of the ship. The current practice of assigning berths to accommodate the location of vessel shorepower connections is financially and logistically manageable by industry and is essential for maximizing utilization of shorepower equipment required only in California. (Pages 18, 20 and 26).

52.C.64

- THE USE OF THE RELEVANT ISO STANDARD FOR SHORE POWER INFRASTRUCTURE SHOULD BE REQUIRED IN THE REGULATIONS: The regulation should be updated to require terminals and ports to meet the international standard agreed to by the International Maritime Organization consistent with ISO/IEC/IEEE 80005-1, for shorepower infrastructure to be considered compliant with the regulation.

52.C.65

- A TYPO SHOULD BE FIXED RELATED TO "READY TO WORK" AND "VISIT": The following definitions appear to have a typo that should be corrected:
  (44) "Ready to Work" means that the vessel is tied to the berth, the gangway has been lowered with netting down, and U.S. Coast Guard and U.S. Customs and Border Protection have cleared the vessel.
  (66) "Visit" means the time period when the vessel is "Ready to Work". The visit begins once the vessel is tied to the berth with gangway down and netting secured and has been cleared by U.S. Customs and Border Protection. The visit ends when "Pilot on Board."
  As noted in the above definitions, the USCG is listed under "Ready to Work." However, the USCG is not listed under "Visit." The USCG should be deleted from the "Ready to Work" definition since they do not actually clear the vessel upon arrival (this is what CBP does).

Again, thank you for your consideration of these comments.

Sincerely,

Donald Brown
VP, Maritime Policy
Cruise Lines International Association

cc: Angela Csondes

Port of Oakland Comments on May 10, 2019, Draft Proposed Control Measure for Ocean-Going Vessels At Berth and Supporting Documents, June 10, 2019

PORT OF OAKLAND

Duplicate see comment Letter 17- Port of Oakland

June 10, 2019

Angela Csondes
Manager, Marine Strategies Section
California Air Resources Board
P.O. Box 2815
Sacramento, CA 95812-2815
Submitted Via Electronic Comment Log

Subject: Comments on May 10, 2019, Draft Proposed Control Measure for Ocean-Going Vessels At Berth and Supporting Documents

Dear Ms. Csondes:

The Port of Oakland ("Port") appreciates the opportunity to comment on the rulemaking materials posted May 10, 2019, for the Proposed Control Measure for Ocean-Going Vessels At Berth ("Proposed Control Measure"). The Port understands that the California Air Resources Board ("CARB") is planning for the Proposed Control Measure to replace the current Airborne Toxic Control Measure ("ATCM") for Auxiliary Diesel Engines Operated on Ocean-Going Vessels At Berth in a California Port (the "At-Berth Regulation"), with the goal of taking the Proposed Control Measure to the CARB Governing Board in December 2019. On May 10, 2019, CARB posted the revised text of the Proposed Control Measure, and provided, as supporting documents, the presentation from the May 14 and May 16, 2019 public workshops, Cost Inputs and Assumptions in PDF format, and Cost Estimates in Excel format.

The Port supports CARB's ongoing efforts to reduce emissions from ocean-going vessels ("OGVs") at berth and is working diligently to maximize the number of vessel visits using shore power. Port staff work collaboratively with shipping lines to provide education and resources about the shore power program. Port staff also track shore power usage in real time, collecting detailed information from marine terminal operators. The Port posts shore power usage statistics, reasons for equipped vessels not plugging in, and cost information on our shore power website: https://www.oaklandseaport.com/development-programs/shore-power/. In 2018, 75% of all calls to the Port drew shore power.

Public comments on the Proposed Control Measure are due to CARB June 10, 2019. Port staff understand CARB will then finalize the regulatory language and prepare an Initial Statement of

Reasons ("ISOR") to release on October 18, 2019, with public comment on the ISOR closing on December 2, 2019. The CARB Governing Board is scheduled to hear the Proposed Control Measure on December 5, 2019. Do CARB staff intend to respond to public comment on the ISOR? Three days does not leave time for meaningful CARB response to public comment or public review of subsequent changes to the Proposed Control Measure. Port staff suggest a minimum of 14 days for CARB staff to review and respond to public comment, and for the public to review any changes, before the Proposed Control Measure can be heard.

The Proposed Control Measure includes the concept of an Incident Exemption, which is new since CARB published its draft Proposed Control Measure in August 2018. Vessel fleets would be granted Vessel Incident Exemptions (VIEs) and terminals would be granted Terminal Incident Exemptions (TIEs). Starting in 2021 for container ships and terminals, VIEs and TIEs would be granted at levels of 5% of the previous calendar year's calls. CARB stated at the May 14, 2019, public workshop that the expected plug-in level for the container fleet is 90% in 2021.

Port staff submit the following comments and questions, divided into the topic areas of the draft regulatory text of the Proposed Control Measure, the presentation from the May 14, 2019 and May 16, 2019 public workshops, and the Cost Inputs and Assumptions in PDF format.

Comments and Questions on the Draft Regulatory Text of the Proposed Control Measure

1. Port staff request clarification on the definition of "necessary infrastructure…that will enable a terminal to comply with this Control Measure" in Section 93130.10(b) of the Proposed Control Measure and what, in this context, "subject to verification by [CARB] enforcement staff" means. From Table XI Berth and Terminal Counts, Anticipated Infrastructure Needs, and Unique Vessels of the CARB Cost Inputs and Assumptions in PDF format, it appears that CARB believes that three new shore power vaults "would be installed in response to the Draft Regulation [Proposed Control Measure]…" at the Port. Accordingly Port staff request documentation supporting CARB staff's berth-by-berth infrastructure analysis and determination that three new shore power vaults would be required at the Port in response to the Proposed Control Measure.

2. Regarding the Terminal and Port Plans required for Container terminals in Section 93130.11 of the Proposed Control Measure, the deadline of June 1, 2020 does not allow for sufficient time after the anticipated adoption of the Proposed Control Measure for ports and terminals to submit plans. Port staff object to the text in Section 93130.11(a) that "[a]s an alternative, Ports may submit plans for their terminal operators." Ports should not be expected to submit plans for terminal operators. In addition, the statement in Section 93130.10(b) of the Proposed Control Measure that "Ports should use terminal plans as [the] basis for developing port plans" seems to indicate that the deadline for Port Plans should be adjusted to come after the deadline for Terminal Plans.

3. The definition of "Fleet" in Section 93130.2(b)(22) of the Proposed Control Measure does not explain how fleets will be established. What will CARB require at the beginning

of each compliance year to establish fleets? Will this be part of the online Freight Regulations Reporting System ("FRRS") mentioned in the presentation from the May 14, 2019 and May 16, 2019 public workshops?

Port staff request an initial accommodation for new fleets entering the California market. New entrants should be given an opportunity to estimate the coming year's ship calls and estimate the number of VIEs to be awarded for the coming year.

The definition of Fleet and the requirements for VIEs also need to be responsive to changes in the shipping industry, for example when businesses merge or alliances change. Likewise, CARB should clarify what provisions will accommodate changes in the terminal industry, such as new terminals or changes in ownership, in the allocation of TIEs.

4. Port staff have two comments regarding vessel commissioning. Port staff request that vessel commissioning events that do not successfully connect to shore power as discussed in Section 93130.7(f)(2) of the Proposed Control Measure be considered eligible for exceptions under the regulation. The commissioning attempt shows that the goal was to reduce emissions through shore power and as such an Exception should be available to operators in this situation. Port staff conduct each vessel commissioning (with the exception of those at the Matson Terminal) to ensure the safety of the vessel, terminal, and workforce. Vessel commissioning is an invaluable safety procedure and should not be penalized under the Proposed Control Measure.

   Port staff request that the definition of "Vessel Commissioning" in Section 93130.2(b)(61) of the Proposed Control Measure be expanded to include the case in which the port authority is the commissioning agent, as is the case at the Port of Oakland. Likewise, in Section 93130.7(d)(1) ("If applicable, commission vessel as required by terminal operator"), Section 93130.8(a)(4) ("It is the terminal operator's responsibility to commission vessels equipped with shore power"), and Section 93130.8(d)(1) ("If applicable, commission vessel for use of shore power"), the commissioning requirement should be determined by the port authority or the terminal operator.

5. The reduction in VIEs and TIEs for Container, Reefer, and Passenger vessels from 5% each to 3% each discussed in Sections 93130.7(g)(1)(A)(ii) and 93130.8(h)(1)(A)(ii) of the Proposed Control Measure serves to increase the usage of the Remediation Fund [Section 93130.12(a)] in and after 2023. Port staff request further information from CARB on when and where the Remediation Fund will be deployed, given that CARB anticipates zero-emissions regulation on trucks, transport refrigeration units, forklifts, and cargo-handling equipment in the time frame of enhanced usage of the Remediation Fund, making those categories ineligible for incentive-funded emissions reductions.

6. The allotted VIEs and TIEs for vessels other than Container, Reefer, and Passenger vessels in Sections 93130.7(g)(1)(A) and 93130.8(h)(1)(A) of the Proposed Control Measure reduce from 5% to 3% after only one year. Port staff note that at the advent of the ATCM, the requirement was 50% of all calls in the first year. An initial expectation of 90% usage does not accommodate the fact that the Proposed Control Measure is the first-of-its-kind requirement for Ro-Ro and Tanker vessels in the world, and the technologies and equipment required do not exist at this time and have not been tested.

7. Regarding the Remediation Fund described in Section 93130.12 of the Proposed Control Measure, what is the procedure and timeline for CARB to approve a public entity to manage the funds generated at the Port?

8. Port staff request clarification from CARB of what constitutes a failure to achieve "full emission reductions" as referenced in Section 93130.12(a)(3) of the Proposed Control Measure, regarding when the Remediation Fund may be used.

9. In response to the suggestion in Section 93130.8(a)(2) of the Proposed Control Measure that a terminal operator should be responsible to interrupt a vessel call to shift the vessel to a berth with shore power if no berth was previously available, Port staff request CARB prepare and share an analysis of harbor craft emissions associated with such a shift at each port. Second to OGV, harbor craft are the second-highest emitting sources of emissions in the Port's 2017 Emissions Inventory. Given the short duration of the average vessel call to the Port, the suggestion to call additional harbor craft to reduce the remaining hours of an OGV call's auxiliary emissions could lead to increased overall emissions.

10. Likewise, Port staff question if the suggestion in Section 93130.8(a)(3) of the Proposed Control Measure that a terminal operator should be responsible to provide an alternative CARB-approved emission control strategy if a commissioned shore power vessel is berthed such that it cannot connect to shore power is necessary. CARB's own analysis in the Cost Inputs and Assumptions in PDF format, Table XI, declares that no barge-based capture and control system is anticipated for the Port.

11. Port staff note that the "power meter readings at the time of shore power connection and disconnection" requested in Section 93130.8(e)(2)(C) of the Proposed Control Measure are typically not available within 7 calendar days of a vessel's departure, as anticipated by CARB. Power meter readings at the Port are typically available at the close of the calendar month and not sooner.

12. In Section 93130.1 of the Proposed Control Measure, the stated intent of the Proposed Control Measure is "to ensure that operators of ocean-going vessels reduce emissions using a California Air Resources Board (CARB) approved emission control strategy to reduce PM, NOx, and ROG emissions at berth without increasing overall GHG emissions from this Control Measure…" How will CARB monitor GHG emissions after

implementation of the Proposed Control Measure and what is the GHG emissions baseline?

Comments and Questions on the presentation from the May 14, 2019 and May 16, 2019 public workshops

13. On Slide 4 of the presentation for the May 14, 2019 and May 16, 2019, public workshops, CARB staff show OGV at-berth emissions for the entire state. Port staff request to see these emissions totals further tabulated both by port or marine terminal and by vessel type. This is especially important as, per Section 93130.7(g)(2) of the Proposed Control Measure, VIEs are specific to the Fleet-Port pairing they are granted to.

14. On Slides 5 and 29 of the presentation for the May 14, 2019 and May 16, 2019 public workshops, CARB staff show a table of cost effectiveness for this rulemaking. The Port provides specific comments on the cost estimates below. Port staff request to see the total cost estimates and cost effectiveness estimates further tabulated both by port and by vessel type.

Comments and Questions on the Cost Inputs and Assumptions in PDF format

15. In Table V. Auxiliary Engine Effective Power Values, CARB states that it is relying on "the same power values cited in Table 7 of the emission inventory methodology https://ww3.arb.ca.gov/msei/ordiesel/draft2019ogvinv.pdf. Values used in cost analysis for container/reefer and tanker vessels are calculated as one kW-average per vessel type, weighted by average vessel kW at each port/terminal and vessel visits to each port/terminal."

    As noted in the Port's February 15, 2019 letter to CARB regarding the emissions inventory, the emissions inventory relies on the assumption that container vessel effective power is a function of vessel size bin. Will this assumption in the emissions inventory be modified to align with the cost estimate?

16. In Table VI. Duration of Emission Control at Berth, CARB shows that it is estimating statewide emissions reductions based on average duration of emission control at berth per vessel visit. The Port requests an emissions and cost analysis specific to each port or marine terminal and each vessel type. The stated average Container/Reefer duration of emission control at berth of 38.8 hours is about twice the average time for shore power connections at the Port. The difference between Port data and the average shows that the statewide average is not meaningful for the Port, and the conclusions of the averaging analysis may not apply to the Port.

17. Table VIII. Electricity and Fuel Cost Inputs and the associated Cost Estimates in Excel format show that CARB expects 100% of any Low Carbon Fuel Standard ("LCFS") credits would be reinvested into shore power. It is not guaranteed that the credits would

all be reinvested into shore power. What assumptions did CARB staff make in projecting the LCFS credit value through 2032?

18. Related to the duration of emission control at berth in Table VI, Port staff would like to reiterate that shore power usage at the Port is billed based on hours of use, not kWh drawn. This affects the assumptions in Table VIII. Electricity and Fuel Cost Inputs, as well. While the cost of Pacific Gas & Electric electricity is relevant to the Matson Terminal and the overall discussion of electricity costs, the Port is the utility serving shore power at all but the Matson Terminal.

19. The growth assumptions in Table IX. Growth Factors overestimate actual TEU growth for the Port between 2016 and 2018 and continue to use a 3.9% compound annual TEU growth rate between 2018 and 2032. Port staff request that in addition to this high estimate of TEU growth, CARB prepare an estimate of emissions using a realistic growth estimate. For reference, the Port's CAGR between 2008 and 2018 was 0.4%. Port staff understand that the growth estimates CARB is using for emissions and costs for the Port will align with the vessel fleet projections (such as larger vessels each year) that are being used for the Ports of Long Beach and Los Angeles.

20. Port staff note that the cost of compliance with the existing At-Berth Regulation is high and requires frequent vessel retrofits. In 2018, the Port commissioned or re-commissioned nearly 100 vessels, or about 25% of the ever-commissioned vessel list. The ongoing costs of retrofitting vessels when the line rotation changes, maintaining vessel equipment, and commissioning vessels with the current At-Berth Regulation apply equally to comply with the Proposed Control Measure and should be included in the cost estimates as they are real and necessary costs of compliance with the Proposed Control Measure. The Proposed Control Measure is not additive and incremental to the At-Berth Regulation, but rather a replacement and as such the entire cost to comply with the Proposed Control Measure needs to be factored into the cost effectiveness.

Closing

Port staff appreciate the opportunity to review the Proposed Control Measure and attend the public workshop on May 14, 2019. We look forward to working with CARB on refinements to improve the Proposed Control Measure, emissions inventory, and associated analyses.

Please contact Catherine Mukai, P.E., Port Associate Environmental Planner/Scientist at cmukai@portoakland.com with any follow-up questions.

Sincerely,

Colleen Liang, Port Environmental Supervisor, for
Richard Sinkoff
Director of Environmental Programs and Planning

Enclosures: January 15, 2019 Port letter to ARB re: Comments on Preliminary Draft Health Risk Assessment ("HRA") for the Proposed Control Measure for Ocean-Going Vessels At Berth and At Anchor

February 15, 2019 Port letter to ARB re: Comments on *Draft 2018/2019 Update to Inventory for Ocean-Going Vessels: Methodology and Results* for the Proposed Control Measure for Ocean-Going Vessels At Berth and At Anchor

https://www.arb.ca.gov/lists/com-attach/13-atberth-atanchor-ws-ATNUYIJiVD4ELwEx.pdf

PORT OF OAKLAND

Duplicate See Comment letter 17
Port of Oakland

January 31, 2019

Angela Csondes
Manager, Marine Strategies Section
California Air Resources Board
P.O. Box 2815
Sacramento, CA 95812-2815
Submitted Via Electronic Comment Log

Subject: Comments on Preliminary Draft Health Risk Assessment ("HRA") for the Proposed Control Measure for Ocean-Going Vessels At Berth and At Anchor

Dear Ms. Csondes:

The Port of Oakland ("Port") appreciates the opportunity to comment on the Preliminary Draft HRA posted November 5, 2018, for the Proposed Control Measure for Ocean-Going Vessels At Berth and At Anchor ("Proposed Control Measure"). The Port understands that the California Air Resources Board ("CARB") is planning for the Proposed Control Measure to replace the current Airborne Toxic Control Measure ("ATCM") for Auxiliary Diesel Engines Operated on Ocean-Going Vessels At Berth in a California Port (the "At-Berth Regulation"), with the goal of taking the Proposed Control Measure to the CARB Governing Board in December 2019. CARB posted the text of the Proposed Control Measure on August 31, 2018. The November 5, 2018, Preliminary Draft HRA and associated air dispersion modeling files that CARB released December 14, 2018, were prepared in support of the Proposed Control Measure.

The Preliminary Health Analyses document contains two types of assessment, 1) an HRA using air dispersion modeling and impacts estimation guidance from the California Environmental Protection Agency Office of Environmental Health Hazard Assessment ("OEHHA") and 2) an Incidents per Ton ("IPT") analysis.

The Port supports CARB's ongoing efforts to reduce emissions from ocean-going vessels ("OGV") at berth and is working diligently to maximize the number of vessel visits using shore power. Port staff work collaboratively with shipping lines to provide education and resources about the shore power program. Port staff also track shore power usage in real time, collecting

530 Water Street • Jack London Square • P.O. Box 2064 • Oakland, California 94604-2064
Telephone: (510) 627-1100 • Facsimile: (510) 627-1826 • Web Page:
www.portofoakland.com

detailed information from marine terminal operators and posting that information on the Port's web site for public information purposes.[1]

The key input to the Preliminary Draft HRA is the estimated emissions from vessels at berth, which are not yet final. Emissions estimates need to be final and the Preliminary Draft HRA updated before the Preliminary Draft HRA results can be used.

CARB conducted two HRAs addressing only the Ports of Long Beach and Los Angeles together and the Richmond Complex. CARB's use of AERMOD and the 2015 OEHHA Risk Assessment Guidelines for HRAs represents current best practices. However, the robustness of the findings is limited by the emissions estimates. Emissions estimates are typically completed before the HRA but in this case are open for public comment and discussion through the end of February 2019, at which point they may be refined.

The air dispersion model AERMOD, which CARB selected for the Preliminary Draft HRA is the preferred model from the US Environmental Protection Agency. Required inputs to AERMOD include meteorological data, emissions information for each pollutant considered, and exhaust parameters for release points. Of these inputs, the estimated emissions are key, since emissions have a direct linear relationship with the estimated ambient concentrations and health impacts from each source.

On November 5, 2018, CARB posted the Preliminary Draft HRA. CARB then posted a hard-coded spreadsheet of "Draft At Berth Emissions Estimates" used in the Preliminary Draft HRA on November 9, 2018, and air dispersion modeling files in mid-December with a public comment period for the Preliminary Draft HRA closing January 31, 2019.

CARB also posted the "Draft: 2018/2019 Update to Inventory for Ocean-Going Vessels: Methodology and Results"—for the emissions that were entered into the Preliminary Draft HRA—on January 16, 2019, with a separate public comment period for the emissions methodology and results closing February 16, 2019.

Without greater understanding of the emissions used as data inputs to the air dispersion model and risk estimation calculations, the utility of the Preliminary Draft HRA is limited. Port staff are reviewing the emissions methodology released on January 16, 2019, and are comparing it with the spreadsheet posted November 9, 2018. Port staff look forward to discussing the emissions with CARB staff at the public workshop CARB scheduled for February 26, 2019. After that, Port staff anticipate the need for a revised HRA for the Proposed Control Measure that relies on emissions that have been reviewed and understood by all parties.

The AERMOD input and output files and risk estimation databases CARB provided on December 14, 2018, appear to carry out the methodology discussed in the Draft Preliminary HRA, but further review is not warranted until emissions are finalized. In addition to the

[1] https://www.oaklandseaport.com/development-programs/shore-power/

wharfinger information provided by the Port to CARB annually as required by grant funding obligations, Port staff are happy to work with CARB staff to refine assumptions made in the emissions estimates.

The role of the Preliminary Draft HRA posted November 5, 2018, in rulemaking for the Proposed Control Measure is not clear.

The Proposed Control Measure is not an ATCM, in fact its stated purpose is to reduce NOx, PM, and GHG but not the toxic air contaminant DPM—which is the focus of the Preliminary Draft HRA. The inclusion of an HRA for any of the ports in California is therefore not a fundamental driver of the Proposed Control Measure (leaving the CARB Governing Board direction, Mobile Source Strategy, and Sustainable Freight Action Plan as drivers). Thus, any reductions in risk shown in the Preliminary Draft HRA are purely informational. Indeed, CARB's elimination of the At-Berth Regulation ATCM by focusing on a Proposed Control Measure for NOx and PM but not DPM seems to imply that no further risk reductions are required.

The Preliminary Health Analyses report announces that the risk reductions of the Proposed Control Measure are "significant," a term defined in the California Environmental Quality Act ("CEQA") and used in CARB's Certified Regulatory Program, but not defined in the CARB rulemaking process. While CARB staff present the percentage of reduction in risk of the Proposed Control Measure over the current At-Berth Regulation, the total residual risk should be compared to that of other source categories to prioritize the need for the Proposed Control Measure.

Health impacts from Criteria Air Pollutants are managed through SIP Planning, which does not require a new Proposed Control Measure for the container fleet.

$PM_{2.5}$ is a criteria air pollutant, not a toxic air contaminant, and the California Ambient Air Quality Standards ("CAAQS") and National Ambient Air Quality Standards ("NAAQS") are the appropriate health-protective standards for $PM_{2.5}$. Regional ambient air concentrations of $PM_{2.5}$ are managed to levels below the CAAQS and NAAQS through SIP planning. Even so, CARB's Mobile Source Strategy calls for an evaluation of emissions reductions from currently unregulated fleets, not the already regulated container fleet which calls Oakland. Thus, SIP planning for $PM_{2.5}$ attainment does not mandate an amended At-Berth Regulation to reduce statewide emissions through an "every vessel, every visit" control strategy like CARB staff have proposed.

The Incidents Per Ton ("IPT") methodology presented for $PM_{2.5}$, a criteria air pollutant, is not a cost effectiveness metric.

The IPT methodology provides information on health effects assuming ambient $PM_{2.5}$ concentration is the sole contributor to adverse health effects, with a direct linear relationship. The IPT methodology is not, however, part of a cost-effectiveness evaluation. CARB released a "Preliminary Cost Information" document in August 2018 as part of this rulemaking effort,

https://www.arb.ca.gov/lists/com-attach/13-atberth-atanchor-ws-ATNUYlJiVD4ELwEx.pdf

which relies on the same assumptions as the emissions inventory (which, as discussed above, may need refinement). The preliminary costs data evaluated total costs of the Proposed Control Measure, but not cost effectiveness of proposed measures calculated in terms of cost per ton of emissions removed. CARB has also not yet prepared a socio-economic impact analysis of the proposed rule.

Closing

Port staff are interested in working with CARB to improve the current ATCM focused on DPM to allow for 100% compliance. We look forward to seeing enhanced supporting documentation for the CARB emissions estimates and a revised HRA and cost effectiveness analysis once the emissions are updated.

Please contact Catherine Mukai, P.E., Port Associate Environmental Planner/Scientist at cmukai@portoakland.com with any follow-up questions.

Sincerely,

Richard Sinkoff
Director of Environmental Programs and Planning

https://www.arb.ca.gov/lists/com-attach/18-atberth-atanchor-ws-UGJWYAY2BG4AKwly.pdf

PORT OF OAKLAND

February 15, 2019

Duplicate see comment letter 17 Port of Oakland

Angela Csondes
Manager, Marine Strategies Section
California Air Resources Board
P.O. Box 2815
Sacramento, CA 95812-2815
Submitted Via Electronic Comment Log

Subject: Comments on *Draft 2018/2019 Update to Inventory for Ocean-Going Vessels: Methodology and Results* for the Proposed Control Measure for Ocean-Going Vessels At Berth and At Anchor

Dear Ms. Csondes:

The Port of Oakland ("Port") appreciates the opportunity to comment on the *Draft 2018/2019 Update to Inventory for Ocean-Going Vessels: Methodology and Results* posted January 15, 2019, for the Proposed Control Measure for Ocean-Going Vessels At Berth and At Anchor ("Proposed Control Measure"). The Port understands that the California Air Resources Board ("CARB") is planning for the Proposed Control Measure to replace the current Airborne Toxic Control Measure ("ATCM") for Auxiliary Diesel Engines Operated on Ocean-Going Vessels At Berth in a California Port (the "At-Berth Regulation"), with the goal of taking the Proposed Control Measure to the CARB Governing Board in December 2019. CARB posted the text of the Proposed Control Measure on August 31, 2018. The *Draft 2018/2019 Update to Inventory for Ocean-Going Vessels: Methodology and Results* was prepared in support of the Proposed Control Measure.

The Port supports CARB's ongoing efforts to reduce emissions from ocean-going vessels ("OGVs") at berth and is working diligently to maximize the number of vessel visits using shore power. Port staff work collaboratively with shipping lines to provide education and resources about the shore power program. Port staff also track shore power usage in real time, collecting detailed information from marine terminal operators and posting that information on the Port's website for public information purposes.[1]

[1] https://www.oaklandseaport.com/development-programs/shore-power/

The *Draft 2018/2019 Update to Inventory for Ocean-Going Vessels: Methodology and Results* document includes emissions from California ports and CARB-defined Marine Terminal Complexes ("MTCs"). The emissions for 2016 are tabulated in Appendix B, while emissions for other years are only represented graphically in figures in the document and in tables published by CARB on November 9, 2018.

Comments on the *Draft 2018/2019 Update to Inventory for Ocean-Going Vessels: Methodology and Results* are due to CARB February 15, 2019. CARB will then host a public workshop to discuss the emissions on February 26, 2019. After that, Port staff anticipate the need for a revised emissions inventory for the Proposed Control Measure that responds to public comments. The Port provides wharfinger information to CARB annually as required by grant funding obligations. In addition, Port staff request that CARB staff work with the Port to refine assumptions made in the emissions estimates.

Given the scheduling of the public workshop after the public comment period has closed, this letter includes comments and questions that may best be addressed in the workshop. Thus, the Port is providing a list of comments and questions on the draft emissions inventory and topics for discussion at the February 26 public workshop.

Comments and Questions on the *Draft 2018/2019 Update to Inventory for Ocean-Going Vessels: Methodology and Results*

1. Why was 2016 selected as the baseline calendar year for the emissions inventory? Does CARB plan to conduct in-depth emissions inventories for 2017 and 2018?

2. Table 4 of the *Draft 2018/2019 Update to Inventory for Ocean-Going Vessels: Methodology and Results* shows vessel visit counts to California ports and MTCs in 2016 only. However, current trends are for fewer calls by larger vessels for a given amount of containerized cargo. The discussion on page 25 of the draft clarifies that "vessel practice changes" are not considered, even as the total number of calls is dropping in real time. Since 2013, total annual calls to the Port have been decreasing. Container cargo throughput is thus decoupled from vessel call activity. CARB should expand the vessel growth forecasting for the baseline scenario to include the effects of larger vessels and fewer calls for the same amount of containerized cargo.

3. Table 7 of the *Draft 2018/2019 Update to Inventory for Ocean-Going Vessels: Methodology and Results* relies on the assumption that for all ports and MTCs, container vessel effective power will match that of the Ports of Los Angeles and Long Beach in 2016. The effective power does not appear to be a function of vessel size bin, so the level of detail with which the effective power is classified by CARB-defined size bin is not appropriate. In addition, given the variation between data from the Port of Los Angeles and the Port of Long Beach within the same CARB-defined size bin, the data may not be meaningful when averaged by CARB-defined size bin. CARB should use an average effective power for container vessels regardless of size.

4. The growth rates in the Freight Analysis Framework ("FAF") for ports and MTCs outside of the San Pedro Bay are at odds with current trends. The FAF assumption for container cargo at the Port of Oakland is a 5% year-over-year growth rate between 2016 and 2020. Actual growth rates between 2016 and 2018 have not kept pace, with current Oakland planning documents estimating about half the FAF compound annual growth rate.[2] CARB should adjust the FAF growth forecasting for the baseline scenario to align with actual trends.

5. Page 27 of the *Draft 2018/2019 Update to Inventory for Ocean-Going Vessels: Methodology and Results* discusses statistical significance in the context of the emission forecasting. If CARB staff have conducted an uncertainties analysis, it should be included in the methodology and results document.

6. Table 15 of the *Draft 2018/2019 Update to Inventory for Ocean-Going Vessels: Methodology and Results* does not treat all ports and vessel types equally when assuming "Projected 2020 and Later Time on Shorepower," without justifying the differences. For instance, CARB assumes container vessels at the Port of Hueneme spend 80% of their time on shore power after 2020, while CARB assumes at the Ports of Los Angeles and Long Beach container vessels spend only 65% of their time on shore power. Impossibly, CARB-defined size bins 7, 9, and 12 container vessels at the Port of Oakland are assumed to spend 100% of their time at berth on shore power.[3] Port staff request further justification for and synchronization of the assumptions for "Projected 2020 and Later Time on Shorepower."

7. In the discussion of the "static age distribution model" versus a survival and turnover model, CARB staff do not consider the abnormally high number of OGV keels laid in 2015. How did CARB decide that the spike in keels laid in 2015 was not material to estimating NOx emissions through 2050?

8. CARB should revise its assumption that sulfur content in fuel is 0.1% based on the results of enforcement analyses of in-use fuel sulfur. The sulfur content of in-use fuel as sampled by the CARB enforcement team in calendar years 2017 and 2018 is lower than 0.1% by 30% and almost 50%, respectively, presenting information that actual emissions are lower than those estimated by CARB. (As stated on page 12, information from CARB's enforcement team is already used to determine reduced emissions from reduced engine activity time.)

[2] https://www.portofoakland.com/community/environmental-stewardship/maritime-air-quality-improvement-plan/

[3] Vessels arriving at berth need time to tie lines and lower gangways before they can connect shore power and likewise vessels need time to disconnect from shore power when leaving the berth. With these bookends on each vessel call, a vessel cannot be plugged into shore power for 100% of the time at berth.

https://www.arb.ca.gov/lists/com-attach/18-atberth-atanchor-ws-UGJWYAY2BG4AKwly.pdf

9. CARB should elaborate in the text on the Particulate Matter ("PM") emission factor for Marine Gas Oil ("MGO") at 0.1% sulfur. The 2007 Initial Statement of Reasons for At-Berth Regulation rulemaking used a value of 0.25 g/kW-hr for 0.1% S MGO. The *Draft 2018/2019 Update to Inventory for Ocean-Going Vessels: Methodology and Results* uses a PM emission factor of 0.18 g/kW-hr for the same fuel. The root source for OGV auxiliary engine emission factors is stated in both cases as the 2002 Entec study, with no description of why two different values of PM emission factors are used for the same fuel.

10. Please add References to the Table of Contents and to the document (Sources of emission factor information are only included at the end of Appendix A).

11. On page 42, should the last sentence read "it excludes emissions from boilers," not "it excludes emissions from auxiliary engines"?

Closing

Port staff look forward to working with CARB to support the updated emissions inventories referred to in the *Draft 2018/2019 Update to Inventory for Ocean-Going Vessels: Methodology and Results* after the workshop on February 26.

Please contact Catherine Mukai, P.E., Port Associate Environmental Planner/Scientist at cmukai@portoakland.com with any follow-up questions.

Sincerely,

Richard Sinkoff
Director of Environmental Programs and Planning

Preliminary Comments on Proposed At-Berth Amendments Cost Analysis, May 29, 2019

May 29, 2019

Bonnie Soriano
California Air Resources Board
1001 I Street
Sacramento, California 95812

Subject: Preliminary Comments on Proposed At-Berth Amendments Cost Analysis

Dear Ms. Soriano:

Thank you for the opportunity to provide preliminary comments on the cost analysis, inputs, and assumptions prepared for the revised regulatory concept for the At-Berth Regulation Amendments. The industry coalition appreciates that California Air Resources Board (CARB) staff has continued to revise the regulatory concepts in response to comments provided, and we look forward to continuing this dialogue with the CARB staff.

However, these comments represent only preliminary questions and reactions. The workshops introducing the cost analysis and revised concepts were scheduled in conflict with MEPC and the TRB Marine Board, so key vessel stakeholders were unable to attend and hear the presentations. And, in any event, two weeks, including a major holiday weekend, between the latest release of data concerning costs and the comment deadline gives stakeholders insufficient time to review and prepare substantive comments. We would request an allowance of additional time for the industry coalition to coordinate, review, and prepare data in response to the analysis provided. **Accordingly, the industry coalition requests that CARB staff continue to accept comments on the revised cost analysis through June 21, 2019.**

Due to the workshop schedules and time constraints, each of the associations of this industry coalition and their members reserve the right to revise and expand the questions and comments contained herein. Some initial comments and questions on the Cost Analysis follow:

Costs for Existing Fleet Are Not Addressed

52.C.66

The proposed rule dramatically re-writes the existing rule for the existing regulated fleet, but the Cost Analysis focuses only on a small number of currently unregulated vessels and an even smaller residual delta of landside costs associated with the currently unregulated fleet alone.

Given the lack of analysis of these costs, it is not possible to assess the scope, scale, and costs of the proposed rule's new operational requirements, duplication of compliance by existing fleets, shoreside

and alternative control technology infrastructure, and the impacts on the cost estimate of other new concepts. What is the CARB staff's justification for only including costs for newly regulated vessels in this cost analysis when the latest revision of the proposed rule imposes costs on all currently regulated vessels?

Checklist – 1-Hour Connect Requirement

52.C.67 While the new time allotted for connecting vessels to shore power is measured from a more reasonable "ready to work" time, one hour is not an adequate time for connections to be made, particularly for vessels that use cable reel management systems that have to be lifted on and off using a crane. We note that the cost analysis has not been updated to assess the cost impact for the proposed change in the connection times. Given the number of fleets that rely on "lift-on/lift-off" strategy, where is the analysis of the added cost of this provision for the existing fleet?

Vessel Shore Power Equipment

52.C.68a Shore power connections are located in proximity to electrical panels, therefore, cruise ships and cargo ships currently in the regulation are **not** typically equipped to connect from both Port and Starboard side. The current practice of assigning berths to accommodate the location of vessel shore power connections is essential for maximizing utilization of shore power. The draft regulatory language could be used to require that a vessel have shore power equipment on both the starboard and port side of a vessel, but most vessels in the current regulated fleet are not equipped with shore power equipment on both sides. Retrofitting ships to connect on both sides would double the cost of new retrofits, create new expenses for vessels in the currently regulated fleets, and be very difficult, since cabling would need to cross plumbing, electrical and communications lines. Why are the added cost of adding new shore power equipment to the existing regulated fleet, which will run into the tens if not hundreds of millions of dollars, not included in the cost assessment?

52.C.68b The cost analysis assumes that only a single barge-based capture and control systems is required for San Pedro Bay. It appears that this assumption was made for service to the currently unregulated fleet, given that there are already occurrences that the existing two systems in San Pedro Bay today are overbooked. In order to be ready for a more stringent regulatory framework which requires redundancy of control in the future, why aren't the costs of the many more new barges which would be needed to meet existing demand from the currently regulated fleet evaluated? Relatedly, why is there a cost associated with only one alternative control system predicted for LA/LB but none in other ports?

Thresholds for Regulating New Vessels

52.C.69 While the cost estimates include costs for controlling emissions from new classes of vessels, the estimates provide no information on CARB's threshold, on a cost per ton of emissions reduced basis, for including Ro-Ro and tanker vessels and excluding general cargo vessels from the expanded rules.

Ignores Costs Associated with the Dynamic Nature of Shipping

52.C.70 In addition, the analysis does not appear to account for disruptions that regularly occur in international trade (for various reasons) that would result in ships not normally serving California, and therefore not

retrofitted for shore power, arriving in California ports. At the end of the last year, San Pedro Bay had 34 "extra loaders", previously unscheduled vessel calls. What cost analysis is associated with having the necessary number of emission controls systems that would need to be evaluated for these circumstances? The fact that the cause was a one-off event should not discount the need for additional control systems as required by the proposal. While the causes of extra loaders being deployed are typically one-off, the result of extra loaders responding to such events is a regular occurrence. As a result, how are these costs anticipated and accounted for?

Costs of Alternative Controls Underestimated

52.C.71 Not even accounting for dynamic events in shipping like "extra loaders", the most recent analysis by the ports of Long Beach and Los Angeles in their letter to CARB on May 20, 2019, estimate that the San Pedro Bay alone would need 26 barge-based capture and control systems to meet the level of control required by the proposal, which at that time considered 5% TIE allowance. How does CARB account for the difference between its conclusion and that of the ports of Long Beach and Los Angeles?

In addition to concerns regarding the number for alternative control systems, the cost per control system is underestimated. The cost analysis has a capital cost for a barge-based system at less than $5,000,000. However, the most recent example of funding for similar equipment is the Bay Area Air Quality Management District award of funding for a barge-based system at a cost of $8.8 million[1]. This is consistent with previous funding efforts in the past. Each system is a unique build and there are no economies of scale that can be expected. The CARB analysis relies on "[c]laimed confidential data obtained from industry sources that requested non-attribution". However, there is public data available based on public funding for existing systems. Why does CARB rely on confidential data when publicly available data can be obtained?

The costs of barge-based alternative control technologies do not appear to account that under the CARB staff proposal additional barges would be necessary to meet peak demand, but that more alternative systems would result in lower utilization rates. Lower utilization rates can only be accounted for with a higher hourly rate. The ports of Long Beach and Los Angeles provide a discussion of this effect in their May 20, 2019 letter. Why does the analysis not appear to account for system utilization impacting hourly costs of barge-based systems?

Demand Charges Do Not Appear to Be Accounted

52.C.72 The cost analysis does not appear to account for electricity demand charges and only accounts for the average delivered cost of electricity. Shore power results in spikes in electricity demand. Utilities charge for that uneven electrical demand through a cost commonly termed a "demand charge." Given the high demand of shore power compared to a facility's base electrical demand, demand charges can impact the cost of electricity delivered during times when shore power is not in use. This will result in an overall increase in the cost of electricity. This happens only because of the need for shore power and demand charges should be reflected in the cost impact of the proposed regulation. This impact will be

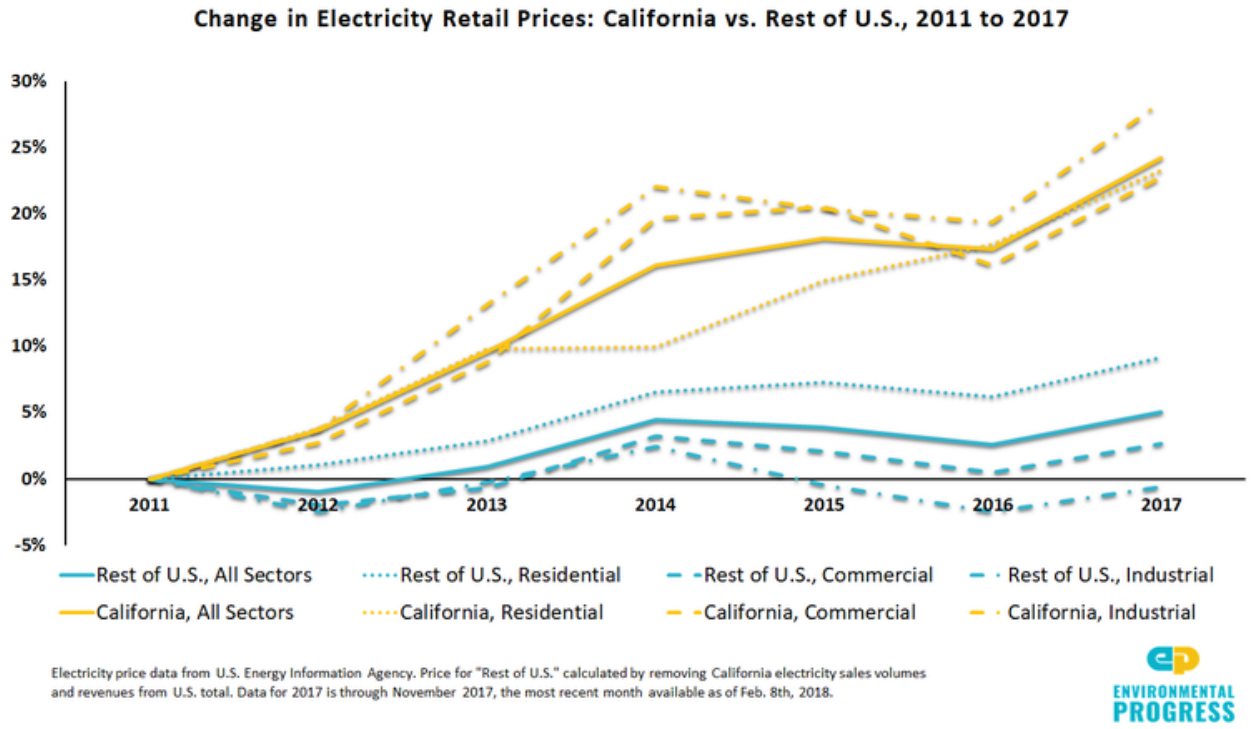
[1] http://www.baaqmd.gov/~/media/files/strategic-incentives/goods-movement-docs/other-equipment/g14gmbs1_ships-at-berth_rankedlist_gmerp-draft-pdf.pdf?la=en

most pronounced at marine terminals that have generally low electricity needs like auto terminals. Also, added facilities charges, assessed by a utility when electrical infrastructure is added, also does not appear to be included in the cost assessment. What accounting exists in the cost analysis for electricity demand charges?

52.C.73

Wrongly Assume Electricity Costs Will Not Increase

The cost analysis appears to assume that California electricity rates will remain flat through 2032. That analysis ignores that California has some of the fastest accelerating electricity rates in the nation. In fact, for the period 2011-2017 California industrial electricity rates increased nearly 30% (see chart below). Since then, the California Legislature has imposed additional requirements for California's renewable portfolio that will by most accounts ensure an increase in costs. Is there a basis for the assumption that electricity rates will not increase for a decade?



Labor Costs

52.C.74

The cost analysis makes the following statement for land-based capture and control systems, "[C] According to Tri-Mer statements at 4/16/19 CARB meeting, no additional labor would be required to run capture-and-control system". This statement is problematic for multiple reasons. First, Tri-Mer does not employ labor on marine terminals and has no knowledge of the requirements of negotiated labor contracts. Second, CARB staff is fully aware that the level of manning of similar demonstration equipment as part of the Pasha Omni-Terminal Demonstration is the subject of discussions with the labor union. Third, CARB staff is also fully aware that labor considerations are part of the deployment sensitivities and limitations on other compliance methodologies, including certain cable-reel systems.

Lastly, it is just simply unrealistic that there would be no labor costs associated with any component to any application of any equipment on the waterfront no matter what. Given that there is no clear reason why there would be no added labor costs for such equipment, which metrics for labor costs will be included?

Maintenance Costs

52.C.75 Concern has been raised that all the costs submitted as part of CARB staff's surveys are not fully reflected in the assumptions document. For instance, Maintenance costs for shore power maintenance infrastructure show an average cost of $24,285 with a range of $4,000 to $44,571. However, it is understood that maintenance cost data has been submitted to CARB that exceeds the stated range in the assumptions document. How can stakeholders be confident that their data was incorporated into the analysis?

Planning Costs

52.C.76 Planning costs of appear to be underestimated. The proposed regulation requires significant changes for both the existing regulated and unregulated fleets. Even prior to conducting design planning, ocean carriers, terminal operators, and ports will have to do detailed preliminary planning to determine the most effective compliance mechanisms. Those decisions will be necessary to support planning submittals to CARB. Why has CARB accounted for $10,000 per plan or less when prior experience indicates that coordinated pre-planning between ports and terminals can costs millions?

Cost Analysis Uses Confusing Cost-effectiveness Criteria

52.C.77 The ISOR for the current regulation estimated cost-effectiveness values by attributing roughly half of the rules benefits to NOx emissions reductions and half to PM emissions reductions. In that ISOR, it was concluded that the "cost-effectiveness values using that method are $6,400 per ton of NOx reduced and $345,000 per ton of PM reduced." The preliminary estimates of the cots-effectiveness for this rule are weighted and considered together rather than segregated and evaluated. These conclusions are apples and oranges between the current rule and the proposed rule and don't allow for an evaluation of the costs of controls for achieving completely separate emissions goals. For instance, if this is a DPM control rule, versus a NOx control rule, or a GHG control rule, the relative cost-effectiveness of this versus pursuing other types of regulatory efforts is impossible to manage using a weighted cost-effectiveness factor. Moreover, it predicts fantastically large and unrealistic expectations for DPM emissions reductions, given that the weighting in the Moyer process is NO_x based at 20x $PM_{2.5}$. Will CARB evaluate NOx, PM and GHG emissions cost-effectiveness separately and provide a true benchmark against the cost-effectiveness of the current rules?

Ports of Los Angeles and Long Beach Analysis

52.C.78 During the May workshop, CARB staff revealed that the detailed analysis prepared by the ports of Long Beach and Los Angeles submitted in their letter dated February 6, 2019, was discounted in favor of conversations with terminal operators. The ports of Long Beach and Los Angeles and other port authorities throughout the State were responsible for installing existing shore power infrastructure and are well-placed to understand the needs and limitations of existing infrastructure. It is also understood

based on comments from the workshop that responses provided from the terminal operators were anecdotal and provided without the benefit of the most recent regulatory concept language. What aspects of the LA/LB analysis did CARB discount in developing its cost analysis?

Growth Overestimated

52.C.79 The cost and cost-effectiveness analysis rely on overly optimistic growth trends. This overestimated growth increases future emissions and reductions making the proposed concept appear more cost-effective than it is. In addition, growth in vessels does not match growth in cargo volumes. As vessels grow larger, more cargo can be handled without increasing the number of vessel calls. In fact, the number of vessel calls has declined over time due to this phenomenon. Why doesn't the analysis provide a more realistic lower bound to growth and properly reflect declining vessel calls?

Opportunity Cost of the Novel Regulatory Structure

52.C.80 The concept of a VIE is a new concept. Based on comments by CARB staff at the May workshops, VIEs would be granted to fleets based on the number of calls to a California port in the prior year. CARB staff confirmed that fleets not previously calling California ports would be ineligible to receive VIEs. This would appear to block new entrants from serving California ports by making them uncompetitive to fleets that have access to VIEs, particularly for vessels that may not have access to alternative controls like cruise ships. How has CARB assessed these opportunity costs to California marine terminals, ports, and the California economy due to this novel regulatory structure?

Sincerely,

California Association of Port Authorities
Cruise Lines International Association
Pacific Merchant Shipping Association
Western States Petroleum Association
World Shipping Council

Port of Los Angeles and Port of Long Beach Comments on February 22-23 Workshops for the "Control Measure for Ocean Going Vessels Operating At Berth and At Anchor", May 20, 2019

SAN PEDRO BAY PORTS

CLEAN AIR ACTION PLAN

May 20, 2019

Bonnie Soriano
Chief, Freight Activity Branch
California Air Resources Board
1001 "I" Street
Sacramento, CA 95814

SUBJECT: PORT OF LOS ANGELES AND PORT OF LONG BEACH COMMENTS ON FEBRUARY 22-23 2019 WORKSHOPS FOR THE "CONTROL MEASURE FOR OCEAN-GOING VESSELS OPERATING AT BERTH AND AT ANCHOR"

Dear Ms. Soriano:

The Port of Long Beach and Port of Los Angeles (Ports) appreciate this opportunity to provide comments on the concepts and berth analyses presented at the California Air Resources Board (CARB) February 22-23, 2019 workshops regarding the, "Control Measure for Ocean-Going Vessels Operating At Berth and At Anchor".

We want to thank CARB for continuing to work with the Ports and our tenants during this regulatory process to obtain the best available data and to craft a regulation which achieves significant public health benefits.

The purpose of this comment letter is to respond to the Regulatory Concepts and Berth Analyses provided at the February workshops. In the appendices, CARB will find specific information and data relative to each Port.

The following summarizes the Ports' comments regarding the regulatory concepts presented at the February 2019 workshops:

- **We agree that 100% compliance cannot be met by vessels in any category**– We want to thank CARB staff for adjusting the concepts to reflect the impossible goal of 100% compliance. It remains unclear whether or not terminals and vessel operators can meet the new minimum of 95% compliance. We urge CARB to produce a feasibility assessment to better inform this regulation, described below.

52.C.81

- **The Proposed Implementation Timelines are Still Too Aggressive –** In the updated concepts, container terminals are still required to control ship emissions for every visit, with 5% flexibility for Terminal Incident Events (TIEs), by 2021. This timeline is unreasonable based on lack of infrastructure needed to support such a high level of plug-in so quickly. In addition, there is considerable doubt regarding the ability of terminal operators, and/or third party vendors to develop and deploy a sufficient number of alternative emission control devices on a stringent time line of one year.

52.C.82

- **A Technology Feasibility Assessment Process Is Needed** – The Ports still urge CARB to develop a technology feasibility assessment, which would look at the state of technology development and its readiness to be deployed in the marketplace to support efforts to achieve public health benefits. Through conversations with stakeholders, it is clear there are challenges associated with the technologies upon which this regulation depends that may be too costly, technologically and operationally infeasible in some cases, or unsafe to use. For example, the Los Angeles/Long Beach Harbor Safety Committee has many substantial concerns regarding the use of barge-based emission capture systems for tankers.

52.C.83

  This feasibility assessment should include an evaluation of: (i) state of technology for both shore power and alternative emission control devices and deployment readiness (ii) the requisite timeline for design, build, testing, and deployment of shore power and alternative control technologies for each California port to achieve at minimum 95% compliance, and identification of any associated constraints such as wharf space (iii) safety and navigation of harbor waters space due to applications of new technologies for unregulated vessel types (iv) number and types of alternative control technologies, which would be needed at each California port (v) and the cost of the various types of technologies and availability of incentives to encourage early demonstration of such technologies.

52.C.84

As stated in our previous letter, in order to accelerate the development and deployment of shore power and alternative control options, including infrastructure, for non-container terminals and vessels, the Ports would like to see CARB prioritize funding as they did for the currently regulated fleet through Proposition 1B in 2006. CARB has not prioritized funding for shore power in their latest Cap-and-Trade Auction Proceeds Third Investment Plan, posted in January 2019. We urge CARB to work cross-divisionally on finding opportunities to invest in the nascent technology required for tankers and RoRos.

52.C.85

- **The Berth-Level Analyses report too few ship calls, and do not accurately reflect the infrastructure needed at each port–** CARB provided berth—level analyses of the infrastructure which will be required for each terminal to meet the new proposed concepts at the February 2019 workshops. These analyses are founded upon Google Maps research, interviews with port tenants, and discussion with piloting companies. The analysis is not based on any engineering assessment of what it would take to expand shore power or to accommodate alternative capture and control technologies. Unfortunately, none of the analysis provided by POLB related to container terminal infrastructure was included in this berth-level analysis either. Subsequently to the February workshops, the POLB has updated and refined its estimate. The analysis utilizes costs from previous shore power projects, states the design requirements a terminal would need to maximize plug-in while ships are at-berth, and uses these metrics to quantify the anticipated costs to maximize connection at POLB container terminals. In this letter, POLB has provided more granular detail around the basis of the cost estimates, photographs which demarcate the existing shore power infrastructure, and improved vessel call data from the 2017 Wharfinger Report in Appendix B. In the Ports' previous letter to CARB POLA engineering staff had agreed with the POLB engineering analysis. Subsequently, POLA developed their own assessment of the infrastructure they will need, the associated cost and timeline, and additional edits to the CARB Berth-Level Analyses, which are included in Appendix A. In summary, the POLB and POLA estimates approximately $106 million and $147-$193 million respectively for additional electrical infrastructure. These estimates are rough orders of magnitude, with many exclusions and limitations, so the actual cost could be much higher. We are hopeful CARB will utilize this information, particularly in a feasibility assessment, as it is the most informed reflection of the current infrastructure at the POLA/POLB terminals today. The feasibility assessment should go into greater depth than the calculations provided herein.

CARB's Berth-Level Analyses as written today are not founded upon the requisite design and engineering expertise, and should therefore, not be used today to quantify the costs of

the newly proposed concepts. These costs can be more adequately captured through the process of a feasibility assessment.

- **Compliance may hinder CAAP efforts** – Lastly, the Ports are still concerned the cost of these proposed concepts will hinder the ability to meet their goals under the 2017 CAAP Update given the significant upfront costs of an At-Berth Infrastructure Program. In addition, the staff who are currently designing the near-zero and zero-emission terminal infrastructure for technology demonstration projects, and future full-scale deployments are the same staff members who would be responsible for designing the infrastructure to support the new At-Berth Regulation. This underscores the need for prioritizing programs and funding, as described in the Feasibility Assessment bullet above, in order to determine how to most effectively allocate our resources to participate in the development of your regulatory program.

52.C.86

The Ports thank CARB staff for hosting additional workshops, engaging with us directly, and their consideration of the comments contained in this letter as well as in the attached appendices.

We look forward to meeting with the CARB in the future to further discuss the proposed amendments to the At-Berth Regulation. Please feel free contact us with any questions or concerns regarding this letter.

Sincerely,

CHRISTOPHER CANNON
Director of Environmental Management

Port of Los Angeles

MATTHEW ARMS
Acting Director of Environmental Affairs and Planning
Port of Long Beach

Attachments: Appendix A, Appendix B

CC: CARB – Cynthia Marvin (Cynthia.Marvin@arb.ca.gov)
Angela Csondes (Angela.Csondes@arb.ca.gov)
Nicole Light (Nicole.Light@arb.ca.gov)
Kaylin Huang (Kaylin.Huang@arb.ca.gov)

Duplicate - See comment Letter 60 port of LB

THE PORT OF LOS ANGELES
425 S. Palos Verdes Street Post Office Box 151 San Pedro, CA 90733-0151 TEL/TDD 310 SEA-PORT www.portoflosangeles.org

Eric Garcetti | *Mayor, City of Los Angeles*

Board of Harbor Commissioners | Jaime L. Lee *President* | Diane L. Middleton *Commissioner* | Lucia Moreno-Linares *Commissioner* | Anthony Pirozzi, Jr. *Commissioner* | Edward R. Renwick *Commissioner*

Eugene D. Seroka | *Executive Director*

APPENDIX A

Port of Los Angeles

Response to CARB At Berth Regulation Berth Analysis Matrices

The Port of Los Angeles (POLA or Port) appreciates this opportunity to provide more detailed comments on the California Air Resources Board (CARB) Berth Analysis Matrices presented on February 22, 2019. Below are our comments on the various "CARB Staff Analysis of Potential Emission Reduction Strategies" for POLA.

Container and Refrigerated Cargo (Reefer) Vessels

POLA would like to reiterate that the timeline for container terminals is still too aggressive. The specific reasons why the deadline to meet 2021 is listed below.
The container shipping industry is going through tremendous changes including the consolidation of shipping lines and the emergence of new alliances, resulting in larger ships calling to POLA. The shore power vaults at the Port were designed for the average vessel size calling to POLA in the early 2000's, which were 10,000 to 12,000 TEU vessels. The vessels calling to POLA now are closer to 14,000 to 16,000 TEU. From our latest 2017 POLA Emissions Inventory, NOx emissions reduced from ocean-going vessels from 3,204 tons per year in 2016 to 3,061 tons per year, which is a 4% reduction in NOx. The number of TEUS increased by 5% from 2016 to 2017 (8,856,783 TEU vs. 9,343,193 TEU), but the number of container ship calls decreased by 8% from 2016 to 2017 (1,251 vs. 1,154). Our EI reports have shown that these larger container vessels have improved efficiency and helped to reduce emissions at POLA.

Unfortunately, the larger ships calling a terminal can limit the berth availability of shore power especially when multiple ships call the same terminal as the shore power cables are not lining up with the vault containing the shore power outlet. Cable management extension systems (cable reels) allow a vessel to plug into shore power without having the vessel's cables to be directly aligned to the vault. The cable reels currently available for purchase are 8 feet wide and the wharfs at five out of our seven container terminals only have 4-5 feet of space.

Fenix Marine Services and APM Terminals have a "vendor lane" which runs between the ship to shore cranes and the edge of the wharf, providing the necessary clearance to place a cable reel. At the moment, a narrower cable reel system is being designed for use on terminals without a vendor lane. However, there is currently no prototype and the system will require structural modifications to the wharf, the extent of which are unknown at this time. The cost for this narrower system is also unknown at this time. The current

cable reel system is estimated to cost $550,000. If a narrower system cannot be designed, then the wharfs will need to be extended.

Extending wharfs creates a host of issues. The Army Core of Engineers will not allow the wharfs at POLA to be extended any further into the water, as there would not be enough space to navigate the vessels in the water. This means that the wharfs have to be extend on the landside. The cranes and the cranes' rail management would need to be pushed back. Moving all the cranes back requires the crane arms to be extended in order to reach a vessel's cargo. Assuming funding is procured for the construction at a terminal, it would take at least 18 months to design the construction, 18-24 months for environmental assessment, 6 months to go to bid, and then 18 months to build. The total estimated time per a project would be 60 to 66 months or 5 to 5.5 years on average, but it may take longer as each terminal is unique. The estimated cost to extend one container berth could be between $35-40 million. In addition to all the construction, the terminal would not be able use of their berth during the construction. The terminal would be operating at a decreased capacity and would be losing revenue during the construction and diverting cargo to other ports outside of California.

The Port preliminary responsibilities as indicated by CARB is to "*install and maintain any necessary emissions control infrastructure and/or equipment needed for compliance with the regulation that is outside of a terminal's contractual ability to provide.*" In order to meet our responsibility outlined by CARB, POLA engineering staff has estimated that a vault would be needed every 200 feet apart per a berth with at least one 100-foot mobile cable reel at every berth. This is the same assessment as Port of Long Beach engineers had determined in the Ports' first joint letter to CARB. This would be a total of six vaults per a berth. The cost per a new vault is estimated to be $500,000. The cost to provide the necessary power to the terminals is approximately $2.5 million ($2 million for electrical equipment and $500,000 for installation). For purposes of POLA engineering assessment the cost of the cable reel system is estimated at $550,000 based on the currently available system. The cost for a narrower system for five of our terminals could be higher as the actual cost is unknown at this time.

Table 1 summarizes POLA engineering staff evaluation of just electrical infrastructure and costs for POLA to meet the Port's obligation under the current draft language for existing container terminal berths.

Table 1: POLA Container Terminal Electrical Infrastructure Evaluation

Tenant	Berth	# Existing Vaults	# New Vaults Needed	Total Cost of New Vaults	Cost of Equipment	Cost of Cable Reel	Total Overall Cost
WBCT - China Shipping	100	4	2	$1,000,000	$2,500,000	$550,000	$4,050,000
	102	4	2	$1,000,000	$2,500,000	$550,000	$4,050,000
WBCT – Yang Ming	121	2	4	$2,000,000	$2,500,000	$550,000	$5,050,000
	126	2	4	$2,000,000	$2,500,000	$550,000	$5,050,000
TraPac	136	2	4	$2,000,000	$2,500,000	$550,000	$5,050,000
	139	2	4	$2,000,000	$2,500,000	$550,000	$5,050,000
Yusen Terminals Inc.	212	2	4	$2,000,000	$2,500,000	$550,000	$5,050,000
	216	4	2	$1,000,000	$2,500,000	$550,000	$4,050,000
	220	4	2	$1,000,000	$2,500,000	$550,000	$4,050,000
Everport[1]	228	4	2	$1,000,000	$2,500,000	$550,000	$4,050,000
	230	4	2	$1,000,000	$2,500,000	$550,000	$4,050,000
Fenix Marine Services	302	4	2	$1,000,000	$2,500,000	$550,000	$4,050,000
	303	4	2	$1,000,000	$2,500,000	$550,000	$4,050,000
	304	4	2	$1,000,000	$2,500,000	$550,000	$4,050,000
	305	3	3	$1,500,000	$2,500,000	$550,000	$4,550,000
APM Terminals	401	4	2	$1,000,000	$2,500,000	$550,000	$4,050,000
	402	4	2	$1,000,000	$2,500,000	$550,000	$4,050,000
	403	4	2	$1,000,000	$2,500,000	$550,000	$4,050,000
	404	4	2	$1,000,000	$2,500,000	$550,000	$4,050,000
	405	4	2	$1,000,000	$2,500,000	$550,000	$4,050,000
						Subtotal =	$95,600,000
						20% Contingency =	$19,120,000
						Subtotal =	$14,720,000
						28% Soft Cost (Engineering & Construction) =	$32,121,600
						Total Cost =	**$146,841,600**

[1] As of 2019 there are only two vaults each at Berths 228 & 230. Two additional vaults at each berth have already being designed and construction is scheduled to begin within the next 18 months. This cost assessment only added two more vaults to Berths 228 & 230 in order to meet the Port's obligations estimated to be six vaults per a berth.

Table 2 summarizes POLA engineering staff evaluation of just electrical infrastructure and costs for POLA to meet the Port's obligation under the current draft language for berths that may be used as container terminals in the future.

Table 2: Future POLA Container Terminal Electrical Infrastructure Evaluation

Tenant	Berth	# Existing Vaults	# New Vaults Needed	Total Cost of New Vaults	Cost of Equipment	Cost of Cable Reel	Total Overall Cost
Fenix Marine Services	306	0	6	$3,000,000	$6,000,000	$550,000	$9,550,000
Unknown	206	0	6	$3,000,000	$7,000,000	$550,000	$10,550,000
Pasha	174	0	6	$3,000,000	$7,000,000	$550,000	$10,550,000
						Subtotal =	$30,650,000
						20% Contingency =	$6,130,000
						Subtotal =	$36,780,000
						28% Soft Cost (Engineering & Construction) =	$10,298,400
						Total Cost =	**$47,078,400**

Grand Total = **$193,920,000** for only electrical infrastructure costs.

As shown, the estimated cost for the Port to meet our obligations for our container terminals would be $147-$193 million. Similar to wharf extensions, the estimated time from start to finish for installing this infrastructure would be approximately 5-5.5 years per a project. Even if the Port could procure this funding and start working on providing electrical infrastructure at all our terminals instantly, the soonest that this undertaking would be completed is 2024-2025, well beyond CARB's proposed deadline of 2021. POLA does not have the resources to undertake that many projects at the same time, so some terminals' electrical infrastructure would not be completed before 2025.

Landside shore power electrical infrastructure life cycle appears to be 15-20 years with required updates, annual maintenance, and frequent cleaning of the equipment during this period. Currently Port staff costs are about $500,000 a year for maintenance and about $125,000 a year for recordkeeping for a total annual cost of approximately $625,000. This cost is so far for the currently regulated fleet of container, reefers, and cruise vessels. With the increased infrastructure, the staff cost for maintenance would increase to approximately $866,000 and recordkeeping would be around $135,000 for an estimated total staff cost of over $1 million.

Shipside infrastructure appears to have a much lower life cycle. Conversations with various shipping lines have found that the shipside electrical infrastructure life cycle is about five years with equipment needing to be fully replaced in the fifth year. The cost to install shore power onto container and reefer vessels is estimated to be $750,000 to $1 million. This five-year cost for shipping lines may cause them to see the alternative at berth emissions control technology as a more attractive option than having to invest close to $1 million every five years for shore power. This would be counterproductive to the regulation as shore power has been shown to have higher emissions reduction rate than use of the alternative emission control systems.

As for alternative emission control systems, there are currently only two certified barge based systems operating at both POLA and Port of Long Beach for container vessels. A land-based system is still being demonstrated at this time. There is serious doubt that more of these systems can be developed and deployed by 2021. The two San Pedro Bay Ports had solicited proposals for alternative emission control systems for ocean going vessels in 2018 as part of our Technology Advancement Program. In January 2019, the two Ports did not award any of the proposals as none met the requirements fo the solicitation satisfactorily. This highlights the need for a CARB feasibility assessment on these technologies and their use at each California port.

Passenger Vessels

POLA has on average about 110 cruise vessels call to our World Cruise Center on an annual basis. The assessment CARB has for passenger vessels is lower than our average number. POLA asks that CARB adjust the assessment with our annual average number of cruise vessels.

As cruise vessels increase in size, the amount of power drawn by these larger cruise vessels increase as well. The World Cruise Center underwent electrical upgrade construction to allow cruise vessels to draw 6.6 KV and 11 KV of power when at berth from June 2017 to April 2018. This upgrade took about three years to complete from initial planning to completion of the construction. Cruise vessels could not plug into both berths during the construction period. No new vaults were added to the berths for this upgrade. The cost of the upgrade was about $11 million. Table 3 lists the number of vaults currently at the World Cruise Center.

Table 3: POLA World Cruise Center Electrical Infrastructure

World Cruise Center (Berths 90-93)	# of Vaults	Power Provided
Berth 92	2	11 kV (2)
Berth 93A	4	6.6 kV (2); 11 kV (2)

After the electrical upgrade, the Port has seen an increase in the use of shore power by cruise vessels that call to our World Cruise Center. POLA Engineers have determined that Berth 92 would need an additional two vaults and a cable reel system to ensure the Port meets our infrastructure obligations per the current draft regulation. The cable reel for the cruise vessel is estimated to cost more than one for containers, as it will need to be able to operate at both 6.6 kV and 11 kV. Table 4 is an estimate of the cost for the added electrical infrastructure at Berth 92.

Table 4: Estimated Additional Infrastructure Cost at Berth 92

Berth	# of Existing Vaults	# New Vaults Needed	Total Cost of New Vaults	Cost of Equipment	Cost of Cable Reel	Total Overall Cost
92	2	2	$1,400,000	$5,000,000	$1,000,000	$7,400,000
					20% Contingency =	$1,480,000
					Subtotal =	$8,880,000
					28% Soft Cost (Engineering & Construction) =	$2,486,400
					Total Cost =	**$11,366,400**

The cost to install shore power onto a cruise vessel is estimated to be between $1 to $1.5 million. The cost of maintaining and recordkeeping for Port staff was included in the container/reefer section above. Construction for this project would probably take between 3-5 years.

Auto/Ro-Ro Vessels

POLA only has one automotive terminal, Wllenius Wilhelmsen Solutions (WWS) Vehicle Services America (Berths 195-199). Automotive carriers/Ro-Ros mainly call to berths 197-199. Table 5 shows vessel activity at WWS for the last 3 years.

Table 5: Vessel Activity at WWS 2016-2018

Berth #	# Auto & Ro-Ro Calls 2016	# Auto & Ro-Ro Calls 2017	# Auto & Ro-Ro Calls 2018
195	0	0	0
196	0	0	0
197	4	4	0
198	80	101	71
199	20	17	2
Total =	104	122	73

As shown by Table 5, the number of calls to WWS vary year by year. There is no real set average as the number of vessels is dependent on the market demand for automotive vehicles. Very few of the vessels calling are what CARB would define as "frequent" visitors (calling to the terminal four or more times in a calendar year) from year to year. A vessel may be in the string for a couple years, and then pulled from rotation if there is not enough demand or it is sent to a different string. For example, the "Pearl Ace" had five calls to WWS in 2016, one call in 2017, and no calls in 2018. Another example is the "Viking Sea." The "Viking Sea" had called WWS six times in 2016, three calls in 2017, and no calls in 2018.

Due to the infrequency of the automotive and Ro-Ro vessels to the Port, it is unlikely that the automotive shipping lines will invest the time and money to install shore power onboard their vessels. However, POLA engineers have calculated the cost of installing the necessary infrastructure for shore power at WWS if our tenant and the shipping lines it serves decides to use shore power, see Table 6. POLA assumes only one berth would require electrical infrastructure installed. Estimated time of completion is again approximately five years. The cost of these vaults are estimated to be slightly less at $400,000 per a vault due to the lower power needs of these types of vessels.

Table 6: POLA Engineering Electrical Infrastructure Costs at WWS

Terminal	# New Vaults Needed	Total Cost of New Vaults	Cost of Equipment	Cost of Cable Reel	Total Overall Cost
WWS (Berths 195-199)	4	$1,600,000	$9,000,000	$500,000	$11,100,000
				20% Contingency =	$2,220,000
				Subtotal =	$13,320,000
				28% Soft Cost (Engineering & Construction) =	$3,729,600
				Total Cost =	**$17,049,600**

This leaves the use of an alternative emissions capture and control system. Currently there is no certified alternative emissions capture and control system for automotive or

Ro-Ro vessels. As stated in the joint cover letter, POLA believes a feasibility study of this technology's utilization, including potential increased greenhouse gas emissions generated by this technology, is needed.

Port Engineers have determined the berths at WWS would likely be structurally sound enough to hold the weight of a land-based control system. In addition, there is likely enough room on the dock for a land-based control system. This is solely based on the currently demonstrating land-based control system at our Pasha terminal. As there is currently no certified system for use on automotive/Ro-Ro vessels, this assessment may change in the future if a land-based system is significantly different from the current land-based system being tested on Pasha's container steamships. The current cost to build the land-based system at Pasha is approximately $5 million. This does not include any labor or maintenance costs. These costs are hard to determine at this time, as there are still negotiations on the type of labor that will be used to operate and maintain the equipment.

POLA Port Pilots have determined it would be best to avoid a barge-based system for vessels that call to WWS. Ro-Ro vessels fuel when calling to WWS via a bunker barge. For safety reasons, the current barge-based system cannot be connected to a container vessel when the container vessel is fueling or bunkering. Similar safety concerns would prevent barge-based systems to connect to an automotive/Ro-Ro vessel when the vessel is fueling or bunkering. Automotive/Ro-Ro vessels are at WWS for less than 24 hours. A disconnected barge system may not have enough time to reconnect to the vessel before it is ready for departure.

On rare occasions, there are two vessels dock at WWS at the same time. When that happens, Port Pilots sometimes are required to sail a vessel around the one forward of the departing vessel. The Port Pilots require the offshore side of the forward vessel to be clear of any obstructions. A barge-based system connected to the forward vessel would have to be disconnected and moved in order for the Port Pilots to move the other vessel. Again, there may not be enough time for a disconnected barge system to reconnect to the vessel prior to its departure.

Tanker Vessels

The CARB Tanker Berth Analysis listed six liquid bulk terminals. POLA currently has seven liquid bulk terminals. Kinder Morgan is expected to leave Berths 118-119 by 2024. Table 7 is a list of POLA liquid bulk terminals with vessel calls for the last three years.

Table 7: Vessel Activity at POLA Liquid Bulk Terminals 2016-2018

Terminal	Berths	# Tanker Calls 2016	# Tanker Calls 2017	# Tanker Calls 2018
Kinder Morgan	Berths 118-119	38	34	37
NuStar Energy LP	Berth 163	4	6	13
PBF Energy	Berths 238-240C	30	46	33
Phillips 66	Berths 148-151	30	49	41
Shell Oil Products	Berths 167-169	45	60	34
Valero	Berths 164	28	40	27
Vopak Terminals	Berths 187-190	111	118	111

Wharfs for tanker terminals are currently being redesigned to meet California State Lands Commission requirements, Marine Oil Terminal Engineering and Maintenance Standards (MOTEMS). The new terminal design will be a pier that goes out into the water. The platform at the end of the pier will be only large enough to hold the necessary equipment for pumping tanker product in/out of the tanker. The tanker will be moored by tying up at nearby dolphin moors. POLA has already provided an example engineering drawing of the new terminal design in prior communications with CARB. There would not be any space to place shore power or a land based alternative system on these new piers.

Below is a list of future plans for the marine oil terminals at POLA.

- Berth 118-119 – Kinder Morgan Terminal – Berths are scheduled for demolition in the next few years.

- Berths 148-149 – Phillips 66 Terminal – This berth will cease operations as a marine oil terminal when the new berth at 150-151 is completed

- Berths 150-151 – Phillips 66 Terminal – This berth will be demolished and reconstructed as a typical modern marine oil terminal, with a minimal unloading platform and independent mooring and berthing dolphins connected by catwalks. A land-based emissions capture system will not be feasible. A barge-mounted emissions capture system could be used, but may be difficult due to the terminal's location on one of the main turning basins for the Port. The tenant will be required to conduct a feasibility study for a barge-based system as a condition of their environmental document, which is currently underway.

- Berth 163 – Nustar Terminal – This berth will be demolished and reconstructed as a typical modern marine oil terminal, with a minimal unloading platform and independent mooring and berthing dolphins connected by catwalks. A land-based emissions capture system will not be feasible. A barge-mounted emissions capture system could be used, and would be largely free of impacts from large passing vessels. The tenant will be required to conduct a feasibility study for a

barge-based system as a condition of their environmental document, which is currently underway.

- Berth 164 – Valero Terminal – This berth will be demolished and reconstructed as a typical modern marine oil terminal, with a minimal unloading platform and independent mooring and berthing dolphins connected by catwalks. A land-based emissions capture system will not be feasible. A barge-mounted emissions capture system could be used, but would be impacted by the narrow channel and vessels entering and exiting Berth 163. The tenant will be required to conduct a feasibility study for a barge-based system as a condition of their environmental document, which is currently underway.

- Berths 167-169 – Shell Terminal – This berth will be demolished and reconstructed as a typical modern marine oil terminal, with a minimal unloading platform and independent mooring and berthing dolphins connected by catwalks the tenant is required to conduct a feasibility study for a barge-based system as a condition of their environmental document, which is complete.

  As was stated in our email to CARB dated on March 8, 2019, our Port Pilots had determined that if the barge-based system is employed at Shell Berth 167 for a panamax size vessel (228M x 32M) or larger and there is a bulk vessel at Berths 154-155, access to the northern berths in the slip (Berths 165, 164, 163, & 161) will be restricted. Tugs and barges may be able to get by; however, if a barge-based system is also placed alongside a vessel at Berths 154-155 or the tanker at Berths 167-169 then access to the northern berths may not be adequate for a ship to pass.

  This would be a hindrance to three of our tenants' terminal operations past Shell: US Borax (Berth 165) that does dry bulk, Valero (Berth 164) that does tanker operations, and Nustar (Berth 163) that does tanker operations. This gives other terminals that would not be effected by this restriction an economic competitive edge over these terminals. In addition, our Construction and Maintenance (C&M) division is located at Berth 161. C&M does maintenance of the docks and wharfs for the Port and could be hindered as well. Our C&M division needs to have unrestricted access to enter and leave Berth 161 to conduct any emergency repairs that may arise at any time at the Port.

- Berths 187-189 – Vopak Terminal – This terminal consists of a full width, full length wharf that will be upgraded to comply with MOTEMS standards instead of being reconstructed. The tenant has chosen this option, and will be performing the design and construction themselves, in order to minimize impacts to ongoing operations. However, the existing timber wharf has deteriorated vertical load carrying capacity, which will not be fully restored by the planned upgrade. Upgrading the capacity of the wharf to HS-20 (highway) capacity would cost approximately $8.8 million. This cost estimate is based on the restoration of a very

similar wharf at Berths 196-199 that was completed in 2018. The project cost for this wharf, including contingency, was approximately $5,300 per lineal feet. The wharf at Berths 187-189 is approximately 1660 lineal feet. The tenant is required to conduct a feasibility study for a capture and control system as a condition of their environmental document, which has not yet commenced.

POLA Port Pilots have determined that if a barge based system is placed alongside a panamax or larger size tanker at Vopak Berth 189 it will restrict ship access to Berth 187 for the duration of the vessel's stay alongside Berth 189. Tug and barge traffic will be able to continue; however, there will not be enough room in the slip (Slip #5) for a ship of any size to access Berth 187. This would limit Vopak's operational capability and lower its economic competitiveness with other tanker terminals.

- Berths 238-239 – PBF Terminal – This berth will be demolished and reconstructed as a typical modern marine oil terminal, with a minimal unloading platform and independent mooring and berthing dolphins connected by catwalks. A barge-mounted emissions capture system is feasible, as the terminal is on the wide Main Channel of the Port. The tenant is required to conduct a feasibility study for a barge-based system as a condition of their environmental document, which is complete.

We again stress the need for a CARB technology feasibility assessment on the state of alternative emission control technology. POLA is requiring our marine oil terminals to conduct feasibility studies on the use of alternative emission control systems. However, these feasibility studies will be terminal specific and could not be used by other terminals to determine the feasibility of the technology for their purposes.

An email from CARB staff dated March 28, 2019 requested information on the cost estimate and duration for routing the tanker vessel auxiliary engine and boiler emissions to a land based emissions control system. This question should be asked to the tanker ship manufacturers and the alternative emissions control system companies. The Port does not have expertise in this field. We are unable to provide a cost estimate, but we can provide CARB with general information about what this project could entail.

Many of the tanker vessels that call to POLA would not be defined by CARB as a "frequent" visitor (calling to the terminal four or more times in a calendar year). Due to this infrequency, it is unlikely that shipping lines with tankers would spend the time and money to change an existing tanker's exhaust system to be able to be treated in this fashion. If a shipping line did decide to undergo this type of project, the tanker would have to be taken out of service and dry docked. The Port does not have the knowledge to provide an estimate of how long the retrofitting would take. It would be more cost effective to design and build a new tanker to have this feature rather than try to retrofit an existing tanker.

The Port thank CARB staff for the consideration of our comments. We look forward to meeting with the CARB in the future to further discuss the proposed amendments to the At-Berth Regulation.

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APPENDIX B
Port of Long Beach
Response to CARB's February 22-23rd, 2019 Workshops and
Additional Cost Estimate Detail

Background

February 22-23rd, 2019, the California Air Resources Board (CARB) held workshops for the Control Measure for Ocean Going Vessels At Berth and At Anchor Regulation (At-Berth Regulation). In the newly proposed regulatory concepts, CARB would require control of auxiliary engine emissions from container, passenger, and refrigerated cargo vessels for every vessel visit to the Port of Long Beach beginning in 2021. Each terminal would have an allocated number of acceptable Terminal Incident Events (TIEs) to provide flexibility. These TIEs equate to 5% of total container vessel visits received during the previous year. Roll-on roll-off (RoRo) vessels will need to reduce auxiliary engine emissions for every vessel visit beginning January 1, 2025, with TIEs flexibility, calculated as 10% of the vessel calls of the previous year. Beginning January 1, 2027, acceptable TIEs for RoRos drop to 5%. Tanker vessels must control auxiliary engine emissions through a CARB approved technology beginning January 1, 2027, with the equivalent TIEs allocation calculation as the RoRos (10% of the previous year's calls). In 2029, tanker acceptable TIEs will drop to 5%. Tanker vessels with steam driven product pumps are no longer required to reduce their tanker auxiliary boiler emissions. Lastly, CARB provided stakeholders with berth analyses of the necessary infrastructure for each vessel type to meet these proposed requirements.

About This Response

The Port of Long Beach (Port) is providing supplementary information per CARB request on the estimates provided in the joint comment letter the Ports of Los Angeles and Long Beach, "Potential Strategies and Costs to Address the At-Berth Regulation", submitted on February 6th, 2019. Importantly, these cost estimates were developed using data from previous shore power installations, such as progress payments, bid analyses, and maps of the shore power infrastructure at the container terminals. Those documents are provided in the attachments to this appendix. The attachments also provide vessel call data as reported in the 2017 Wharfinger Reports to better inform the berth analyses CARB distributed at the February workshops. The estimated hours of control required and operational costs for both container and non-container vessels visits should alternative compliance strategies such as barge and land-based emission control technologies be utilized has been revised. Lastly, this appendix provides documentation of the costs associated with the Prop 1B shore power installations – specifically at Piers A, G, T, and G. Under the Prop 1B program, the Port was required to tease out hard costs from the progress payments. These hard costs have been provided to help inform future CARB analyses of infrastructure costs. It's important to note that these costs are in 2012 dollars, and future estimates should account for escalation.

Shore Power Outlets Calculation & Locations

The proposed concepts explained in the February 2019 workshops are written in such a way that terminals would need to make a reasonable effort to control emissions for every vessel visit. The Port would like to highlight that terminals would not plan a compliance strategy, which meets a

95% control criteria, as TIEs can occur due to reasons out of their control. They would plan to meet 100% emission control while ships are at berth, knowing unforeseen circumstances will hinder their success, hopefully, within the 5% threshold.

To maximize shore power connection at the container terminals, Port staff established design criteria, which requires shore power outlets (SPOs) every 200 feet, combined with a 100-foot cable reel system. This design criteria was used to calculate the minimum number of SPOs required at each pier. As demonstrated in Table 1, staff divided the wharf length for each berth by 200 feet, providing the optimal number of SPOs given 200-foot spacing. Staff then subtracted the existing number of SPOs at each berth to determine the additional shore power outlets required.

Table 1.

Location	Existing SPOs	Number of Berths	Length of Wharf (ft)	SPO @200'	Additional SPOs required for 200' spacing given current infrastructure	Number of Cable Reel Management Systems Required
Pier A Berths A88-A96	9	3	3556	18	9	3
Pier C SSA Terminals	8	2	1797	9	1	2
Pier E	15	3	4369	22	7	3
Pier G						
Berth G232	5	2	1337	7	2	2
Berth G236	6	2	1290	6	0	2
Berths G234, G235	1	1	1243	6	5	1
Pier J						
Berth J245-J247	9	2	2019	10	1	2
Berth J266-J270	11	3	2694	13	2	3
Pier T	11	4	5022	25	14	4
Total	75	22			42	22

The total count of functional SPOs today is 75, however, Pier E will be installing 5 SPOs as part of Phase 3 of the Middle Harbor Project at Long Beach Container Terminal. These SPOs are included in the Pier E calculation above. SPOs which have been abandoned or de-energized are not included in the calculation in Table 1. As far as cable-reel management systems, staff made an assumption that each berth would require one, 100-foot cable reel management system. Because the Port has 22 berths, it is assumed 22 cable reel management systems are required.

Cost Estimates & Timeline

The updated estimate for all six piers is approximately $107 million. To prepare this estimate, Port staff analyzed three previous shore power installation projects at Pier A, Pier J, and Pier T,

initiated in 2012, in order to develop a combined average cost per shore power outlet (SPO). Staff calculated the average SPO cost at each pier using progress payment documentation and tracked staff hours specific to these projects, and then averaged the average SPO cost of each project in order to get the combined average SPO cost. The total cost estimate is based on the average SPO cost multiplied by the number of new SPOs in Table 1, plus one cable reel per berth. The narrative describing the average SPO cost calculation is provided in ATTACHMENT A, Supporting Documentation for Container Terminal Cost Estimates.

The timeline to complete each pier is approximately 5.25 to 5.75 years, which includes 15 to 18 months to do preliminary design and environmental clearances, 15 to 18 months for design, 7 months for bid and award of a construction contract, and 26 months for construction and commissioning.

Exclusions and Limitations

The various existing wharves were built at different times and have different configurations and structural limitations. Wharf modifications may be necessary to accommodate the density of SPOs, which is not included in the cost estimate.

The estimated total number of additional SPOs does not account for the exact location of the current SPOs, so additional SPOs may be necessary to meet the functional requirement.

Many wharves do not have sufficient space at the edge of the wharf to accommodate the current cable reel design. It is unclear if a narrow cable reel can be designed to fit the specific space constraints at each pier, and wharf modifications may still be necessary to be able to safely use cable reel in the narrow space. If that is not possible, more extensive wharf modifications would be required. The cost estimate does not include any wharf modifications to accommodate the cable reel, and assumes a narrow cable reel is roughly the same cost as the current design.

The combined average cost per SPO does not include transformer costs nor any contingency. Staff removed the transformer costs from the bids on the previous SPO projects used to calculate the average SPO cost, making an assumption each container terminal has enough power today. If any terminal requires additional power, the total cost for additional shore power at the Port could increase on the scale of millions of dollars.

POLB resources, both money and staff, are finite, and the POLB is in the midst of a significant capital improvement program. There is not sufficient staff to complete all piers simultaneously within the existing capital program, and there may not be financial capacity to accommodate all of the additional capital expense within the timeframe. Therefore, it is highly likely some of the piers would take longer to complete, resulting in additional cost escalation not included in the current estimate.

Updated Alternative Emission Control Hours

The Port has updated the additional emission control time required if container, passenger, refrigerated cargo, RoRo, and tanker ships must control emissions for every visit. Updates

include refined detail on which berths received Prop 1B funding, and thus are subject to higher shore power connection requirements earlier and consideration of the minimum and maximum number of additional applicable ships that will require emission control technology on a given day. The findings utilize the 2017 Ports of Los Angeles and Long Beach Emissions Inventory data and are as follows:

1) There will need to be at least 26 barge-based systems online in the San Pedro Bay to meet the 2029 requirements (95% of calls must be controlled with an exception of 5% TIEs for all regulated ship types) - assuming vessel traffic remains at 2017 levels. At the Port of Long Beach, the maximum number of applicable ships that are not using shore power is 14 per day, the average is 8, and the minimum is 2 ships. In 2017, 147 days occurred where the number of barges needed if the proposed regulation were in place exceeded the average. Looking at the San Pedro Bay Complex, the average number of applicable ships which would require a barge-based system is 15 per day, with a maximum of 26, and a minimum of 4 ships per day. The Ports would be required to have 26 barge-based systems to meet the requisite emission control requirement from ships on a peak day.
2) An additional 40k-52k hours per year of emissions will need to be controlled via alternative capture and control technology to meet the every vessel, every visit requirement for the proposed ship types.[1][2]
4) To keep a fleet of at least 26 barges "viable" the operational cost per hour will have to double to at least $2,000 per hour. This is due to the costs associated with both active and inactive barges. The operational cost is estimated to be $81-$105 million dollars per year[3].

These estimates assume that a barge-based system will be used for ships, which do not utilize shore power. It is, however, more likely that tankers will strongly consider land-based systems. Given the Port has not demonstrated land-based alternative control technologies for the proposed vessel types, and the potential steep costs associated with a land-based device (wharf upgrades, increased power consumption, etc.) the Port decided assuming the use of the barge-based system provides a more conservative estimate of the costs associated with this regulation. It is also important to note that accommodating a fleet of 26 barge-based emission capture and control systems would require significant berthing space at both ports, which have limited wharf availability.

Attachment A - Supporting Documentation for Container Terminal Shore Power Infrastructure Cost Estimates
Attachment B – Prop 1B Shore Power Infrastructure Costs
Attachment C – Maps of Container Terminal Shore Power Infrastructure
Attachment D – Port of Long Beach Vessel Visits by Berth

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[1] The lower additional emission control hours reflect a scenario in which all currently unregulated ship calls which will be subject to the new At-Berth Regulation are controlled via barge-based systems and all currently controlled ship-types are handled by additional shore power infrastructure. The higher emission control value reflects a scenario in which all currently unregulated and regulated ship types will be controlled by a barge-based system, and no additional shore power infrastructure will be installed.
[2]These estimates assume a requirement of 1.5 hours per arrival and departure for connecting and disconnecting times where there will be no emission reductions.
[3] This cost does not include costs related to barge movements, anchorages, lay berths, etc.

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ATTACHMENT A
Supporting Documentation for
Container Terminal Shore Power Infrastructure Cost Estimates

Average Cost per Shore Power Outlet (SPO) Calculation Narrative

- Staff used the actual contract bid and change order prices from three separate Port construction contracts to install SPOs in 2012. The contracts were for Pier J, Pier T, and Pier A.
- For each contract, the cost of providing and installing transformers was deducted from the total contract amount. This assumes that if SPOs are added in the future, there is already adequate capacity at the terminals for additional SPOs. Therefore, the cost of transformers should not be included in the average cost of future SPOs. If there is not adequate capacity, the cost per SPO would increase.
- The cost of installing SPOs includes all design, permit, and management costs (as referred to as soft costs). The costs for each project are tracked in the City's cost accounting system (also known as FAMIS or EZFAMIS). The EZFAMIS report for each project was run to acquire the soft costs for each project.
- The total project cost (construction contract plus soft costs, less transformer costs) was then escalated using 2.5% per year from the construction contract award date (2012) to the midpoint of earliest possible future SPO construction contract award (2022).
    - The earliest possible future SPO construction contract date is based on a January 1, 2020 regulation start date, and includes the time necessary to do design, bid, and award.
    - If the regulation date is pushed out, the cost per SPO would increase to reflect the additional cost escalation.
    - The 2.5% is a relatively low average cost escalation, and is much lower than what we have seen in the local market the last 2-3 years. The average cost per SPO would increase if the cost escalation is higher than 2.5%.
- The escalated total project cost was then divided by the number of SPOs installed, providing an average escalated cost per SPO per project.
- We averaged the combination of each projects' average cost per SPO to get the combined average cost per SPO in 2022 of $2,272,609.

Pier J Shore to Ship Power Project

- The work under the Pier J project included retrofitting of four berths of the existing north wharfs (J245-J247) and south wharfs (J266-J270), including the installation of twenty (20) shore power outlet vaults on the wharf face, all associated conduit, electrical cables and connections, and four electrical substations to supply power to each individual berth. (SPO location Exhibit attached)
- The original construction contract amount awarded to Helix Electric Inc. was $25,200,000 (Analysis of Bids Exhibit dated February 7, 2012 attached)
- Transformer costs are from Bid Items 22, 23, 24, and 25 (Progress Payment#27) and are excluded from the SPO cost calculations.
- Project soft cost included planning, design and construction management costs (EZFAMIS Report of Work Order HA1316) and are incorporated in the SPO cost calculation.

- Costs related to SCE work to bring the power to Pier J, installation of 66KV Substation and Site Preparation for the substation (Griffith Contract) is excluded from the cost calculations (SCE related cost items were highlighted in orange in the attached EZFAMIS Report).
- Average cost per SPO is calculated based on 20 SPO Vaults.

Pier T Shore to Ship Power Project

- The work under the Pier T project included retrofitting four berths of the existing south wharfs (T132-T140), including the installation of eleven (11) shore power outlet vaults on the wharf face, all associated conduit, electrical cables and connections, and four electrical substations to supply power to each individual berth. (SPO location Exhibit attached).
- The original construction contract amount awarded to The Ryan Company is $20,559,112 (Analysis of Bids Exhibit dated February 14, 2012 attached)
- Transformer costs are from Bid Items 18, 19, 20, and 21 (Progress Payment#19) and were not included in this calculation.
- Project soft costs included planning, design and construction management costs (EZFAMIS Report of Work Order HA1317 attached)
- Costs related to SCE work is excluded from the cost calculations.
- Average cost per SPO is calculated based on 11 SPO Vaults.

Pier A Shore to Ship Power Project

- The work under the Pier A project included retrofitting of four berths of the existing south wharfs (A88-A96), the installation of nine (9) shore power outlet vaults on the wharf face, all associated conduit, electrical cables and connections, and two electrical substations to supply power to each individual berth. Substation A provides power to Berth A94-96 and Substation B provides power to berths (A88-A90) and (A92-A94), respectively. (SPO location Exhibit attached)
- The original construction contract amount awarded to Schimmick Construction Company is $11,513,850 (Analysis of Bids Exhibit dated January 31, 2012 attached)
- Transformer costs are from Bid Items 20, 21 and 22 (Progress Payment#15 attached)
- Project soft cost included planning, design and construction management costs (EZFAMIS Report of Work Order HA1314 attached)
- Costs related to SCE work is excluded from the cost calculations.
- Average cost per SPO is calculated based on 9 SPO Vaults.

Summary of the Average SPO Costs (2022)

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	Average $/SPO (2022)
Pier J	$ 2,221,185.36
Pier T	$ 2,303,100.04
Pier A	$ 2,293,541.56
Combined Average Cost Per SPO	**$ 2,272,608.98**

The cost of the 100-foot cable reel management system is expected to be $500,000 each. The Port estimated that each berth would require one 100-foot cable reel management system. Today there are 22 berths. The estimated total cost for cable reel management systems $11,000,000.

Cost Estimate for Six Piers to Install Additional Required SPOs
$2,272,608.98 x 42 SPOs +$11,000,000 = **$106,449,577.16.**

Port of LONG BEACH
The Green Port

ANALYSIS OF BIDS
CITY OF LONG BEACH, HARBOR DEPARTMENT

SPECIFICATIONS FOR: Shore to Ship Power Retrofit at Pier J, Berths J245-J247 and J266-J270

NO. HD-S2341

DATE OPENED: February 7, 2012

		Helix Electric, Inc. 8260 Camino Santa Fe #A San Diego, CA 92121 Phone: (858) 535-0505 Fax: (858) 535-0738		Shimmick Construction Company 8201 Edgewater Drive Oakland, CA 92618 Phone: (949) 333-1500 Fax: (949) 333-1510		Sully-Miller Contracting Company 135 E. State College Blvd #400 Brea, CA 92821 Phone: (714) 578-9600 Fax: (714) 449-8775		The Ryan Company 15 Commerce Way Norton, MA 02766 Phone: (508) 742-2500 Fax: (508) 742-2540		Griffith/Rosendin JV 12200 Bloomfield Avenue Santa Fe Springs, CA 90670 Phone: (562) 929-1128 Fax: (562) 864-7938	
ITEM	ESTIMATED QUANTITIES	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT
ITEM NO. 1 - Progress Schedules: Furnish all labor, materials, tools, equipment, and incidentals necessary to prepare, furnish, update, revise and maintain the cost and resource loaded scheduling... for the lump sum price (minimum amount of $25,000) of -	Lump Sum	100,000.00	100,000.00	25,000.00	25,000.00	33,460.00	33,460.00	138,415.00	138,415.00	25,000.00	25,000.00
ITEM NO. 2 - Site Specific Safety Plan: Furnish all labor, materials, tools, equipment, and incidentals necessary to develop, submit, implement and maintain a Site Specific Safety Plan, including... for the lump sum price (minimum amount of $30,000) of -	Lump Sum	150,000.00	150,000.00	30,000.00	30,000.00	35,535.00	35,535.00	107,658.00	107,658.00	30,000.00	30,000.00
ITEM NO. 3 - Furnish and Place Temporary K-Rail and Chain Link Fence: Furnish all labor, materials, tools, equipment, and incidentals necessary to furnish, place, move, relocate, store, remove and dispose of temporary K-Rail... for the lump sum price of -	Lump Sum	1,400,000.00	1,400,000.00	600,000.00	600,000.00	686,711.00	686,711.00	661,212.00	661,212.00	1,500,000.00	1,500,000.00
ITEM NO. 4 - Mobilization/Demobilization: Furnish all labor, materials, tools, equipment, and incidentals necessary for Mobilization and Demobilization as specified and shown for the lump sum price (fixed amount of $1,200) of -	Lump Sum	1,200,000.00	1,200,000.00	1,200,000.00	1,200,000.00	1,200,000.00	1,200,000.00	1,200,000.00	1,200,000.00	1,200,000.00	1,200,000.00
ITEM NO. 5 - Interim Demobilization/Remobilization: Furnish all labor, materials, tools, equipment and incidentals necessary to temporarily demobilize from the above-wharf work area, including temporary... for the unit price per each combined event of -	Unit Price	9,000.00	135,000.00	1,000.00	15,000.00	3,554.00	53,310.00	5,775.15	86,627.25	4,380.00	65,700.00
TOTAL:											
CERTIFIED CHECK OR BOND:											

Helix Electric, Inc.	483309/Exp.11/30/2013	$25,200,000.00	
LOWEST RESPONSIBLE BIDDER	LICENSE NUMBER	AMOUNT	AUTHORIZED SIGNATURE

Port of LONG BEACH
The Green Port

ANALYSIS OF BIDS
CITY OF LONG BEACH, HARBOR DEPARTMENT

SPECIFICATIONS FOR: Shore to Ship Power Retrofit at Pier J, Berths J245-J247 and J266-J270

NO. HD-S2341

DATE OPENED: February 7, 2012

		Helix Electric, Inc. 8250 Camino Santa Fe #A San Diego, CA 92121 Phone: (858) 535-0505 Fax: (858) 535-0738		Shimmick Construction Company 8201 Edgewater Drive Oakland, CA 92618 Phone: (949) 333-1500 Fax: (949) 333-1510		Sully-Miller Contracting Company 135 E. State College Blvd #400 Brea, CA 92821 Phone: (714) 578-9600 Fax: (714) 449-8775		The Ryan Company 15 Commerce Way Norton, MA 02766 Phone: (508) 742-2500 Fax: (508) 742-2540		Griffith/Rosendin JV 12200 Bloomfield Avenue Santa Fe Springs, CA 90670 Phone: (562) 929-1128 Fax: (562) 864-7938	
ITEM	ESTIMATED QUANTITIES	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT
ITEM NO. 6 - Storm Water Pollution Prevention Plan(s) (SWPPP) Development and Compliance: Furnish all labor, materials, tools, equipment, and incidentals necessary to develop, provide, monitor... for the lump sum price (minimum amount of $150,000) of -	Lump Sum	300,000.00	300,000.00	150,000.00	150,000.00	289,563.00	289,563.00	184,554.00	184,554.00	150,000.00	150,000.00
ITEM NO. 7 - City Ordinance Construction Waste Management Plan: Furnish all labor, material, tools, equipment, logistics, forms, and incidentals necessary... (exclusive of the maximum $50,000 deposit) for the lump sum price (minimum amount of $5,000) of -	Lump Sum	10,000.00	10,000.00	5,000.00	5,000.00	6,186.00	6,186.00	6,275.00	6,275.00	5,000.00	5,000.00
ITEM NO. 8 - Soil Handling and Disposal, Non-Hazardous Waste: Furnish all labor, materials, tools, equipment, and incidentals necessary to excavate, stockpile... approximately seventeen-thousand six-hundred (17,600) tons... for the unit price per ton of -	Unit Price	12.00	100,800.00	12.00	100,800.00	21.00	176,400.00	40.97	344,148.00	7.90	66,360.00
ITEM NO. 9 - Shoring for Excavations: Furnish all labor, materials, tools, equipment, and incidentals necessary to design, place, maintain, move, and remove excavation shoring adequate for worker... for the lump sum price (minimum amount of $30,000) of -	Lump Sum	150,000.00	150,000.00	300,000.00	300,000.00	105,445.00	105,445.00	106,682.00	106,682.00	150,000.00	150,000.00
ITEM NO. 10 - Import Soil: Furnish all labor, materials, tools, equipment, and incidentals necessary to test, certify, load, transport, stockpile, place... approximately six thousand eight hundred ten (6,810) tons... for the unit price per ton of -	Unit Price	26.00	177,060.00	42.00	286,020.00	40.30	274,443.00	14.56	99,153.60	36.00	245,160.00
TOTAL:											
CERTIFIED CHECK OR BOND:											

Helix Electric, Inc.
LOWEST RESPONSIBLE BIDDER

483309/Exp.11/30/2013
LICENSE NUMBER

$25,200,000.00
AMOUNT

AUTHORIZED SIGNATURE

File: Bid Analysis HD-S2341 Bendalmeior (acp)[BID ANALYSIS] 2/7/2012 1:23 PM

Port of LONG BEACH
The Green Port

ANALYSIS OF BIDS
CITY OF LONG BEACH, HARBOR DEPARTMENT

SPECIFICATIONS FOR: Shore to Ship Power Retrofit at Pier J, Berths J246-J247 and J266-J270

NO. HD-S2341

DATE OPENED: February 7, 2012

		Helix Electric, Inc. 8260 Camino Santa Fe #A San Diego, CA 92121 Phone: (858) 535-0505 Fax: (858) 535-0738		Shimmick Construction Company 5201 Edgewater Drive Oakland, CA 92618 Phone: (949) 333-1500 Fax: (949) 333-1510		Sully-Miller Contracting Company 135 E. State College Blvd #400 Brea, CA 92821 Phone: (714) 578-9600 Fax: (714) 449-8775		The Ryan Company 15 Commerce Way Norton, MA 02766 Phone: (508) 742-2500 Fax: (508) 742-2540		Griffith/Rosendin JV 12200 Bloomfield Avenue Santa Fe Springs, CA 90670 Phone: (562) 929-1128 Fax: (562) 864-7938	
ITEM	ESTIMATED QUANTITIES	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT
ITEM NO. 11 - 3/4-inch Crushed Rock: Furnish all labor, materials, tools, equipment, and incidentals necessary to load, transport, stockpile, place, compact and grade approximately two thousand five hundred (2,500) tons... for the unit price per ton of -	Unit Price	25.00	62,500.00	40.00	100,000.00	50.20	125,500.00	25.50	63,750.00	27.00	67,500.00
ITEM NO. 12 - Disposal of Non-Hazardous Waste: Furnish all labor, materials, tools, equipment, and incidentals necessary to profile, load, transport... approximately thirteen thousand four hundred (13,400) tons... for the unit price per ton of -	Unit Price	10.00	134,000.00	45.00	603,000.00	26.75	358,450.00	45.80	613,720.00	42.50	569,500.00
ITEM NO. 13 - Crushed Miscellaneous Base from Port Crusher Site: Furnish all labor, materials, tools, equipment, and incidentals necessary to load, weigh... approximately five thousand six hundred eighty (5,680) tons... for the unit price per ton of -	Unit Price	40.00	227,200.00	18.00	102,240.00	37.50	213,000.00	24.10	136,888.00	30.80	174,944.00
ITEM NO. 14 - Furnish and Place Pavement Striping: Furnish all labor, materials, tools, equipment, and incidentals necessary to furnish and place 4-inch wide pavement striping complete as specified, for the unit price per linear foot of -	Unit Price	2.00	12,000.00	1.00	6,000.00	0.86	5,160.00	1.21	7,260.00	0.80	4,800.00
ITEM NO. 15 - Furnish and Place Pavement Markings: Furnish all labor, materials, tools, equipment, and incidentals necessary to furnish and place pavement markings, complete as specified, for the unit price per square foot of -	Unit Price	6.00	36,000.00	3.00	18,000.00	2.58	15,480.00	3.02	18,120.00	2.40	14,400.00
TOTAL:											
CERTIFIED CHECK OR BOND:											

Helix Electric, Inc.
LOWEST RESPONSIBLE BIDDER

483309/Exp.11/30/2013
LICENSE NUMBER

$25,200,000.00
AMOUNT

AUTHORIZED SIGNATURE

Port of LONG BEACH
The Green Port

ANALYSIS OF BIDS
CITY OF LONG BEACH, HARBOR DEPARTMENT

SPECIFICATIONS FOR: Shore to Ship Power Retrofit at Pier J, Berths J245-J247 and J266-J270 | **NO. HD-S2341** | **DATE OPENED: February 7, 2012**

		Helix Electric, Inc. 8250 Camino Santa Fe #A San Diego, CA 92121 Phone: (858) 535-0505 Fax: (858) 535-0738		Shimmick Construction Company 6201 Edgewater Drive Oakland, CA 92618 Phone: (949) 333-1500 Fax: (949) 333-1510		Sully-Miller Contracting Company 135 E. State College Blvd #400 Brea, CA 92821 Phone: (714) 578-9600 Fax: (714) 449-8775		The Ryan Company 15 Commerce Way Norton, MA 02766 Phone: (508) 742-2500 Fax: (508) 742-2540		Griffith/Rosendin JV 12200 Bloomfield Avenue Santa Fe Springs, CA 90670 Phone: (562) 929-1128 Fax: (562) 864-7938	
ITEM	ESTIMATED QUANTITIES	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT
ITEM NO. 16 - Furnish and Place Chain Link Fence and Gates: Furnish all labor, materials, tools, equipment, and incidentals necessary to furnish and place permanent chain link fence and gates including all footings, chain... for the lump sum price of -	Lump Sum	60,000.00	60,000.00	35,000.00	35,000.00	292,631.00	292,631.00	72,300.00	72,300.00	35,000.00	35,000.00
ITEM NO. 17 - Steel Guard Posts: Furnish all labor, materials, tools, equipment, and incidentals necessary to furnish and install ninety-five (95) steel guard posts, fixed and removable, including concrete footings... for the unit price per each of -	Unit Price	1,400.00	133,000.00	1,200.00	114,000.00	1,785.00	169,575.00	1,566.35	148,803.25	1,470.00	139,650.00
ITEM NO. 18 - Shore Power Outlet Vaults for Berth J245 (SPO 1, SPO 2, SPO 3, SPO 4, SPO 5): Provide all labor, material, equipment, and incidentals necessary to perform demolition and construction of shore to ship power... for the lump sum price of -	Lump Sum	400,000.00	400,000.00	550,000.00	550,000.00	616,045.00	616,045.00	248,506.00	248,506.00	645,000.00	645,000.00
ITEM NO. 19 - Shore Power Outlet Vaults for Berth J247 (SPO 6, SPO 7, SPO 8, SPO 9): Provide all labor, material, equipment, and incidentals necessary to perform demolition and construction of shore to ship power... for the lump sum price of -	Lump Sum	500,000.00	500,000.00	450,000.00	450,000.00	496,426.00	496,426.00	85,546.00	85,546.00	516,000.00	516,000.00
ITEM NO. 20 - Shore Power Outlet Vaults for Berth J266 (SPO 10, SPO 11, SPO 12, SPO 13, SPO 14, SPO 15): Provide all labor, material, equipment, and incidentals necessary to perform demolition and construction of shore to... for the lump sum price of -	Lump Sum	580,000.00	580,000.00	750,000.00	750,000.00	969,828.00	969,828.00	283,167.00	283,167.00	750,000.00	750,000.00
TOTAL:											
CERTIFIED CHECK OR BOND:											

Helix Electric, Inc.
LOWEST RESPONSIBLE BIDDER

483309/Exp.11/30/2013
LICENSE NUMBER

$25,200,000.00
AMOUNT

AUTHORIZED SIGNATURE

Port of LONG BEACH
The Green Port

ANALYSIS OF BIDS
CITY OF LONG BEACH, HARBOR DEPARTMENT

SPECIFICATIONS FOR: Shore to Ship Power Retrofit at Pier J, Berths J245-J247 and J266-J270

NO. HD-S2341

DATE OPENED: February 7, 2012

ITEM	ESTIMATED QUANTITIES	Helix Electric, Inc. 8260 Camino Santa Fe #A San Diego, CA 92121 Phone: (858) 535-0505 Fax: (858) 535-0738		Shimmick Construction Company 8201 Edgewater Drive Oakland, CA 92618 Phone: (949) 333-1500 Fax: (949) 333-1510		Suhy-Miller Contracting Company 135 E. State College Blvd #400 Brea, CA 92821 Phone: (714) 578-9600 Fax: (714) 449-8775		The Ryan Company 15 Commerce Way Norton, MA 02766 Phone: (508) 742-2500 Fax: (508) 742-2540		Griffith/Rosendin JV 12200 Bloomfield Avenue Santa Fe Springs, CA 90670 Phone: (562) 929-1128 Fax: (562) 864-7938	
		RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT
ITEM NO. 21 - Shore Power Outlet Vaults for Berth J270 (SPO 16, SPO 17, SPO 18, SPO 19, SPO 20): Provide all labor, material, equipment, and incidentals necessary to perform demolition and construction of shore to ship power... for the lump sum price of -	Lump Sum	550,000.00	550,000.00	600,000.00	600,000.00	681,001.00	681,001.00	218,699.00	218,699.00	630,000.00	630,000.00
ITEM NO. 22 - Transformer(s) for Berth J245 (SPO 1, SPO 2, SPO 3, SPO 4, SPO 5): Provide all labor, material, equipment, and incidentals required to furnish, install, and test the transformer(s) as part of a complete system... for the lump sum price of -	Lump Sum	600,000.00	600,000.00	600,000.00	600,000.00	617,070.00	617,070.00	641,584.00	641,584.00	595,348.00	595,348.00
ITEM NO. 23 - Transformer(s) for Berth J247 (SPO 6, SPO 7, SPO 8, SPO 9): Provide all labor, material, equipment, and incidentals required to furnish, install, and test the transformer(s) as part of a complete system... for the lump sum price of -	Lump Sum	600,000.00	600,000.00	600,000.00	600,000.00	617,070.00	617,070.00	641,584.00	641,584.00	595,348.00	595,348.00
ITEM NO. 24 - Transformer(s) for Berth J266 (SPO 10, SPO 11, SPO 12, SPO 13, SPO 14, SPO 15): Provide all labor, material, equipment, and incidentals required to furnish, install, and test the transformer(s) as part of a... for the lump sum price of -	Lump Sum	600,000.00	600,000.00	600,000.00	600,000.00	617,070.00	617,070.00	641,584.00	641,584.00	595,348.00	595,348.00
ITEM NO. 25 - Transformers for Berth J270 (SPO 16, SPO 17, SPO 18, SPO 19, SPO 20): Provide all labor, material, equipment, and incidentals required to furnish, install, and test the transformer(s) as part of a complete... for the lump sum price of -	Lump Sum	600,000.00	600,000.00	900,000.00	900,000.00	617,070.00	617,070.00	641,584.00	641,584.00	595,348.00	595,348.00
TOTAL:											
CERTIFIED CHECK OR BOND:											

Helix Electric, Inc.
LOWEST RESPONSIBLE BIDDER

483309/Exp.11/30/2013
LICENSE NUMBER

$25,200,000.00
AMOUNT

AUTHORIZED SIGNATURE

Port of LONG BEACH
The Green Port

ANALYSIS OF BIDS
CITY OF LONG BEACH, HARBOR DEPARTMENT

SPECIFICATIONS FOR: Shore to Ship Power Retrofit at Pier J, Berths J245-J247 and J266-J270 | **NO.** HD-S2341 | **DATE OPENED:** February 7, 2012

		Helix Electric, Inc. 8260 Camino Santa Fe #A San Diego, CA 92121 Phone: (858) 535-0505 Fax: (858) 535-0738		Shimmick Construction Company 8201 Edgewater Drive Oakland, CA 92618 Phone: (949) 333-1500 Fax: (949) 333-1510		Sully-Miller Contracting Company 135 E. State College Blvd #400 Brea, CA 92821 Phone: (714) 578-9800 Fax: (714) 449-6775		The Ryan Company 15 Commerce Way Norton, MA 02766 Phone: (508) 742-2500 Fax: (508) 742-2540		Griffith/Rosendin JV 12200 Bloomfield Avenue Santa Fe Springs, CA 90670 Phone: (562) 929-1128 Fax: (562) 864-7938	
ITEM	ESTIMATED QUANTITIES	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT
ITEM NO. 26 - Switchgear Assembly(s) for Berth J245 (SPO 1, SPO 2, SPO 3, SPO 4, SPO 5): Provide all labor, material, equipment, and incidentals required to furnish, install, and test the switchgear assembly as part of a... for the lump sum price of -	Lump Sum	1,112,440.00	1,112,440.00	1,950,000.00	1,950,000.00	2,257,118.00	2,257,118.00	1,983,333.00	1,983,333.00	1,803,184.00	1,803,184.00
ITEM NO. 27 - Switchgear Assembly(s) for Berth J247 (SPO 6, SPO 7, SPO 8, SPO 9): Provide all labor, material, equipment, and incidentals required to furnish, install, and test the switchgear assembly as part of a complete... for the lump sum price of -	Lump Sum	1,000,000.00	1,000,000.00	2,000,000.00	2,000,000.00	2,180,872.00	2,180,872.00	1,983,333.00	1,983,333.00	1,839,865.00	1,839,865.00
ITEM NO. 28 - Switchgear Assembly(s) for Berth J266 (SPO 10, SPO 11, SPO 12, SPO 13, SPO 14, SPO 15): Provide all labor, material, equipment, and incidentals required to furnish, install, and test the switchgear assembly as... for the lump sum price of -	Lump Sum	2,000,000.00	2,000,000.00	2,000,000.00	2,000,000.00	2,313,947.00	2,313,947.00	1,983,333.00	1,983,333.00	1,852,170.00	1,852,170.00
ITEM NO. 29 - Switchgear Assembly(s) for Berth J270 (SPO 16, SPO 17, SPO 18, SPO 19, SPO 20): Provide all labor, material, equipment, and incidentals required to furnish, install, and test the switchgear assembly as part of a... for the lump sum price of -	Lump Sum	2,200,000.00	2,200,000.00	2,190,000.00	2,190,000.00	2,390,042.00	2,390,042.00	1,983,333.00	1,983,333.00	2,026,687.00	2,026,687.00
ITEM NO. 30 - Ductbank and Raceways for Berth J245 (SPO 1, SPO 2, SPO 3, SPO 4, SPO 5): Provide all labor, material, equipment, and incidentals required to furnish, install and test the ductbanks and raceways as part of a... for the lump sum price of -	Lump Sum	1,500,000.00	1,500,000.00	2,000,000.00	2,000,000.00	1,014,160.00	1,014,160.00	1,146,620.00	1,146,620.00	1,150,000.00	1,150,000.00
TOTAL:											
CERTIFIED CHECK OR BOND:											

Helix Electric, Inc.	483309/Exp.11/30/2013	$25,200,000.00	
LOWEST RESPONSIBLE BIDDER	LICENSE NUMBER	AMOUNT	AUTHORIZED SIGNATURE

File: Bid Analysis HD-S2341 Bandelmaier (eop)[BID ANALYSIS] 2/7/2012 1:23 PM

Port of LONG BEACH
The Green Port

ANALYSIS OF BIDS
CITY OF LONG BEACH, HARBOR DEPARTMENT

SPECIFICATIONS FOR: Shore to Ship Power Retrofit at Pier J, Berths J245-J247 and J286-J270

NO. HD-S2341

DATE OPENED: February 7, 2012

		Helix Electric, Inc. 8250 Camino Santa Fe #A San Diego, CA 92121 Phone: (858) 535-0505 Fax: (858) 535-0738		Shimmick Construction Company 6201 Edgewater Drive Oakland, CA 92618 Phone: (949) 333-1500 Fax: (949) 333-1510		Sully-Miller Contracting Company 135 E. State College Blvd #400 Brea, CA 92821 Phone: (714) 578-9600 Fax: (714) 449-8775		The Ryan Company 15 Commerce Way Norton, MA 02766 Phone: (508) 742-2500 Fax: (508) 742-2540		Griffith/Rosendin JV 12200 Bloomfield Avenue Santa Fe Springs, CA 90670 Phone: (562) 929-1128 Fax: (562) 864-7938	
ITEM	ESTIMATED QUANTITIES	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT
ITEM NO. 31 - Ductbank and Raceways for Berth J247 (SPO 6, SPO 7, SPO 8, SPO 9): Provide all labor, material, equipment, and incidentals required to furnish, install, and test the ductbanks and raceways as part of a complete... for the lump sum price of -	Lump Sum	1,500,000.00	1,500,000.00	1,000,000.00	1,000,000.00	814,440.00	814,440.00	928,874.00	928,874.00	1,150,000.00	1,150,000.00
ITEM NO. 32 - Ductbank and Raceways for Berth J286 (SPO 10, SPO 11, SPO 12, SPO 13, SPO 14, SPO 15): Provide all labor, material, equipment, and incidentals required to furnish, install, and test the ductbanks and raceways as... for the lump sum price of -	Lump Sum	2,000,000.00	2,000,000.00	1,800,000.00	1,800,000.00	1,278,178.00	1,278,178.00	1,835,453.00	1,835,453.00	1,320,000.00	1,320,000.00
ITEM NO. 33 - Ductbank and Raceways for Berth J270 (SO 16, SPO 17, SPO 18, SPO 19, SPO 20): Provide all labor, material, equipment, and incidentals required to furnish, install, and test the ductbanks and raceways as part of... for the lump sum price of -	Lump Sum	1,500,000.00	1,500,000.00	1,300,000.00	1,300,000.00	1,176,073.00	1,176,073.00	1,066,532.00	1,066,532.00	1,330,000.00	1,330,000.00
ITEM NO. 34 - Conductors for Berth J245 (SPO 1, SPO 2, SPO 3, SPO 4, SPO 5): Provide all labor, material, equipment, and incidentals required to furnish, install, and test the conductor(s) as part of a complete system as... for the lump sum price of -	Lump Sum	400,000.00	400,000.00	550,000.00	550,000.00	637,918.00	637,918.00	556,501.00	556,501.00	604,784.00	604,784.00
ITEM NO. 35 - Conductors for Berth J247 (SPO 6, SPO 7, SPO 8, SPO 9): Provide all labor, material, equipment, and incidentals required to furnish, install, and test the conductor(s) as part of a complete system as specified... for the lump sum price of -	Lump Sum	200,000.00	200,000.00	400,000.00	400,000.00	451,610.00	451,610.00	400,827.00	400,827.00	457,211.00	457,211.00
TOTAL:											
CERTIFIED CHECK OR BOND:											

Helix Electric, Inc.
LOWEST RESPONSIBLE BIDDER

483309/Exp.11/30/2013
LICENSE NUMBER

$25,200,000.00
AMOUNT

AUTHORIZED SIGNATURE

File: Bid Analysis HD-S2341 Bandermeaur (scp)[BID ANALYSIS] 2/7/2012 1:23 PM

Port of LONG BEACH
The Green Port

ANALYSIS OF BIDS
CITY OF LONG BEACH, HARBOR DEPARTMENT

SPECIFICATIONS FOR: Shore to Ship Power Retrofit at Pier J, Berths J245-J247 and J266-J270 | **NO.** HD-S2341 | **DATE OPENED:** February 7, 2012

		Helix Electric, Inc. 8260 Camino Santa Fe #A San Diego, CA 92121 Phone: (858) 535-0505 Fax: (858) 535-0738		Shimmick Construction Company 8201 Edgewater Drive Oakland, CA 92618 Phone: (949) 333-1500 Fax: (949) 333-1510		Sully-Miller Contracting Company 135 E. State College Blvd #400 Brea, CA 92821 Phone: (714) 578-9600 Fax: (714) 449-8775		The Ryan Company 15 Commerce Way Norton, MA 02766 Phone: (508) 742-2500 Fax: (508) 742-2540		Griffith/Rosendin JV 12200 Bloomfield Avenue Santa Fe Springs, CA 90670 Phone: (562) 928-1128 Fax: (562) 864-7938	
ITEM	ESTIMATED QUANTITIES	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT
ITEM NO. 36 - Conductors for Berth J266 (SPO 10, SPO 11, SPO 12, SPO 13, SPO 14, SPO 15): Provide all labor, material, equipment, and incidentals required to furnish, install, and test the conductor(s) as part of a complete... for the lump sum price of -	Lump Sum	500,000.00	500,000.00	800,000.00	800,000.00	887,968.00	887,968.00	813,159.00	813,159.00	756,811.00	756,811.00
ITEM NO. 37 - Conductors for Berth J270 (SPO 16, SPO 17, SPO 18, SPO 19, SPO 20): Provide all labor, material, equipment, and incidentals required to furnish, install, and test the conductor(s) as part of a complete system... for the lump sum price of -	Lump Sum	400,000.00	400,000.00	650,000.00	650,000.00	852,670.00	852,670.00	798,445.00	798,445.00	631,086.00	631,086.00
ITEM NO. 38 - SPO Assemblies for Berth J245 (SPO 1, SPO 2, SPO 3, SPO 4, SPO 5): Provide all labor, material, equipment, and incidentals required to furnish, install, and test the SPO assemblies as part of a complete system... for the lump sum price of -	Lump Sum	150,000.00	150,000.00	175,000.00	175,000.00	138,722.00	138,722.00	442,719.00	442,719.00	390,978.00	390,978.00
ITEM NO. 39 - SPO Assemblies for Berth J247 (SPO 6, SPO 7, SPO 8, SPO 9): Provide all labor, material, equipment, and incidentals required to furnish, install, and test the SPO assemblies as part of a complete system as... for the lump sum price of -	Lump Sum	100,000.00	100,000.00	175,000.00	175,000.00	173,403.00	173,403.00	354,175.00	354,175.00	475,401.00	475,401.00
ITEM NO. 40 - SPO Assemblies for Berth J266 (SPO 10, SPO 11, SPO 12, SPO 13, SPO 14, SPO 15): Provide all labor, material, equipment, and incidentals required to furnish, install, and test the SPO assemblies as part of a... for the lump sum price of -	Lump Sum	170,000.00	170,000.00	175,000.00	175,000.00	208,083.00	208,083.00	531,262.00	531,262.00	559,717.00	559,717.00
TOTAL:											
CERTIFIED CHECK OR BOND:											

Helix Electric, Inc.
LOWEST RESPONSIBLE BIDDER

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Port of LONG BEACH
The Green Port

ANALYSIS OF BIDS
CITY OF LONG BEACH, HARBOR DEPARTMENT

SPECIFICATIONS FOR: Shore to Ship Power Retrofit at Pier J, Berths J245-J247 and J266-J270

NO. HD-S2341

DATE OPENED: February 7, 2012

		Helix Electric, Inc. 5250 Camino Santa Fe #A San Diego, CA 92121 Phone: (858) 535-0505 Fax: (858) 535-0738		Shimmick Construction Company 8201 Edgewater Drive Oakland, CA 92518 Phone: (949) 333-1500 Fax: (949) 333-1510		Sully-Miller Contracting Company 135 E. State College Blvd #400 Brea, CA 92821 Phone: (714) 578-9600 Fax: (714) 449-8775		The Ryan Company 15 Commerce Way Norton, MA 02766 Phone: (508) 742-2500 Fax: (508) 742-2540		Griffith/Rosendin JV 12200 Bloomfield Avenue Santa Fe Springs, CA 90670 Phone: (562) 929-1128 Fax: (562) 864-7938	
ITEM	ESTIMATED QUANTITIES	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT
ITEM NO. 41 - SPO Assemblies for Berth J270 (SPO 16, SPO 17, SPO 18, SPO 19, SPO 20): Provide all labor, material, equipment, and incidentals required to furnish, install, and test the SPO assemblies as part of a complete... for the lump sum price of -	Lump Sum	150,000.00	150,000.00	175,000.00	175,000.00	173,403.00	173,403.00	442,719.00	442,719.00	475,401.00	475,401.00
ITEM NO. 42 - All Other Electrical Work for Berth J245 (SPO 1, SPO 2, SPO 3, SPO 4, SPO 5): Provide all labor, material, equipment, and incidentals required to furnish, install, and test all other electrical work for Berth... for the lump sum price of -	Lump Sum	150,000.00	150,000.00	300,000.00	300,000.00	197,589.00	197,589.00	127,695.00	127,695.00	1.00	1.00
ITEM NO. 43 - All Other Electrical Work for Berth J247 (SPO 6, SPO 7, SPO 8, SPO 9): Provide all labor, material, equipment, and incidentals required to furnish, install, and test all other electrical work for Berth J247 as... for the lump sum price of -	Lump Sum	150,000.00	150,000.00	250,000.00	250,000.00	167,008.00	167,008.00	220,414.00	220,414.00	1.00	1.00
ITEM NO. 44 - All Other Electrical Work for Berth J266 (SPO 10, SPO 11, SPO 12, SPO 13, SPO 14, SPO 15): Provide all labor, material, equipment, and incidentals required to furnish, install, and test all other electrical work... for the lump sum price of -	Lump Sum	150,000.00	150,000.00	275,000.00	275,000.00	195,201.00	195,201.00	247,649.00	247,649.00	1.00	1.00
ITEM NO. 45 - All Other Electrical Work for Berth J270 (SPO 16, SPO 17, SPO 18, SPO 19, SPO 20): Provide all labor, material, equipment, and incidentals required to furnish, install, and test all other electrical work for... for the lump sum price of -	Lump Sum	150,000.00	150,000.00	250,000.00	250,000.00	167,008.00	167,008.00	127,695.00	127,695.00	1.00	1.00
TOTAL:											
CERTIFIED CHECK OR BOND:											

Helix Electric, Inc.
LOWEST RESPONSIBLE BIDDER

483309/Exp.11/30/2013
LICENSE NUMBER

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Port of LONG BEACH
The Green Port

ANALYSIS OF BIDS
CITY OF LONG BEACH, HARBOR DEPARTMENT

SPECIFICATIONS FOR: Shore to Ship Power Retrofit at Pier J, Berths J245-J247 and J266-J270 | **NO.** HD-S2341 | **DATE OPENED:** February 7, 2012

		Helix Electric, Inc. 8260 Camino Santa Fe #A San Diego, CA 92121 Phone: (858) 535-0505 Fax: (858) 535-0738		Shimmick Construction Company 8201 Edgewater Drive Oakland, CA 92618 Phone: (949) 333-1500 Fax: (949) 333-1510		Sully-Miller Contracting Company 135 E. State College Blvd #400 Brea, CA 92821 Phone: (714) 578-9600 Fax: (714) 449-8775		The Ryan Company 15 Commerce Way Norton, MA 02766 Phone: (508) 742-2500 Fax: (508) 742-2540		Griffith/Rosendin JV 12200 Bloomfield Avenue Santa Fe Springs, CA 90670 Phone: (562) 929-1128 Fax: (562) 864-7938	
ITEM	ESTIMATED QUANTITIES	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT
ITEM NO. 46 - All Other Work: Furnish all labor, materials, tools, equipment, and incidentals necessary to perform all other work not included in the other Bid items as indicated in Paragraph SC-22 of the Special Conditions for the lump sum price of -	Lump Sum	200,000.00	200,000.00	0	0	530,999.00	530,999.00	3,142,993.00	3,142,993.00	4,310,000.00	4,310,000.00
ITEM NO. 47 - Extended Contractor Overhead: Furnish all labor, material, tools, equipment, and incidentals necessary to complete the work beyond the Initial Contract Time due to Excusable Compensable Delays as indicated... for the unit price per day of -	Unit Price	1,000.00	60,000.00	1,500.00	90,000.00	144.00	8,640.00	3,137.70	188,262.00	1,145.00	68,700.00
ITEM NO. 48 - Standby Time: Period of time during which work is interrupted and the Contractor shall hold Contractor's labor personnel and equipment in a state of readiness as indicated in Paragraph SC-30 of the... for the unit price per man hour of -	Unit Price	60.00	240,000.00	60.00	240,000.00	172.00	688,000.00	80.50	322,000.00	72.50	290,000.00
ITEM NO. 49 - Commissioning for Berths J245-J247: Furnish all labor, materials, tools, equipment, and incidentals necessary to commission Berths J245-J247 complete as specified in Section 16999 "Commissioning" for the unit price per man hour of -	Unit Price	200.00	200,000.00	400.00	400,000.00	358.00	358,000.00	132.54	132,540.00	237.91	237,910.00
ITEM NO. 50 - Commissioning for Berths J266-J270: Furnish all labor, materials, tools, equipment, and incidentals necessary to commission Berths J266-J270 complete as specified in Section 16999 "Commissioning" for the unit price per man hour of -	Unit Price	200.00	200,000.00	400.00	400,000.00	358.00	358,000.00	132.54	132,540.00	237.91	237,910.00
TOTAL:		$25,200,000.00		$28,485,050.00		$28,891,481.00		$29,290,225.10		$31,333,185.00	
CERTIFIED CHECK OR BOND:		10% Bond		10% Bond		10% Bond		10% Bond		10% Bond	

Helix Electric, Inc.
LOWEST RESPONSIBLE BIDDER

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LICENSE NUMBER

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Port of LONG BEACH
The Green Port

ANALYSIS OF BIDS
CITY OF LONG BEACH, HARBOR DEPARTMENT

SPECIFICATIONS FOR: Shore to Ship Power Retrofit at Pier J, Berths J245-J247 and J266-J270

NO. HD-S2341

DATE OPENED: February 7, 2012

		Dynalectric 4462 Corporate Center Drive Los Alamitos, CA 90720 Phone: (714) 828-7000 Fax: (714) 484-2385		Comet Electric, Inc. 7760 Deering Avenue Canoga Park, CA 91304 Phone: (818) 340-0965 Fax: (818) 340-4033							
ITEM	ESTIMATED QUANTITIES	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT
ITEM NO. 1 - Progress Schedules: Furnish all labor, materials, tools, equipment, and incidentals necessary to prepare, furnish, update, revise and maintain the cost and resource loaded scheduling... for the lump sum price (minimum amount of $25,000) of -	Lump Sum	192,500.00	192,500.00	93,324.00	93,324.00						
ITEM NO. 2 - Site Specific Safety Plan: Furnish all labor, materials, tools, equipment, and incidentals necessary to develop, submit, implement and maintain a Site Specific Safety Plan, including... for the lump sum price (minimum amount of $30,000) of -	Lump Sum	34,000.00	34,000.00	33,330.00	33,330.00						
ITEM NO. 3 - Furnish and Place Temporary K-Rail and Chain Link Fence: Furnish all labor, materials, tools, equipment, and incidentals necessary to furnish, place, move, relocate, store, remove and dispose of temporary K-Rail... for the lump sum price of -	Lump Sum	309,500.00	309,500.00	77,770.00	77,770.00						
ITEM NO. 4 - Mobilization/Demobilization: Furnish all labor, materials, tools, equipment, and incidentals necessary for Mobilization and Demobilization as specified and shown for the lump sum price (fixed amount of $1,200) of -	Lump Sum	1,200,000.00	1,200,000.00	1,200,000.00	1,200,000.00						
ITEM NO. 5 - Interim Demobilization/Remobilization: Furnish all labor, materials, tools, equipment and incidentals necessary to temporarily demobilize from the above-wharf work area, including temporary... for the unit price per each combined event of -	Unit Price	5,000.00	75,000.00	15,000.00	225,000.00						
TOTAL:											
CERTIFIED CHECK OR BOND:											

Helix Electric, Inc.
LOWEST RESPONSIBLE BIDDER

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Port of LONG BEACH
The Green Port

ANALYSIS OF BIDS
CITY OF LONG BEACH, HARBOR DEPARTMENT

SPECIFICATIONS FOR: Shore to Ship Power Retrofit at Pier J, Berths J245-J247 and J266-J270

NO. HD-S2341

DATE OPENED: February 7, 2012

		Dynalectric 4462 Corporate Center Drive Los Alamitos, CA 90720 Phone: (714) 828-7000 Fax: (714) 484-2365		Comet Electric, Inc. 7760 Deering Avenue Canoga Park, CA 91304 Phone: (818) 340-0965 Fax: (818) 340-4033							
ITEM	ESTIMATED QUANTITIES	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT
ITEM NO. 6 - Storm Water Pollution Prevention Plan(s) (SWPPP) Development and Compliance: Furnish all labor, materials, tools, equipment, and incidentals necessary to develop, provide, monitor... for the lump sum price (minimum amount of $150,000) of -	Lump Sum	316,300.00	316,300.00	166,650.00	166,650.00						
ITEM NO. 7 - City Ordinance Construction Waste Management Plan: Furnish all labor, material, tools, equipment, logistics, forms, and incidentals necessary... (exclusive of the maximum $50,000 deposit) for the lump sum price (minimum amount of $5,000) of -	Lump Sum	5,700.00	5,700.00	72,215.00	72,215.00						
ITEM NO. 8 - Soil Handling and Disposal,Non-Hazardous Waste: Furnish all labor, materials, tools, equipment, and incidentals necessary to excavate, stockpile... approximately seventeen-thousand six-hundred (17,600) tons... for the unit price per ton of -	Unit Price	28.15	236,460.00	28.33	237,972.00						
ITEM NO. 9 - Shoring for Excavations: Furnish all labor, materials, tools, equipment, and incidentals necessary to design, place, maintain, move, and remove excavation shoring adequate for worker... for the lump sum price (minimum amount of $30,000) of -	Lump Sum	287,000.00	287,000.00	122,390.00	122,390.00						
ITEM NO. 10 - Import Soil : Furnish all labor, materials, tools, equipment, and incidentals necessary to test, certify, load, transport, stockpile, place... approximately six thousand eight hundred ten (6,810) tons... for the unit price per ton of -	Unit Price	42.78	291,331.80	45.33	308,697.30						
TOTAL:											
CERTIFIED CHECK OR BOND:											

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Port of LONG BEACH
The Green Port

ANALYSIS OF BIDS
CITY OF LONG BEACH, HARBOR DEPARTMENT

SPECIFICATIONS FOR: Shore to Ship Power Retrofit at Pier J, Berths J245-J247 and J266-J270

NO. HD-S2341

DATE OPENED: February 7, 2012

		Dynalectric 4462 Corporate Center Drive Los Alamitos, CA 90720 Phone: (714) 826-7000 Fax: (714) 484-2385		Comet Electric, Inc. 7760 Deering Avenue Canoga Park, CA 91304 Phone: (818) 340-0965 Fax: (818) 340-4033							
ITEM	ESTIMATED QUANTITIES	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT
ITEM NO. 11 - 3/4-inch Crushed Rock: Furnish all labor, materials, tools, equipment, and incidentals necessary to load, transport, stockpile, place, compact and grade approximately two thousand five hundred (2,500) tons... for the unit price per ton of -	Unit Price	90.06	225,150.00	28.33	70,825.00						
ITEM NO. 12 - Disposal of Non-Hazardous Waste: Furnish all labor, materials, tools, equipment, and incidentals necessary to profile, load, transport... approximately thirteen thousand four hundred (13,400) tons... for the unit price per ton of -	Unit Price	93.48	1,252,632.00	65.73	880,782.00						
ITEM NO. 13 - Crushed Miscellaneous Base from Port Crusher Site: Furnish all labor, materials, tools, equipment, and incidentals necessary to load, weigh... approximately five thousand six hundred eighty (5,680) tons.... for the unit price per ton of -	Unit Price	31.51	178,976.80	47.60	270,368.00						
ITEM NO. 14 - Furnish and Place Pavement Striping: Furnish all labor, materials, tools, equipment, and incidentals necessary to furnish and place 4-inch wide pavement striping complete as specified, for the unit price per linear foot of -	Unit Price	3.38	20,280.00	0.57	3,420.00						
ITEM NO. 15 - Furnish and Place Pavement Markings: Furnish all labor, materials, tools, equipment, and incidentals necessary to furnish and place pavement markings, complete as specified, for the unit price per square foot of -	Unit Price	4.50	27,000.00	3.31	19,860.00						
TOTAL:											
CERTIFIED CHECK OR BOND:											

Helix Electric, Inc.
LOWEST RESPONSIBLE BIDDER

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File: Bid Analysis HD-S2341 Bandammeur (acp)[BID ANALYSIS] 2/7/2012 1:23 PM

Port of LONG BEACH
The Green Port

ANALYSIS OF BIDS
CITY OF LONG BEACH, HARBOR DEPARTMENT

SPECIFICATIONS FOR: Shore to Ship Power Retrofit at Pier J, Berths J245-J247 and J266-J270

NO. HD-S2341

DATE OPENED: February 7, 2012

		Dynalectric 4462 Corporate Center Drive Los Alamitos, CA 90720 Phone: (714) 828-7000 Fax: (714) 484-2385		Comet Electric, Inc. 7750 Deering Avenue Canoga Park, CA 91304 Phone: (818) 340-0965 Fax: (818) 340-4033							
ITEM	ESTIMATED QUANTITIES	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT
ITEM NO. 16 - Furnish and Place Chain Link Fence and Gates: Furnish all labor, materials, tools, equipment, and incidentals necessary to furnish and place permanent chain link fence and gates including all footings, chain... for the lump sum price of -	Lump Sum	29,720.00	29,720.00	31,413.00	31,413.00						
ITEM NO. 17 - Steel Guard Posts: Furnish all labor, materials, tools, equipment, and incidentals necessary to furnish and install ninety-five (95) steel guard posts, fixed and removable, including concrete footings... for the unit price per each of -	Unit Price	1,687.47	160,309.65	1,784.82	169,557.90						
ITEM NO. 18 - Shore Power Outlet Vaults for Berth J245 (SPO 1, SPO 2, SPO 3, SPO 4, SPO 5): Provide all labor, material, equipment, and incidentals necessary to perform demolition and construction of shore to ship power... for the lump sum price of -	Lump Sum	557,250.00	557,250.00	879,322.00	879,322.00						
ITEM NO. 19 - Shore Power Outlet Vaults for Berth J247 (SPO 6, SPO 7, SPO 8, SPO 9): Provide all labor, material, equipment, and incidentals necessary to perform demolition and construction of shore to ship power... for the lump sum price of -	Lump Sum	467,200.00	467,200.00	704,410.00	704,410.00						
ITEM NO. 20 - Shore Power Outlet Vaults for Berth J266 (SPO 10, SPO 11, SPO 12, SPO 13, SPO 14, SPO 15): Provide all labor, material, equipment, and incidentals necessary to perform demolition and construction of shore to... for the lump sum price of -	Lump Sum	666,700.00	666,700.00	1,187,501.00	1,187,501.00						
TOTAL:											
CERTIFIED CHECK OR BOND:											

Helix Electric, Inc.
LOWEST RESPONSIBLE BIDDER

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File: Bid Analysis HD-S2341 Bandesmakur (ecp)[BID ANALYSIS] 2/7/2012 1:23 PM

Port of LONG BEACH
The Green Port

ANALYSIS OF BIDS
CITY OF LONG BEACH, HARBOR DEPARTMENT

SPECIFICATIONS FOR: Shore to Ship Power Retrofit at Pier J, Berths J245-J247 and J256-J270

NO. HD-S2341

DATE OPENED: February 7, 2012

		Dynalectric 4462 Corporate Center Drive Los Alamitos, CA 90720 Phone: (714) 828-7000 Fax: (714) 484-2385		Comet Electric, Inc. 7780 Deering Avenue Canoga Park, CA 91304 Phone: (818) 340-0965 Fax: (818) 340-4033							
ITEM	ESTIMATED QUANTITIES	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT
ITEM NO. 21 - Shore Power Outlet Vaults for Berth J270 (SPO 16, SPO 17, SPO 18, SPO 19, SPO 20): Provide all labor, material, equipment, and incidentals necessary to perform demolition and construction of shore to ship power... for the lump sum price of -	Lump Sum	580,000.00	580,000.00	994,741.00	994,741.00						
ITEM NO. 22 - Transformer(s) for Berth J245 (SPO 1, SPO 2, SPO 3, SPO 4, SPO 5): Provide all labor, material, equipment, and incidentals required to furnish, install, and test the transformer(s) as part of a complete system... for the lump sum price of -	Lump Sum	650,000.00	650,000.00	630,000.00	630,000.00						
ITEM NO. 23 - Transformer(s) for Berth J247 (SPO 6, SPO 7, SPO 8, SPO 9): Provide all labor, material, equipment, and incidentals required to furnish, install, and test the transformer(s) as part of a complete system... for the lump sum price of -	Lump Sum	650,000.00	650,000.00	630,000.00	630,000.00						
ITEM NO. 24 - Transformer(s) for Berth J256 (SPO 10, SPO 11, SPO 12, SPO 13, SPO 14, SPO 15): Provide all labor, material, equipment, and incidentals required to furnish, install, and test the transformer(s) as part of a... for the lump sum price of -	Lump Sum	650,000.00	650,000.00	630,000.00	630,000.00						
ITEM NO. 25 - Transformers for Berth J270 (SPO 16, SPO 17, SPO 18, SPO 19, SPO 20): Provide all labor, material, equipment, and incidentals required to furnish, install, and test the transformer(s) as part of a complete... for the lump sum price of -	Lump Sum	650,000.00	650,000.00	630,000.00	630,000.00						
TOTAL:											
CERTIFIED CHECK OR BOND:											

Helix Electric, Inc.
LOWEST RESPONSIBLE BIDDER

483309/Exp.11/30/2013
LICENSE NUMBER

$25,200,000.00
AMOUNT

AUTHORIZED SIGNATURE

Port of LONG BEACH
The Green Port

ANALYSIS OF BIDS
CITY OF LONG BEACH, HARBOR DEPARTMENT

SPECIFICATIONS FOR: Shore to Ship Power Retrofit at Pier J, Berths J245-J247 and J266-J270

NO. HD-S2341

DATE OPENED: February 7, 2012

		Dynalectric 4462 Corporate Center Drive Los Alamitos, CA 90720 Phone: (714) 828-7000 Fax: (714) 484-2385		Comet Electric, Inc. 7760 Deering Avenue Canoga Park, CA 91304 Phone: (818) 340-0965 Fax: (818) 340-4033							
ITEM	ESTIMATED QUANTITIES	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT
ITEM NO. 26 - Switchgear Assembly(s) for Berth J245 (SPO 1, SPO 2, SPO 3, SPO 4, SPO 5): Provide all labor, material, equipment, and incidentals required to furnish, install, and test the switchgear assembly as part of a... for the lump sum price of -	Lump Sum	1,992,000.00	1,992,000.00	2,150,000.00	2,150,000.00						
ITEM NO. 27 - Switchgear Assembly(s) for Berth J247 (SPO 6, SPO 7, SPO 8, SPO 9): Provide all labor, material, equipment, and incidentals required to furnish, install, and test the switchgear assembly as part of a complete... for the lump sum price of -	Lump Sum	2,032,000.00	2,032,000.00	2,193,000.00	2,193,000.00						
ITEM NO. 28 - Switchgear Assembly(s) for Berth J266 (SPO 10, SPO 11, SPO 12, SPO 13, SPO 14, SPO 15): Provide all labor, material, equipment, and incidentals required to furnish, install, and test the switchgear assembly as... for the lump sum price of -	Lump Sum	2,045,300.00	2,045,300.00	2,244,000.00	2,244,000.00						
ITEM NO. 29 - Switchgear Assembly(s) for Berth J270 (SPO 16, SPO 17, SPO 18, SPO 19, SPO 20): Provide all labor, material, equipment, and incidentals required to furnish, install, and test the switchgear assembly as part of a... for the lump sum price of -	Lump Sum	2,235,400.00	2,235,400.00	2,519,000.00	2,519,000.00						
ITEM NO. 30 - Ductbank and Raceways for Berth J245 (SPO 1, SPO 2, SPO 3, SPO 4, SPO 5): Provide all labor, material, equipment, and incidentals required to furnish, install and test the ductbanks and raceways as part of a... for the lump sum price of -	Lump Sum	1,920,500.00	1,920,500.00	1,929,000.00	1,929,000.00						
TOTAL:											
CERTIFIED CHECK OR BOND:											

Helix Electric, Inc.
LOWEST RESPONSIBLE BIDDER

483309/Exp.11/30/2013
LICENSE NUMBER

$25,200,000.00
AMOUNT

AUTHORIZED SIGNATURE

File: Bid Analysis HD-S2341 Bendalmatur (acp)[BID ANALYSIS] 2/7/2012 1:23 PM

Port of LONG BEACH
The Green Port

ANALYSIS OF BIDS
CITY OF LONG BEACH, HARBOR DEPARTMENT

SPECIFICATIONS FOR: Shore to Ship Power Retrofit at Pier J, Berths J245-J247 and J266-J270

NO. HD-S2341

DATE OPENED: February 7, 2012

		Dynalectric 4462 Corporate Center Drive Los Alamitos, CA 90720 Phone: (714) 826-7000 Fax: (714) 484-2385		Comet Electric, Inc. 7760 Deering Avenue Canoga Park, CA 91304 Phone: (818) 340-0965 Fax: (818) 340-4033							
ITEM	ESTIMATED QUANTITIES	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT
ITEM NO. 31 - Ductbank and Raceways for Berth J247 (SPO 6, SPO 7, SPO 8, SPO 9): Provide all labor, material, equipment, and incidentals required to furnish, install, and test the ductbanks and raceways as part of a complete... for the lump sum price of -	Lump Sum	774,500.00	774,500.00	1,723,000.00	1,723,000.00						
ITEM NO. 32 - Ductbank and Raceways for Berth J266 (SPO 10, SPO 11, SPO 12, SPO 13, SPO 14, SPO 15): Provide all labor, material, equipment, and incidentals required to furnish, install, and test the ductbanks and raceways as... for the lump sum price of -	Lump Sum	2,657,600.00	2,657,600.00	3,006,000.00	3,006,000.00						
ITEM NO. 33 - Ductbank and Raceways for Berth J270 (SO 16, SPO 17, SPO 18, SPO 19, SPO 20): Provide all labor, material, equipment, and incidentals required to furnish, install, and test the ductbanks and raceways as part of... for the lump sum price of -	Lump Sum	1,234,500.00	1,234,500.00	2,897,000.00	2,897,000.00						
ITEM NO. 34 - Conductors for Berth J245 (SPO 1, SPO 2, SPO 3, SPO 4, SPO 5): Provide all labor, material, equipment, and incidentals required to furnish, install, and test the conductor(s) as part of a complete system as... for the lump sum price of -	Lump Sum	619,250.00	619,250.00	627,000.00	627,000.00						
ITEM NO. 35 - Conductors for Berth J247 (SPO 6, SPO 7, SPO 8, SPO 9): Provide all labor, material, equipment, and incidentals required to furnish, install, and test the conductor(s) as part of a complete system as specified... for the lump sum price of -	Lump Sum	371,200.00	371,200.00	460,000.00	460,000.00						
TOTAL:											
CERTIFIED CHECK OR BOND:											

Helix Electric, Inc.	483309/Exp.11/30/2013	$25,200,000.00	
LOWEST RESPONSIBLE BIDDER	LICENSE NUMBER	AMOUNT	AUTHORIZED SIGNATURE

File: Bid Analysis HD-S2341 Bendstmaur (scp)[BID ANALYSIS] 2/7/2012 1:23 PM

Port of LONG BEACH
The Green Port

ANALYSIS OF BIDS
CITY OF LONG BEACH, HARBOR DEPARTMENT

SPECIFICATIONS FOR: Shore to Ship Power Retrofit at Pier J, Berths J245-J247 and J266-J270

NO. HD-S2341

DATE OPENED: February 7, 2012

		Dynalectric 4462 Corporate Center Drive Los Alamitos, CA 90720 Phone: (714) 828-7000 Fax: (714) 484-2385		Comet Electric, Inc. 7760 Deering Avenue Canoga Park, CA 91304 Phone: (818) 340-0965 Fax: (818) 340-4033							
ITEM	ESTIMATED QUANTITIES	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT
ITEM NO. 36 - Conductors for Berth J268 (SPO 10, SPO 11, SPO 12, SPO 13, SPO 14, SPO 15): Provide all labor, material, equipment, and incidentals required to furnish, install, and test the conductor(s) as part of a complete... for the lump sum price of -	Lump Sum	766,400.00	766,400.00	977,000.00	977,000.00						
ITEM NO. 37 - Conductors for Berth J270 (SPO 16, SPO 17, SPO 18, SPO 19, SPO 20): Provide all labor, material, equipment, and incidentals required to furnish, install, and test the conductor(s) as part of a complete system... for the lump sum price of -	Lump Sum	633,725.00	633,725.00	822,000.00	822,000.00						
ITEM NO. 38 - SPO Assemblies for Berth J245 (SPO 1, SPO 2, SPO 3, SPO 4, SPO 5): Provide all labor, material, equipment, and incidentals required to furnish, install, and test the SPO assemblies as part of a complete system... for the lump sum price of -	Lump Sum	188,200.00	188,200.00	638,000.00	638,000.00						
ITEM NO. 39 - SPO Assemblies for Berth J247 (SPO 6, SPO 7, SPO 8, SPO 9): Provide all labor, material, equipment, and incidentals required to furnish, install, and test the SPO assemblies as part of a complete system as... for the lump sum price of -	Lump Sum	150,600.00	150,600.00	392,000.00	392,000.00						
ITEM NO. 40 - SPO Assemblies for Berth J266 (SPO 10, SPO 11, SPO 12, SPO 13, SPO 14, SPO 15): Provide all labor, material, equipment, and incidentals required to furnish, install, and test the SPO assemblies as part of a... for the lump sum price of -	Lump Sum	230,800.00	230,800.00	586,000.00	586,000.00						
TOTAL:											
CERTIFIED CHECK OR BOND:											

Helix Electric, Inc.	483309/Exp.11/30/2013	$25,200,000.00	
LOWEST RESPONSIBLE BIDDER	LICENSE NUMBER	AMOUNT	AUTHORIZED SIGNATURE

Port of LONG BEACH
The Green Port

ANALYSIS OF BIDS
CITY OF LONG BEACH, HARBOR DEPARTMENT

SPECIFICATIONS FOR: Shore to Ship Power Retrofit at Pier J, Berths J245-J247 and J266-J270

NO. HD-S2341

DATE OPENED: February 7, 2012

		Dynalectric 4452 Corporate Center Drive Los Alamitos, CA 90720 Phone: (714) 828-7000 Fax: (714) 484-2385		Comet Electric, Inc. 7760 Deering Avenue Canoga Park, CA 91304 Phone: (818) 340-0955 Fax: (818) 340-4033							
ITEM	ESTIMATED QUANTITIES	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT
ITEM NO. 41 - SPO Assemblies for Berth J270 (SPO 16, SPO 17, SPO 18, SPO 19, SPO 20): Provide all labor, material, equipment, and incidentals required to furnish, install, and test the SPO assemblies as part of a complete... for the lump sum price of -	Lump Sum	192,400.00	192,400.00	489,000.00	489,000.00						
ITEM NO. 42 - All Other Electrical Work for Berth J245 (SPO 1, SPO 2, SPO 3, SPO 4, SPO 5): Provide all labor, material, equipment, and incidentals required to furnish, install, and test all other electrical work for Berth... for the lump sum price of -	Lump Sum	265,250.00	265,250.00	162,000.00	162,000.00						
ITEM NO. 43 - All Other Electrical Work for Berth J247 (SPO 6, SPO 7, SPO 8, SPO 9): Provide all labor, material, equipment, and incidentals required to furnish, install, and test all other electrical work for Berth J247 as... for the lump sum price of -	Lump Sum	151,050.00	151,050.00	162,000.00	162,000.00						
ITEM NO. 44 - All Other Electrical Work for Berth J266 (SPO 10, SPO 11, SPO 12, SPO 13, SPO 14, SPO 15): Provide all labor, material, equipment, and incidentals required to furnish, install, and test all other electrical work... for the lump sum price of -	Lump Sum	183,000.00	183,000.00	194,000.00	194,000.00						
ITEM NO. 45 - All Other Electrical Work for Berth J270 (SPO 16, SPO 17, SPO 18, SPO 19, SPO 20): Provide all labor, material, equipment, and incidentals required to furnish, install, and test all other electrical work for... for the lump sum price of -	Lump Sum	158,000.00	158,000.00	176,000.00	176,000.00						
TOTAL:											
CERTIFIED CHECK OR BOND:											

Helix Electric, Inc.
LOWEST RESPONSIBLE BIDDER

483309/Exp.11/30/2013
LICENSE NUMBER

$25,200,000.00
AMOUNT

AUTHORIZED SIGNATURE

Port of LONG BEACH
The Green Port

ANALYSIS OF BIDS
CITY OF LONG BEACH, HARBOR DEPARTMENT

SPECIFICATIONS FOR: Shore to Ship Power Retrofit at Pier J, Berths J245-J247 and J266-J270

NO. HD-S2341

DATE OPENED: February 7, 2012

		Dynaelectric 4462 Corporate Center Drive Los Alamitos, CA 90720 Phone: (714) 828-7000 Fax: (714) 484-2385		Comet Electric, Inc. 7760 Deering Avenue Canoga Park, CA 91304 Phone: (818) 340-0965 Fax: (818) 340-4033							
ITEM	ESTIMATED QUANTITIES	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT
ITEM NO. 46 - All Other Work: Furnish all labor, materials, tools, equipment, and incidentals necessary to perform all other work not included in the other Bid Items as indicated in Paragraph SC-22 of the Special Conditions for the lump sum price of -	Lump Sum	2,928,804.00	2,928,804.00	12,533.00	12,533.00						
ITEM NO. 47 - Extended Contractor Overhead: Furnish all labor, material, tools, equipment, and incidentals necessary to complete the work beyond the initial Contract Time due to Excusable Compensable Delays as indicated... for the unit price per day of -	Unit Price	1,125.67	67,600.20	5,743.00	404,580.00						
ITEM NO. 48 - Standby Time: Period of time during which work is interrupted and the Contractor shall hold Contractor's labor personnel and equipment in a state of readiness as indicated in Paragraph SC-30 of the... for the unit price per man hour of -	Unit Price	305.79	1,227,160.00	800.00	3,200,000.00						
ITEM NO. 49 - Commissioning for Berths J245-J247: Furnish all labor, materials, tools, equipment, and incidentals necessary to commission Berths J245-J247 complete as specified in Section 16999 "Commissioning" for the unit price per man hour of -	Unit Price	268.50	268,500.00	269.00	269,000.00						
ITEM NO. 50 - Commissioning for Berths J266-J270: Furnish all labor, materials, tools, equipment, and incidentals necessary to commission Berths J266-J270 complete as specified in Section 16999 "Commissioning" for the unit price per man hour of -	Unit Price	268.50	268,500.00	269.00	269,000.00						
TOTAL:		$33,295,249.45		$38,770,551.20							
CERTIFIED CHECK OR BOND:		10% Bond		10% Bond							

Helix Electric, Inc.
LOWEST RESPONSIBLE BIDDER

483309/Exp.11/30/2013
LICENSE NUMBER

$25,200,000.00
AMOUNT

AUTHORIZED SIGNATURE

File: Bid Analysis HD-S2341 Bandazmeiur (rep)[BID ANALYSIS] 2/7/2012 1:23 PM

Progress Payment No. 27
Period Ending: 1/15/2015
PAYMENT DUE: 5/6/15
Specification: HD-S2341 - Shore to Ship Power Retrofit at Pier J, Berths J245-J247 and J266 - J270.
Contractor: Helix Electric, Inc.

LBHD Contract No: HD-7972
Original Bid Amt: $25,200,000

Item No.	Item	Unit	Est. Qty.	Unit Price	Bid Amount	Qty This Month	J245 $ Amount This Month	J247 $ Amount This Month	J266 $ Amount This Month	J270 $ Amount This Month	Previous Qty or %	Total % of Item Comp	TOTAL $ Amount to Date
TOTALS	TOTALCHANGE ORDERS			3,103,766.75	25,200,000.00	0%	$ 3,407.00	$ 3,407.00	$ 43,592.73	$ 43,592.73	99.67%	100.00%	$ 28,303,766.75
	NEW CONTRACT AMOUNT				28,303,766.75	WITHOLDS	-	-	-	-	-		
						RETENTION							

THIS IS TO CERTIFY THAT FUNDS ARE APPROVED BY BOARD OF HARBOR COMMISSIONERS.

MB Deepen P. Upadhyay 4/7/15
CM Initials Deepen Upadhyay, Project Manger — Date

4/9/15
Suzanne C. Plezia, P.E., Director of Construction Management — Date

Gross Earnings:	$ 28,303,766.75
Previous Payments:	$ 28,129,694.69
Previous Retention:	$ (80,072.61)
Earned This Period:	$ 93,999.45
Less Retention: E	$ (4,699.97)
AMOUNT DUE THIS ESTIMATE:	$ 89,299.48

DPHA15003141
DPHA15003145 escrow

BPO No.	INDEX CODE	PROJ	PROJ DET			Subobject Code	Amount	Retention	Pay Amount
RPHA12000174	HACACMCN	HA1316	1H2341			210009	$ 93,999.45	$ (4,699.97)	$ 89,299.48

RECEIVED BY DEEPEN UPADHYAY ON 4/6/15.

RECEIVED
P.O.L.B. FINANCE
15 APR 22 AM 11:23
ACCTS PAYABLE

Progress Payment No. 27
Period Ending: 1/15/2015
PAYMENT DUE: 5/6/15
Specification: HD-S2341 - Shore to Ship Power Retrofit at Pier J, Berths J245-J247 and J266 - J270.
Contractor: Helix Electric, Inc.

LBHD Contract No: HD-7972
Original Bid Amt: $25,200,000

Item No.	Item	Unit	Est. Qty.	Unit Price	Bid Amount	Qty This Month	J245 $ Amount This Month	J247 $ Amount This Month	J265 $ Amount This Month	J270 $ Amount This Month	Previous Qty or %	Total % of Item Comp	TOTAL $ Amount to Date
1	Progress Schedules	Lump Sum	1	100,000.00	100,000.00	0%	-	-	-	-	100%	100%	100,000.00
2	Site Specific Safety Plan	Lump Sum	1	150,000.00	150,000.00	0%	-	-	-	-	100%	100%	150,000.00
3	Furnish and Place Temporary K-Rail and Chain Link Fence	Lump Sum	1	1,400,000.00	1,400,000.00	0%	-	-	-	-	100%	100%	1,400,000.00
4	Mobilization/Demobilization	Lump Sum	1	1,200,000.00	1,200,000.00	0%	-	-	-	-	100%	100%	1,200,000.00
5	Interim Demobilization/Remobilization	Unit Price	15	9,000.00	135,000.00	0%	-	-	-	-	100%	100%	135,000.00
6	Storm Water Pollution Prevention Plan(s) (SWPPP) Development and Compliance	Lump Sum	1	300,000.00	300,000.00	0%	-	-	-	-	100%	100%	300,000.00
7	City Ordinance Construction Waste Management Plan	Lump Sum	1	10,000.00	10,000.00	0%	-	-	-	-	100%	100%	10,000.00
8	Soil Handling and Disposal, Non-Hazardous Waste	Unit Price	8,400	12.00	100,800.00	-	-	-	-	-	100%	100%	100,800.00
9	Shoring for Excavations	Lump Sum	1	150,000.00	150,000.00	0%	-	-	-	-	100%	100%	150,000.00
10	Import Soil	Unit Price	6,810	26.00	177,060.00		-	-	-	-	100%	100%	177,060.00
11	3/4-Inch Crushed Rock	Unit Price	2,500	25.00	62,500.00	-	-	-	-	-	100%	100%	62,500.00
12	Disposal of Non-Hazardous Waste	Unit Price	13,400	10.00	134,000.00	-	-	-	-	-	100%	100%	134,000.00
13	Crushed Miscellaneous Base from Port Crusher Site	Unit Price	5,680	40.00	227,200.00	-	-	-	-	-	100%	100%	227,200.00
14	Furnish and Place Pavement Striping	Unit Price	6000	2.00	12,000.00	-	-	-	-	-	100%	100%	12,000.00
15	Furnish and Place Pavement Markings	Unit Price	6000	6.00	36,000.00	-	-	-	-	-	100%	100%	36,000.00
16	Furnish and Place Chain Link Fence and Gates	Lump Sum	1	60,000.00	60,000.00	0%	-	-	-	-	100%	100%	60,000.00
17	Steel Guard Posts	Unit Price	95	1,400.00	133,000.00	-	-	-	-	-	100%	100%	133,000.00
18	Shore Power Outlet Vaults for Berth J245 (SPO 1, SPO 2, SPO 3, SPO 4, SPO 5)	Lump Sum	1	400,000.00	400,000.00	0%	-	N/A	N/A	N/A	100%	100%	400,000.00
19	Shore Power Outlet Vaults for Berth J247 (SPO 6, SPO 7, SPO 8, SPO 9)	Lump Sum	1	500,000.00	500,000.00	0%	N/A	-	N/A	N/A	100%	100%	500,000.00
20	Shore Power Outlet Vaults for Berth J266 (SPO 10, SPO 11, SPO 12, SPO 13, SPO 14, SPO 15)	Lump Sum	1	580,000.00	580,000.00	0%	N/A	N/A	-	N/A	100%	100%	580,000.00
21	Shore Power Outlet Vaults for Berth J270 (SPO 16, SPO 17, SPO 18, SPO 19, SPO 20)	Lump Sum	1	550,000.00	550,000.00	0%	N/A	N/A	N/A	-	100%	100%	550,000.00
22	Transformer(s) for Berth J245 (SPO 1, SPO 2, SPO 3, SPO 4, SPO 5)	Lump Sum	1	600,000.00	600,000.00	0%	-	N/A	N/A	N/A	100%	100%	600,000.00
23	Transformer(s) for Berth J247 (SPO 6, SPO 7, SPO 8, SPO 9)	Lump Sum	1	600,000.00	600,000.00	0%	N/A	-	N/A	N/A	100%	100%	600,000.00

Progress Payment No. 27
Period Ending: 1/15/2015
PAYMENT DUE: 5/6/15
Specification: HD-S2341 - Shore to Ship Power Retrofit at Pier J, Berths J245-J247 and J266 - J270.
Contractor: Helix Electric, Inc.

LBHD Contract No: HD-7972
Original Bid Amt: $25,200,000

Item No.	Item	Unit	Est. Qty.	Unit Price	Bid Amount	Qty This Month	J245 $ Amount This Month	J247 $ Amount This Month	J266 $ Amount This Month	J270 $ Amount This Month	Previous Qty or %	Total % of Item Comp	TOTAL $ Amount to Date
24	Transformer(s) for Berth J266 (SPO 10, SPO 11, SPO 12, SPO 13, SPO 14, SPO 15)	Lump Sum	1	600,000.00	600,000.00	0%	N/A	N/A	-	N/A	100%	100%	600,000.00
25	Transformers for Berth J270 (SPO 16, SPO 17, SPO 18, SPO 19, SPO 20)	Lump Sum	1	600,000.00	600,000.00	0%	N/A	N/A	N/A	-	100%	100%	600,000.00
26	Switchgear Assembly(s) for Berth J245 (SPO 1, SPO 2, SPO 3, SPO 4, SPO 5)	Lump Sum	1	1,112,440.00	1,112,440.00	0%	-	N/A	N/A	N/A	100%	100%	1,112,440.00
27	Switchgear Assembly(s) for Berth J247 (SPO 6, SPO 7, SPO 8, SPO 9)	Lump Sum	1	1,000,000.00	1,000,000.00	0%	N/A	-	N/A	N/A	100%	100%	1,000,000.00
28	Switchgear Assembly(s) for Berth J266 (SPO 10, SPO 11, SPO 12, SPO 13, SPO 14, SPO 15)	Lump Sum	1	2,000,000.00	2,000,000.00	0%	N/A	N/A	-	N/A	100%	100%	2,000,000.00
29	Switchgear Assembly(s) for Berth J270 (SPO 16, SPO 17, SPO 18, SPO 19, SPO 20)	Lump Sum	1	2,200,000.00	2,200,000.00	0%	N/A	N/A	N/A	-	100%	100%	2,200,000.00
30	Ductbank and Raceways for Berth J245 (SPO 1, SPO 2, SPO 3, SPO 4, SPO 5)	Lump Sum	1	1,500,000.00	1,500,000.00	0%	-	N/A	N/A	N/A	100%	100%	1,500,000.00
31	Ductbank and Raceways for Berth J247 (SPO 6, SPO 7, SPO 8, SPO 9)	Lump Sum	1	1,500,000.00	1,500,000.00	0%	N/A	-	N/A	N/A	100%	100%	1,500,000.00
32	Ductbank and Raceways for Berth J266 (SPO 10, SPO 11, SPO 12, SPO 13, SPO 14, SPO 15)	Lump Sum	1	2,000,000.00	2,000,000.00	0%	N/A	N/A	-	N/A	100%	100%	2,000,000.00
33	Ductbank and Raceways for Berth J270 (SO 16, SPO 17, SPO 18, SPO 19, SPO 20)	Lump Sum	1	1,500,000.00	1,500,000.00	0%	N/A	N/A	N/A	-	100%	100%	1,500,000.00
34	Conductors for Berth J245 (SPO 1, SPO 2, SPO 3, SPO 4, SPO 5)	Lump Sum	1	400,000.00	400,000.00	0%	-	N/A	N/A	N/A	100%	100%	400,000.00
35	Conductors for Berth J247 (SPO 6, SPO 7, SPO 8, SPO 9)	Lump Sum	1	200,000.00	200,000.00	0%	N/A	-	N/A	N/A	100%	100%	200,000.00
36	Conductors for Berth J266 (SPO 10, SPO 11, SPO 12, SPO 13, SPO 14, SPO 15)	Lump Sum	1	500,000.00	500,000.00	0%	N/A	N/A	-	N/A	100%	100%	500,000.00
37	Conductors for Berth J270 (SPO 16, SPO 17, SPO 18, SPO 19, SPO 20)	Lump Sum	1	400,000.00	400,000.00	0%	N/A	N/A	-	-	100%	100%	400,000.00
38	SPO Assemblies for Berth J245 (SPO 1, SPO 2, SPO 3, SPO 4, SPO 5)	Lump Sum	1	150,000.00	150,000.00	0%	-	N/A	N/A	N/A	100%	100%	150,000.00
39	SPO Assemblies for Berth J247 (SPO 6, SPO 7, SPO 8, SPO 9)	Lump Sum	1	100,000.00	100,000.00	0%	N/A	-	N/A	N/A	100%	100%	100,000.00
40	SPO Assemblies for Berth J266 (SPO 10, SPO 11, SPO 12, SPO 13, SPO 14, SPO 15)	Lump Sum	1	170,000.00	170,000.00	0%	N/A	N/A	-	N/A	100%	100%	170,000.00
41	SPO Assemblies for Berth J270 (SPO 16, SPO 17, SPO 18, SPO 19, SPO 20)	Lump Sum	1	150,000.00	150,000.00	0%	N/A	N/A	N/A	-	100%	100%	150,000.00
42	All Other Electrical Work for Berth J245 (SPO 1, SPO 2, SPO 3, SPO 4, SPO 5)	Lump Sum	1	150,000.00	150,000.00	0%	-	N/A	N/A	N/A	100%	100%	150,000.00
43	All Other Electrical Work for Berth J247 (SPO 6, SPO 7, SPO 8, SPO 9)	Lump Sum	1	150,000.00	150,000.00	0%	N/A	-	N/A	N/A	100%	100%	150,000.00
44	All Other Electrical Work for Berth J266 (SPO 10, SPO 11, SPO 12, SPO 13, SPO 14, SPO 15)	Lump Sum	1	150,000.00	150,000.00	0%	N/A	N/A	-	N/A	100%	100%	150,000.00
45	All Other Electrical Work for Berth J270 (SPO 16, SPO 17, SPO 18, SPO 19, SPO 20)	Lump Sum	1	150,000.00	150,000.00	0%	N/A	N/A	N/A	-	100%	100%	150,000.00

Progress Payment No. 27
Period Ending: 1/15/2015
PAYMENT DUE: 5/6/15
Specification: HD-S2341 - Shore to Ship Power Retrofit at Pier J, Berths J245-J247 and J266 - J270.
Contractor: Helix Electric, Inc.

LBHD Contract No: HD-7972
Original Bid Amt: $25,200,000

Item No.	Item	Unit	Est. Qty.	Unit Price	Bid Amount	Qty This Month	J245 $ Amount This Month	J247 $ Amount This Month	J266 $ Amount This Month	J270 $ Amount This Month	Previous Qty or %	Total % of Item Comp	TOTAL $ Amount to Date
46	All Other Work	Lump Sum	1	200,000.00	200,000.00	0%	-	-	-	-	100%	100%	200,000.00
47	Extended Contractor Overhead	Unit Price	60	1,000.00	60,000.00	-	-	-	-	-	100%	100%	60,000.00
48	Standby Time	Unit Price	4000	60.00	240,000.00	-	-	-	-	-	100%	100%	240,000.00
49	Commissioning for Berths J245-J247	Unit Price	1000	200.00	200,000.00	-	88,850.00	88,850.00	N/A	N/A	100%	100%	200,000.00
50	Commissioning for Berths J266-J270	Unit Price	1000	200.00	200,000.00	843	N/A	N/A	84,300.00	84,300.00	100%	100%	200,000.00
	CHANGE ORDER #1 - TIME EXT												
	CHANGE ORDER #2- R14A - ACCELERATION	Lump Sum	1	60,000.00		0%	-	-	-	-	100%	100%	60,000.00
	CHANGE ORDER # 2 - SCE GROUNDING	Lump Sum	1	10,427.00		0%	-	-	-	-	100%	100%	10,427.00
	CHANGE ORDER # 3	Lump Sum	1	61,497.00		0%	-	-	-	-	100%	100%	61,497.00
	CHANGE ORDER # 4	Lump Sum	1	1,371,684.00		0%	-	-	-	-	100%	100%	1,371,684.00
	CHANGE ORDER #5	Lump Sum	1	(11,053.00)		0%	-	-	-	-	100%	100%	(11,053.00)
	CHANGE ORDER # 6	Lump Sum	1	75,000.00		0%	-	-	-	-	100%	100%	75,000.00
	CHANGE ORDER # 7	Lump Sum	1	88,932.00		0%	N/A	N/A	-	-	100%	100%	88,932.00
	CHANGE ORDER # 8	Lump Sum	1	58,720.00		0%			N/A	N/A	100%	100%	58,719.98
	CHANGE ORDER # 9	Lump Sum	1	59,147.00		0%	-	-	-	-	100%	100%	59,147.00
	CHANGE ORDER # 10	Lump Sum	1	57,179.00		0%	-	-	-	-	100%	100%	57,179.00
	CHANGE ORDER #11	Lump Sum	1	24,752.00		0%	-	-	-	-	100%	100%	24,752.00
	CHANGE ORDER #12	Lump Sum	1	1,621,113.00		5%	-		40,185.73	40,185.73	95%	100%	1,621,113.06
	CHANGE ORDER #13	Lump Sum	1	(38,959.25)		0%	-	-		-	100%	100%	(38,959.29)
	CHANGE ORDER #14	Lump Sum	1	(332,672.00)		100%	(85,443.00)	(85,443.00)	(80,893.00)	(80,893.00)	100%	100%	(332,672.00)

Project & Grant Revenue/Expenditure Financial Summary

Criteria: As Of = 3/21/2019 (47% of Year Elapsed)

Vendor	Title	ITD Adjusted Budget	Month-To-Date Actual Activity	Quarter-To-Date Actual Activity	ITD Actual	ITD Encumbrance Incl Pre-Encumb	ITD Adjusted Budget - Actuals	ITD % Actuals to Adjusted Budget
Project HA1316 - CLOSED- NCK-PIER J 243-270 SHORE TO SHIP								
1B2341 -- 1B2341/ENV PLANNING/SHORE TO SHIP PWR								
(None)	(None)	755.27	0.00	0.00	239.31	0.00	515.96	31.7%
V046804	SOUTH COAST AIR QUALITY MANAGEMENT	0.00	0.00	0.00	515.96	0.00	(515.96)	0.0%
Total Project Detail 1B2341/ENV PLANNING/SHORE TO SHIP PWR		755.27	0.00	0.00	755.27	0.00	0.00	100.0%
1C2341 -- 1C2341/DESIGN/SHORE TO SHIP POWER								
(None)	(None)	5,780,229.59	0.00	0.00	597,829.78	0.00	5,182,399.81	10.3%
V051095	AMERICAN REPROGRAPHICS COMPANY	0.00	0.00	0.00	4,141.89	0.00	(4,141.89)	0.0%
V054954	BIGGS CARDOSA ASSOCIATES INC	0.00	0.00	0.00	50,735.00	0.00	(50,735.00)	0.0%
V054853	C BELOW INC	0.00	0.00	0.00	5,500.00	0.00	(5,500.00)	0.0%
V005746	CADSTAR INC	0.00	0.00	0.00	6,820.00	0.00	(6,820.00)	0.0%
V047448	EASTERN GROUP PUBLICATION INC	0.00	0.00	0.00	1,168.50	0.00	(1,168.50)	0.0%
V046782	JOHNSON-FRANK & ASSOC INC	0.00	0.00	0.00	26,604.56	0.00	(26,604.56)	0.0%
V041706	KPFF CONSULTING ENGINEERS	0.00	0.00	0.00	97,429.59	0.00	(97,429.59)	0.0%
V021514	LONG BEACH PUBLISHING COMPANY	0.00	0.00	0.00	2,945.70	0.00	(2,945.70)	0.0%
V002113	LONG BEACH TIMES NEWSPAPER INC	0.00	0.00	0.00	4,286.08	0.00	(4,286.08)	0.0%
V030466	OUR WEEKLY LLC	0.00	0.00	0.00	1,000.00	0.00	(1,000.00)	0.0%
V025229	P2S INC	0.00	0.00	0.00	4,306,690.08	0.00	(4,306,690.08)	0.0%
V012651	PIRNIE, MALCOLM INC	0.00	0.00	0.00	72,104.52	0.00	(72,104.52)	0.0%
V025943	SAF-R-DIG UTILITY SURVEYS, INC	0.00	0.00	0.00	37,823.08	0.00	(37,823.08)	0.0%
V045271	TMAD TAYLOR & GAINES ENGINEERS	0.00	0.00	0.00	106,154.00	0.00	(106,154.00)	0.0%
V043513	URS CORPORATION	0.00	0.00	0.00	461,953.91	0.00	(461,953.91)	0.0%
Total Project Detail 1C2341/DESIGN/SHORE TO SHIP POWER		5,780,229.59	0.00	0.00	5,783,186.69	0.00	(2,957.10)	100.1%
1H2341 -- FUNDING FOR S.C.E.								
(None)	(None)	43,929,507.56	0.00	0.00	1,768,774.28	0.00	42,160,733.28	4.0%
V051095	AMERICAN REPROGRAPHICS COMPANY	0.00	0.00	0.00	23,325.95	0.00	(23,325.95)	0.0%
V035098	ARCADIS US INC	0.00	0.00	0.00	1,015.00	0.00	(1,015.00)	0.0%
V054954	BIGGS CARDOSA ASSOCIATES INC	0.00	0.00	0.00	7,000.00	0.00	(7,000.00)	0.0%
V046257	BUBALO, STEVE CONSTRUCTION COMPANY	0.00	0.00	0.00	77,220.84	0.00	(77,220.84)	0.0%
V050028	COMPUTER 1 PRODUCTS OF AMERICA INC	0.00	0.00	0.00	4,087.90	0.00	(4,087.90)	0.0%
V060783	CRISP ENTERPRISES	0.00	0.00	0.00	81.75	0.00	(81.75)	0.0%
V042936	CUTTING EDGE CONCRETE SERVICES INC	0.00	0.00	0.00	1,598.94	0.00	(1,598.94)	0.0%
V037752	D WOOLLEY & ASSOCIATES INC	0.00	0.00	0.00	9,577.50	0.00	(9,577.50)	0.0%
V045696	EDISON ESI	0.00	0.00	0.00	7,490,000.00	0.00	(7,490,000.00)	0.0%
V044431	GRIFFITH COMPANY	0.00	0.00	0.00	516,058.52	0.00	(516,058.52)	0.0%
V024035	HELIX ELECTRIC INC	0.00	0.00	0.00	28,303,766.78	0.00	(28,303,766.78)	0.0%
V006703	IMPREST - HA ADMIN CKG ACCT	0.00	0.00	0.00	138.84	0.00	(138.84)	0.0%
V062479	KCEI CONSTRUCTION INC	0.00	0.00	0.00	90,000.00	0.00	(90,000.00)	0.0%
V025942	KOURY ENGINEERING & TESTING INC	0.00	0.00	0.00	180,342.50	0.00	(180,342.50)	0.0%
V024652	LOVCO CONSTRUCTION INC	0.00	0.00	0.00	227.69	0.00	(227.69)	0.0%
V053486	NETWORK INTEGRATION COMPANY PARTNERS	0.00	0.00	0.00	372.14	0.00	(372.14)	0.0%
V025229	P2S INC	0.00	0.00	0.00	1,061,424.53	0.00	(1,061,424.53)	0.0%
V039001	PACIFIC EH&S SERVICES INC	0.00	0.00	0.00	30,293.78	0.00	(30,293.78)	0.0%

Criteria: Revenue/Expenditure = E; Project = HA1316; Project Detail = !90

Project & Grant Revenue/Expenditure Financial Summary

Criteria: As Of = 3/21/2019 (47% of Year Elapsed)

Vendor	Title	ITD Adjusted Budget	Month-To-Date Actual Activity	Quarter-To-Date Actual Activity	ITD Actual	ITD Encumbrance incl Pre-Encumb	ITD Adjusted Budget - Actuals	ITD % Actuals to Adjusted Budget
Project HA1316 - CLOSED- NCK-PIER J 243-270 SHORE TO SHIP								
1H2341 -- FUNDING FOR S.C.E.								
V053796	PACIFIC PRODUCTS & SERVICES INC	0.00	0.00	0.00	1,075.06	0.00	(1,075.06)	0.0%
V048468	PC SPECIALISTS INC	0.00	0.00	0.00	4,804.59	0.00	(4,804.59)	0.0%
V021557	SHI INTERNATIONAL CORPORATION	0.00	0.00	0.00	222.08	0.00	(222.08)	0.0%
V026541	SIMPLUS MANAGEMENT COMPANY, LLC	0.00	0.00	0.00	52,852.80	0.00	(52,852.80)	0.0%
V044553	SMITH EMERY CORP	0.00	0.00	0.00	1,923.40	0.00	(1,923.40)	0.0%
V046804	SOUTH COAST AIR QUALITY MANAGEMENT	0.00	0.00	0.00	1,058.94	0.00	(1,058.94)	0.0%
V044555	SOUTHERN CALIFORNIA EDISON COMPANY	0.00	0.00	0.00	1,500,000.00	0.00	(1,500,000.00)	0.0%
V045074	TWINING INC	0.00	0.00	0.00	5,527.50	0.00	(5,527.50)	0.0%
V043513	URS CORPORATION	0.00	0.00	0.00	4,893.75	0.00	(4,893.75)	0.0%
V047884	VANIR CONSTRUCTION MANAGEMENT INC	0.00	0.00	0.00	2,788,885.09	0.00	(2,788,885.09)	0.0%
V012285	WSP USA INC	0.00	0.00	0.00	3,062.60	0.00	(3,062.60)	0.0%
Total Project Detail FUNDING FOR S.C.E.		43,929,507.56	0.00	0.00	43,929,612.75	0.00	(105.19)	100.0%
Total Project HA1316		49,710,492.42	0.00	0.00	49,713,554.71	0.00	(3,062.29)	100.0%
Total		49,710,492.42	0.00	0.00	49,713,554.71	0.00	(3,062.29)	100.0%

Port of LONG BEACH
The Green Port

ANALYSIS OF BIDS
CITY OF LONG BEACH, HARBOR DEPARTMENT

SPECIFICATIONS FOR: Shore to Ship Power Project at Pier T, Berths T132-T140 | **NO. HD-S2348** | **DATE OPENED: February 14, 2012**

		The Ryan Company 15 Commerce Way Norton, MA 02766 Phone: (508) 742-2500 Fax: (508) 742-2540		Minako dba Minco Construction 522 E. Airline Way Gardena, CA 90248 Phone: (310) 516-8100 Fax: (310) 516-7404		Veliutini Corp dba Royal Electric 8481 Carbide Ct Sacramento, CA 95828 Phone: (916) 226-2100 Fax: (916) 226-2150		KDC, Inc. dba Dynalectric 4462 Corporate Center Drive Los Alamitos, CA 90720 Phone: (714) 828-7000 Fax: (714) 484-2384		Sully-Miller Contracting Company 135 S. State College Blvd #400 Brea, CA 92821 Phone: (714) 578-9600 Fax: (714) 449-8775	
ITEM	ESTIMATED QUANTITIES	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT
ITEM NO. 1 - Mobilization and Demobilization: Furnish all labor, materials, power, equipment, tools, transportation and supervision necessary to perform mobilization and demobilization, as shown and specified (including, but... for the lump sum price of -	Lump Sum	1,161,050.43	1,161,050.43	70,000.00	70,000.00	320,000.00	320,000.00	600,000.00	600,000.00	663,864.00	663,864.00
ITEM NO. 2 - Excavation Support Systems: Per Section 6707 of the California Labor Code, furnish all labor, materials, power, equipment, tools, transportation and supervision necessary to provide bracing... for the lump sum price of (not less than $10,000)	Lump Sum	18,240.49	18,240.49	15,000.00	15,000.00	52,000.00	52,000.00	11,000.00	11,000.00	106,001.00	106,001.00
ITEM NO. 3 - SWPPP Development and Compliance: Furnish all labor, materials, power, equipment, tools, transportation and supervision necessary to develop the Stormwater Pollution Prevention Plan and... for the lump sum price of (not less than $10,000)	Lump Sum	16,772.86	16,772.86	50,000.00	50,000.00	68,000.00	68,000.00	60,000.00	60,000.00	12,878.00	12,878.00
ITEM NO. 4 - Demolition of Chain Link Fence and Gates, Bollards, and Paving: Furnish all labor, materials, power, equipment, tools, transportation and supervision necessary to remove existing 8-foot chain link fence and... for the lump sum price of -	Lump Sum	33,632.23	33,632.23	177,000.00	177,000.00	66,000.00	66,000.00	187,000.00	187,000.00	179,589.00	179,589.00
ITEM NO. 5 - Soil Handling and Disposal, Non-Hazardous Waste: Furnish all labor, materials, power, equipment, tools, transportation and supervision necessary to handle and dispose of approximately the estimated... for the unit price per ton of -	Unit Price	40.26	106,085.10	50.00	131,750.00	48.00	126,480.00	83.61	220,312.35	28.60	75,361.00
TOTAL:											
CERTIFIED CHECK OR BOND:											

The Ryan Company
LOWEST RESPONSIBLE BIDDER

774698/Exp. 02/28/2014
LICENSE NUMBER

$20,559,112.22
AMOUNT

AUTHORIZED SIGNATURE

Port of LONG BEACH
The Green Port

ANALYSIS OF BIDS
CITY OF LONG BEACH, HARBOR DEPARTMENT

SPECIFICATIONS FOR: Shore to Ship Power Project at Pier T, Berths T132-T140

NO. HD-S2348

DATE OPENED: February 14, 2012

		The Ryan Company 15 Commerce Way Norton, MA 02766 Phone: (508) 742-2500 Fax: (508) 742-2540		Minako dba Minco Construction 522 E. Airline Way Gardena, CA 90248 Phone: (310) 516-8100 Fax: (310) 516-7404		Vellutini Corp dba Royal Electric 8481 Carbide Ct Sacramento, CA 95828 Phone: (916) 226-2100 Fax: (916) 226-2150		KDC, Inc. dba Dynalectric 4462 Corporate Center Drive Los Alamitos, CA 90720 Phone: (714) 828-7000 Fax: (714) 484-2384		Sully-Miller Contracting Company 135 S. State College Blvd #400 Brea, CA 92821 Phone: (714) 578-9600 Fax: (714) 449-8775	
ITEM	ESTIMATED QUANTITIES	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT
ITEM NO. 6 - Soil Handling and Reuse, Fill Material: Furnish all labor, materials, power, equipment, tools, transportation and supervision necessary to handle and dispose as backfill approximately the... for the unit price per cubic yard of -	Unit Price	22.36	136,843.20	50.00	306,000.00	44.00	269,280.00	45.66	279,439.20	45.20	276,624.00
ITEM NO. 7 - Import Material: Furnish all labor, materials, power, equipment, tools, transportation and supervision necessary to load, haul, place and compact as backfill approximately the estimated quantity of import... for the unit price per ton of -	Unit Price	15.66	9,396.00	20.00	12,000.00	29.00	17,400.00	38.51	23,106.00	39.16	23,496.00
ITEM NO. 8 - 8-Foot Chain Link Fence with Barbed Wire: Furnish all labor, materials, power, equipment, tools, transportation and supervision necessary to furnish and install approximately the estimated quantity of... for unit price per linear foot of -	Unit Price	44.73	33,547.50	100.00	75,000.00	50.00	37,500.00	55.01	41,257.50	49.20	36,900.00
ITEM NO. 9 - Chain Link Single Gate with Barbed Wire: Furnish all labor, materials, power, equipment, tools, transportation and supervision necessary to provide and install approximately the estimated quantity of chain... for the unit price per each of -	Unit Price	670.92	7,380.12	1,000.00	11,000.00	930.00	10,230.00	990.18	10,891.98	1,455.00	16,005.00
ITEM NO. 10 - Chain Link Double Gates with Barbed Wire: Furnish all labor, materials, power, equipment, tools, transportation and supervision necessary to provide and install approximately the estimated quantity of chain... for the unit price per each of -	Unit Price	1,677.29	6,709.16	1,000.00	4,000.00	2,130.00	8,520.00	2,750.50	11,002.00	2,909.00	11,636.00
TOTAL:											
CERTIFIED CHECK OR BOND:											

The Ryan Company	**774698/Exp. 02/28/2014**	**$20,559,112.22**	
LOWEST RESPONSIBLE BIDDER	LICENSE NUMBER	AMOUNT	AUTHORIZED SIGNATURE

Port of LONG BEACH
The Green Port

ANALYSIS OF BIDS
CITY OF LONG BEACH, HARBOR DEPARTMENT

SPECIFICATIONS FOR: Shore to Ship Power Project at Pier T, Berths T132-T140

NO. HD-S2348

DATE OPENED: February 14, 2012

		The Ryan Company 15 Commerce Way Norton, MA 02766 Phone: (508) 742-2500 Fax: (508) 742-2540		Minako dba Minco Construction 522 E. Airline Way Gardena, CA 90248 Phone: (310) 516-8100 Fax: (310) 516-7404		Vellutini Corp dba Royal Electric 8481 Carbide Ct Sacramento, CA 95828 Phone: (916) 226-2100 Fax: (916) 226-2150		KDC, Inc. dba Dynalectric 4452 Corporate Center Drive Los Alamitos, CA 90720 Phone: (714) 828-7000 Fax: (714) 484-2384		Sully-Miller Contracting Company 135 S. State College Blvd #400 Brea, CA 92821 Phone: (714) 578-9600 Fax: (714) 449-8775	
ITEM	ESTIMATED QUANTITIES	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT
ITEM NO. 11 - Pipe Bollards, 12-Inch: Furnish all labor, materials, power, equipment, tools, transportation and supervision necessary to provide and install approximately the estimated quantity of 12-inch diameter pipe... for the unit price per each of -	Unit Price	1,341.83	183,630.71	1,770.00	242,490.00	1,570.00	215,090.00	2,090.31	286,372.47	2,338.00	320,306.00
ITEM NO. 12 - Removable Pipe Bollards, 12-Inch: Furnish all labor, materials, power, equipment, tools, transportation and supervision necessary to provide and install approximately the estimated quantity of 12-inch... for the unit price per each of -	Unit Price	1,677.29	41,932.25	3,700.00	92,500.00	1,410.00	35,250.00	3,502.52	87,563.00	3,435.00	85,875.00
ITEM NO. 13 - Shallow Pipe Bollards, 12-Inch: Furnish all labor, materials, power, equipment, tools, transportation and supervision necessary to provide and install approximately the estimated quantity of 12-inch... for the unit price per each of -	Unit Price	1,341.83	42,938.56	1,770.00	56,640.00	1,570.00	50,240.00	3,190.47	102,095.04	3,172.00	101,504.00
ITEM NO. 14 - New Pavement Striping and Markings: Furnish all labor, materials, power, equipment, tools, transportation and supervision necessary to install new paint striping and markings, complete as shown and specified and... for the lump sum price of -	Lump Sum	8,386.43	8,386.43	7,000.00	7,000.00	6,600.00	6,600.00	14,000.00	14,000.00	3,133.00	3,133.00
ITEM NO. 15 - Replacement of Existing Pavement Striping: Furnish all labor, materials, power, equipment, tools, transportation and supervision necessary to replace approximately the estimated quantity of existing... for the unit price per linear foot of -	Unit Price	0.95	3,325.00	1.00	3,500.00	0.85	2,975.00	1.10	3,850.00	0.73	2,555.00
TOTAL:											
CERTIFIED CHECK OR BOND:											

The Ryan Company
LOWEST RESPONSIBLE BIDDER

774698/Exp. 02/28/2014
LICENSE NUMBER

$20,559,112.22
AMOUNT

AUTHORIZED SIGNATURE

Port of LONG BEACH
The Green Port

ANALYSIS OF BIDS
CITY OF LONG BEACH, HARBOR DEPARTMENT

SPECIFICATIONS FOR: Shore to Ship Power Project at Pier T, Berths T132-T140

NO. HD-S2348

DATE OPENED: February 14, 2012

		The Ryan Company 15 Commerce Way Norton, MA 02766 Phone: (508) 742-2500 Fax: (508) 742-2540		Minako dba Minco Construction 522 E. Airline Way Gardena, CA 90248 Phone: (310) 516-8100 Fax: (310) 516-7404		Vellutini Corp dba Royal Electric 8481 Carbide Ct Sacramento, CA 95828 Phone: (916) 226-2100 Fax: (916) 226-2150		KDC, Inc. dba Dynalectric 4462 Corporate Center Drive Los Alamitos, CA 90720 Phone: (714) 828-7000 Fax: (714) 484-2384		Sully-Miller Contracting Company 135 S. State College Blvd #400 Brea, CA 92821 Phone: (714) 578-9600 Fax: (714) 449-8775	
ITEM	ESTIMATED QUANTITIES	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT
ITEM NO. 16 - Removal of Existing Pavement Striping: Furnish all labor, materials, power, equipment, tools, transportation and supervision necessary to replace and remove approximately the estimated quantity of... for the unit price per linear foot of -	Unit Price	9.51	1,141.20	10.00	1,200.00	8.90	1,068.00	55.01	6,601.20	16.80	2,016.00
ITEM NO. 17 - Relocation of Water Lines and Power/Telephone/Water ("PTW") Vaults: Furnish all labor, materials, power, equipment, tools, transportation and supervision necessary to relocate water lines and PTW vaults... for the lump sum price of -	Lump Sum	26,836.58	26,836.58	70,000.00	70,000.00	76,000.00	76,000.00	48,000.00	48,000.00	81,692.00	81,692.00
ITEM NO. 18 - Transformers (for Berth 140 as noted in Special Condition SC-25): Furnish all labor, materials, power, equipment, tools, transportation and supervision necessary to provide, install and connect one (1) medium... for the lump sum price of -	Lump Sum	709,593.23	709,593.23	677,000.00	677,000.00	680,000.00	680,000.00	694,000.00	694,000.00	728,653.00	728,653.00
ITEM NO. 19 - Transformers (for Berth 138 as noted in Special Condition SC-25): Furnish all labor, materials, power, equipment, tools, transportation and supervision necessary to provide, install and connect one (1) medium... for the lump sum price of -	Lump Sum	709,593.23	709,593.23	677,000.00	677,000.00	680,000.00	680,000.00	694,000.00	694,000.00	728,653.00	728,653.00
ITEM NO. 20 - Transformers (for Berth 136 as noted in Special Condition SC-25): Furnish all labor, materials, power, equipment, tools, transportation and supervision necessary to provide, install and connect one (1) medium... for the lump sum price of -	Lump Sum	709,593.23	709,593.23	677,000.00	677,000.00	680,000.00	680,000.00	694,000.00	694,000.00	728,653.00	728,653.00
TOTAL:											
CERTIFIED CHECK OR BOND:											

The Ryan Company
LOWEST RESPONSIBLE BIDDER

774698/Exp. 02/28/2014
LICENSE NUMBER

$20,559,112.22
AMOUNT

AUTHORIZED SIGNATURE

Port of LONG BEACH
The Green Port

ANALYSIS OF BIDS
CITY OF LONG BEACH, HARBOR DEPARTMENT

SPECIFICATIONS FOR: Shore to Ship Power Project at Pier T, Berths T132-T140

NO. HD-S2348

DATE OPENED: February 14, 2012

		The Ryan Company 15 Commerce Way Norton, MA 02766 Phone: (508) 742-2500 Fax: (508) 742-2540		Minako dba Minco Construction 522 E. Airline Way Gardena, CA 90248 Phone: (310) 516-8100 Fax: (310) 516-7404		Vellutini Corp dba Royal Electric 8481 Carbide Ct Sacramento, CA 95828 Phone: (916) 226-2100 Fax: (916) 226-2150		KDC, Inc. dba Dynalectric 4462 Corporate Center Drive Los Alamitos, CA 90720 Phone: (714) 828-7000 Fax: (714) 484-2384		Sully-Miller Contracting Company 135 S. State College Blvd #400 Brea, CA 92821 Phone: (714) 578-9600 Fax: (714) 449-8775	
ITEM	ESTIMATED QUANTITIES	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT
ITEM NO. 21 - Transformers (for Berth 132-134 as noted in Special Condition SC-25): Furnish all labor, materials, power, equipment, tools, transportation and supervision necessary to provide, install and connect one (1)... for the lump sum price of -	Lump Sum	709,593.23	709,593.23	677,000.00	677,000.00	680,000.00	680,000.00	694,000.00	694,000.00	728,653.00	728,653.00
ITEM NO. 22 - Switchgear Assembly(s) (for Berth 140 as noted in Special Condition SC-25): Furnish all labor, materials, power, equipment, tools, transportation and supervision necessary to provide, install and connect two (2)... for the lump sum price of -	Lump Sum	3,939,255.79	3,939,255.79	3,777,000.00	3,777,000.00	4,125,000.00	4,125,000.00	3,876,000.00	3,876,000.00	3,975,075.00	3,975,075.00
ITEM NO. 23 - Switchgear Assembly(s) (for Berth 138 as noted in Special Condition SC-25): Furnish all labor, materials, power, equipment, tools, transportation and supervision necessary to provide, install and connect one (1)... for the lump sum price of -	Lump Sum	1,921,221.76	1,921,221.76	2,077,700.00	2,077,700.00	1,830,000.00	1,830,000.00	1,890,000.00	1,890,000.00	2,019,779.00	2,019,779.00
ITEM NO. 24 - Switchgear Assembly(s) (for Berth 136 as noted in Special Condition SC-25): Furnish all labor, materials, power, equipment, tools, transportation and supervision necessary to provide, install and connect one (1)... for the lump sum price of -	Lump Sum	1,779,834.87	1,779,834.87	1,777,000.00	1,777,000.00	1,694,000.00	1,694,000.00	1,750,000.00	1,750,000.00	1,851,000.00	1,851,000.00
ITEM NO. 25 - Switchgear Assembly(s) (for Berth 132-134 as noted in Special Condition SC-25): Furnish all labor, materials, power, equipment, tools, transportation and supervision necessary to provide, install and connect one... for the lump sum price of -	Lump Sum	2,105,417.86	2,105,417.86	2,100,000.00	2,100,000.00	2,007,000.00	2,007,000.00	2,073,220.00	2,073,220.00	2,202,840.00	2,202,840.00
TOTAL:											
CERTIFIED CHECK OR BOND:											

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ANALYSIS OF BIDS
CITY OF LONG BEACH, HARBOR DEPARTMENT

SPECIFICATIONS FOR: Shore to Ship Power Project at Pier T, Berths T132-T140

NO. HD-S2348

DATE OPENED: February 14, 2012

		The Ryan Company 15 Commerce Way Norton, MA 02766 Phone: (508) 742-2500 Fax: (508) 742-2540		Minako dba Minco Construction 522 E. Airline Way Gardena, CA 90248 Phone: (310) 516-8100 Fax: (310) 516-7404		Vellutini Corp dba Royal Electric 8481 Carbide Ct Sacramento, CA 95828 Phone: (916) 226-2100 Fax: (916) 226-2150		KDC, Inc. dba Dynalectric 4462 Corporate Center Drive Los Alamitos, CA 90720 Phone: (714) 828-7000 Fax: (714) 484-2384		Sully-Miller Contracting Company 135 S. State College Blvd #400 Brea, CA 92821 Phone: (714) 578-9600 Fax: (714) 449-8775	
ITEM	ESTIMATED QUANTITIES	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT
ITEM NO. 26 - Ductbanks and Raceways (for Berth 140 as noted in Special Condition SC-25): Furnish all labor, materials, power, equipment, tools, transportation and supervision necessary to construct a complete and functioning... for the lump sum price of -	Lump Sum	349,501.65	349,501.65	717,000.00	717,000.00	645,000.00	645,000.00	621,000.00	621,000.00	491,569.00	491,569.00
ITEM NO. 27 - Ductbanks and Raceways (for Berth 138 as noted in Special Condition SC-25): Furnish all labor, materials, power, equipment, tools, transportation and supervision necessary to construct a complete and functioning... for the lump sum price of -	Lump Sum	599,461.62	599,461.62	337,000.00	337,000.00	710,000.00	710,000.00	590,000.00	590,000.00	707,185.00	707,185.00
ITEM NO. 28 - Ductbanks and Raceways (for Berth 136 as noted in Special Condition SC-25): Furnish all labor, materials, power, equipment, tools, transportation and supervision necessary to construct a complete and functioning... for the lump sum price of -	Lump Sum	394,105.50	394,105.50	437,000.00	437,000.00	492,000.00	492,000.00	471,000.00	471,000.00	532,209.00	532,209.00
ITEM NO. 29 - Ductbanks and Raceways (for Berth 132-134 as noted in Special Condition SC-25): Furnish all labor, materials, power, equipment, tools, transportation and supervision necessary to construct a complete and... for the lump sum price of -	Lump Sum	765,573.51	765,573.51	737,000.00	737,000.00	833,000.00	833,000.00	845,621.00	845,621.00	999,980.00	999,980.00
ITEM NO. 30 - Conductors (for Berth 140 as noted in Special Condition SC-25): Furnish all labor, materials, power, equipment, tools, transportation and supervision necessary to provide, install and connect all conductors and... for the lump sum price of -	Lump Sum	413,138.96	413,138.96	277,000.00	277,000.00	1,312,000.00	1,312,000.00	1,045,000.00	1,045,000.00	769,437.00	769,437.00
TOTAL:											
CERTIFIED CHECK OR BOND:											

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ANALYSIS OF BIDS
CITY OF LONG BEACH, HARBOR DEPARTMENT

SPECIFICATIONS FOR: Shore to Ship Power Project at Pier T, Berths T132-T140

NO. HD-S2348

DATE OPENED: February 14, 2012

		The Ryan Company 15 Commerce Way Norton, MA 02766 Phone: (508) 742-2500 Fax: (508) 742-2540		Minako dba Minco Construction 522 E. Airline Way Gardena, CA 90248 Phone: (310) 516-8100 Fax: (310) 516-7404		Vellutini Corp dba Royal Electric 8481 Carbide Ct Sacramento, CA 95828 Phone: (916) 226-2100 Fax: (916) 226-2150		KDC, Inc. dba Dynalectric 4462 Corporate Center Drive Los Alamitos, CA 90720 Phone: (714) 828-7000 Fax: (714) 484-2384		Sully-Miller Contracting Company 135 S. State College Blvd #400 Brea, CA 92821 Phone: (714) 578-9600 Fax: (714) 449-8775	
ITEM	ESTIMATED QUANTITIES	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT
ITEM NO. 31 - Conductors (for Berth 138 as noted in Special Condition SC-25): Furnish all labor, materials, power, equipment, tools, transportation and supervision necessary to provide, install and connect all conductors and... for the lump sum price of -	Lump Sum	518,338.89	518,338.89	777,000.00	777,000.00	324,000.00	324,000.00	450,000.00	450,000.00	378,954.00	378,954.00
ITEM NO. 32 - Conductors (for Berth 136 as noted in Special Condition SC-25): Furnish all labor, materials, power, equipment, tools, transportation and supervision necessary to provide, install and connect all conductors and... for the lump sum price of -	Lump Sum	471,591.80	471,591.80	277,000.00	277,000.00	247,000.00	247,000.00	300,000.00	300,000.00	555,850.00	555,850.00
ITEM NO. 33 - Conductors (for Berth 132-134 as noted in Special Condition SC-25): Furnish all labor, materials, power, equipment, tools, transportation and supervision necessary to provide, install and connect all conductors... for the lump sum price of -	Lump Sum	692,948.22	692,948.22	277,000.00	277,000.00	507,000.00	507,000.00	610,000.00	610,000.00	708,920.00	708,920.00
ITEM NO. 34 - SPO Receptacles (for Berth 140 as noted in Special Condition SC-25): Furnish all labor, materials, power, equipment, tools, transportation and supervision necessary to perform demolition and construction of two... for the lump sum price of -	Lump Sum	226,959.75	226,959.75	477,000.00	477,000.00	238,000.00	238,000.00	300,000.00	300,000.00	191,099.00	191,099.00
ITEM NO. 35 - SPO Receptacles (for Berth 138 as noted in Special Conditon SC-25): Furnish all labor, materials, power, equipment, tools, transportation and supervision necessary to perform demolition and construction of three... for the lump sum price of -	Lump Sum	340,439.63	340,439.63	637,000.00	637,000.00	356,000.00	356,000.00	475,000.00	475,000.00	317,068.00	317,068.00
TOTAL:											
CERTIFIED CHECK OR BOND:											

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The Green Port

ANALYSIS OF BIDS
CITY OF LONG BEACH, HARBOR DEPARTMENT

SPECIFICATIONS FOR: Shore to Ship Power Project at Pier T, Berths T132-T140

NO. HD-S2348

DATE OPENED: February 14, 2012

		The Ryan Company 15 Commerce Way Norton, MA 02766 Phone: (508) 742-2500 Fax: (508) 742-2540		Minako dba Minco Construction 522 E. Airline Way Gardena, CA 90248 Phone: (310) 516-8100 Fax: (310) 516-7404		Vellutini Corp dba Royal Electric 8481 Carbide Ct Sacramento, CA 95828 Phone: (916) 226-2100 Fax: (916) 226-2150		KDC, Inc. dba Dynalectric 4462 Corporate Center Drive Los Alamitos, CA 90720 Phone: (714) 828-7000 Fax: (714) 484-2384		Sully-Miller Contracting Company 135 S. State College Blvd #400 Brea, CA 92821 Phone: (714) 578-9500 Fax: (714) 449-8775	
ITEM	ESTIMATED QUANTITIES	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT
ITEM NO. 36 - SPO Receptacles (for Berth 136 as noted in Special Conditions SC-25): Furnish all labor, materials, power, equipment, tools, transportation and supervision necessary to perform demolition and construction of two... for the lump sum price of -	Lump Sum	226,959.75	226,959.75	477,000.00	477,000.00	238,000.00	238,000.00	300,000.00	300,000.00	191,099.00	191,099.00
ITEM NO. 37 - SPO Receptacles (for Berth 132-134 as noted in Special Condition SC-25): Furnish all labor, materials, power, equipment, tools, transportation and supervision necessary to perform demolition and construction of... for the lump sum price of -	Lump Sum	453,919.50	453,919.50	877,000.00	877,000.00	475,000.00	475,000.00	550,000.00	550,000.00	443,067.00	443,067.00
ITEM NO. 38 - All Other Electrical Work (for Berth 140 as noted in Special Condition SC-25): Furnish all labor, materials, power, equipment, tools, transportation and supervision necessary to construct reinforced concrete... for the lump sum price of -	Lump Sum	86,714.11	86,714.11	177,000.00	177,000.00	313,000.00	313,000.00	200,000.00	200,000.00	100,715.00	100,715.00
ITEM NO. 39 - All Other Electrical Work (for Berth 138 as noted in Special Condition SC-25): Furnish all labor, materials, power, equipment, tools, transportation and supervision necessary to construct reinforced concrete... for the lump sum price of -	Lump Sum	81,156.80	81,156.80	77,000.00	77,000.00	76,000.00	76,000.00	102,002.00	102,002.00	50,865.00	50,865.00
ITEM NO. 40 - All Other Electrical Work (for Berth 136 as noted in Special Condition SC-25): Furnish all labor, materials, power, equipment, tools, transportation and supervision necessary to construct reinforced concrete... for the lump sum price of -	Lump Sum	79,665.13	79,665.13	77,000.00	77,000.00	77,000.00	77,000.00	95,000.00	95,000.00	48,770.00	48,770.00
TOTAL:											
CERTIFIED CHECK OR BOND:											

The Ryan Company
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Port of LONG BEACH
The Green Port

ANALYSIS OF BIDS
CITY OF LONG BEACH, HARBOR DEPARTMENT

SPECIFICATIONS FOR: Shore to Ship Power Project at Pier T, Berths T132-T140 | **NO. HD-S2348** | **DATE OPENED: February 14, 2012**

		The Ryan Company 15 Commerce Way Norton, MA 02766 Phone: (508) 742-2500 Fax: (508) 742-2540		Minako dba Minco Construction 522 E. Airline Way Gardena, CA 90248 Phone: (310) 516-8100 Fax: (310) 516-7404		Vellutini Corp dba Royal Electric 8481 Carbide Ct Sacramento, CA 95828 Phone: (916) 226-2100 Fax: (916) 226-2150		KDC, Inc. dba Dynalectric 4462 Corporate Center Drive Los Alamitos, CA 90720 Phone: (714) 828-7000 Fax: (714) 484-2384		Sully-Miller Contracting Company 135 S. State College Blvd #400 Brea, CA 92821 Phone: (714) 578-9600 Fax: (714) 449-8775	
ITEM	ESTIMATED QUANTITIES	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT
ITEM NO. 41 - All Other Electrical Work (for Berth 132-134 as noted in Special Condition SC-25): Furnish all labor, materials, power, equipment, tools, transportation and supervision necessary to construct reinforced concrete... for the lump sum price of -	Lump Sum	89,190.97	89,190.97	137,000.00	137,000.00	82,000.00	82,000.00	130,000.00	130,000.00	45,652.00	45,652.00
ITEM NO. 42 - Paving at Switchgear MTS4 and MTS5 and at SSP Substations: Furnish all labor, materials, power, equipment, tools, transportation and supervision necessary to construct paving at the Switchgear MTS4 and MTS5... for the lump sum price of -	Lump Sum	135,862.43	135,862.43	177,000.00	177,000.00	94,000.00	94,000.00	135,000.00	135,000.00	201,168.00	201,168.00
ITEM NO. 43 - Standby Time: Furnish all labor, materials, power, equipment, tools, transportation and supervision necessary to provide approximately the estimated hours of standby time for crew, land-based equipment and... for the unit price per hour of -	Unit Price	377.42	37,742.00	250.00	25,000.00	1,400.00	140,000.00	750.00	75,000.00	1,334.00	133,400.00
ITEM NO. 44 - Scheduling: Furnish all labor, materials, power, equipment, tools, transportation and supervision necessary to develop and update all schedules, complete as specified and as directed... for the lump sum price of (not less than $20,000) -	Lump Sum	22,363.82	22,363.82	77,000.00	77,000.00	166,000.00	166,000.00	35,000.00	35,000.00	20,923.00	20,923.00
ITEM NO. 45 - Ship Commissioning: Furnish all labor, materials, equipment, tools, transportation and personnel necessary to provide approximately the estimated crew hours for ship commissioning for work in all phases... for the unit price per cew hour of -	Unit Price	767.63	101,327.16	250.00	33,000.00	235.00	31,020.00	227.27	29,999.64	722.00	95,304.00
TOTAL:											
CERTIFIED CHECK OR BOND:											

The Ryan Company
LOWEST RESPONSIBLE BIDDER

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LICENSE NUMBER

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Port of LONG BEACH
The Green Port

ANALYSIS OF BIDS
CITY OF LONG BEACH, HARBOR DEPARTMENT

SPECIFICATIONS FOR: Shore to Ship Power Project at Pier T, Berths T132-T140

NO. HD-S2348

DATE OPENED: February 14, 2012

		The Ryan Company 15 Commerce Way Norton, MA 02766 Phone: (508) 742-2500 Fax: (508) 742-2540		Minako dba Minco Construction 522 E. Airline Way Gardena, CA 90248 Phone: (310) 516-8100 Fax: (310) 516-7404		Vellutini Corp dba Royal Electric 8481 Carbide Ct Sacramento, CA 95828 Phone: (916) 226-2100 Fax: (916) 226-2150		KDC, Inc. dba Dynalectric 4462 Corporate Center Drive Los Alamitos, CA 90720 Phone: (714) 828-7000 Fax: (714) 484-2384		Sully-Miller Contracting Company 135 S. State College Blvd #400 Brea, CA 92821 Phone: (714) 578-9600 Fax: (714) 449-8775	
ITEM	ESTIMATED QUANTITIES	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT
ITEM NO. 46 - Power for Acceptance Testing: Reimburse the Tenant for the cost of all electrical power used by the Contractor for all specified acceptance testing -	Allowance	50,000.00	50,000.00	50,000.00	50,000.00	50,000.00	50,000.00	50,000.00	50,000.00	50,000.00	50,000.00
TOTAL:		$20,559,112.22		$20,898,780.00		$21,144,553.00		$21,767,333.38		$21,995,975.00	
CERTIFIED CHECK OR BOND:		10% Bond		10% Bond		10% Bond		10% Bond		10% Bond	

The Ryan Company	774698/Exp. 02/28/2014	$20,559,112.22	
LOWEST RESPONSIBLE BIDDER	LICENSE NUMBER	AMOUNT	AUTHORIZED SIGNATURE

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ANALYSIS OF BIDS
CITY OF LONG BEACH, HARBOR DEPARTMENT

SPECIFICATIONS FOR: Shore to Ship Power Project at Pier T, Berths T132-T140 | **NO. HD-S2348** | **DATE OPENED: February 14, 2012**

		Shimmick Construction Company 8201 Edgewater Drive #202 Oakland, CA 94612 Phone: (949) 333-1500 Fax: (949) 333-1510		Helix Electric 8260 Camino Santa Fe #A San Diego, CA 92121 Phone: (858) 535-0505 Fax: (858) 535-0738		Griffith/Comet JV 12200 Bloomfield Avenue Santa Fe Springs, CA 90670 Phone: (562) 929-1128 Fax: (562) 864-7938					
ITEM	ESTIMATED QUANTITIES	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT
ITEM NO. 1 - Mobilization and Demobilization: Furnish all labor, materials, power, equipment, tools, transportation and supervision necessary to perform mobilization and demobilization, as shown and specified (including, but... for the lump sum price of -	Lump Sum	300,000.00	300,000.00	1,253,000.00	1,253,000.00	1,068,000.00	1,068,000.00				
ITEM NO. 2 - Excavation Support Systems: Per Section 6707 of the California Labor Code, furnish all labor, materials, power, equipment, tools, transportation and supervision necessary to provide bracing... for the lump sum price of (not less than $10,000)	Lump Sum	150,000.00	150,000.00	70,000.00	70,000.00	350,000.00	350,000.00				
ITEM NO. 3 - SWPPP Development and Compliance: Furnish all labor, materials, power, equipment, tools, transportation and supervision necessary to develop the Stormwater Pollution Prevention Plan and... for the lump sum price of (not less than $10,000)	Lump Sum	10,000.00	10,000.00	50,000.00	50,000.00	12,000.00	12,000.00				
ITEM NO. 4 - Demolition of Chain Link Fence and Gates, Bollards, and Paving: Furnish all labor, materials, power, equipment, tools, transportation and supervision necessary to remove existing 8-foot chain link fence and... for the lump sum price of -	Lump Sum	100,000.00	100,000.00	150,000.00	150,000.00	112,000.00	112,000.00				
ITEM NO. 5 - Soil Handling and Disposal, Non-Hazardous Waste: Furnish all labor, materials, power, equipment, tools, transportation and supervision necessary to handle and dispose of approximately the estimated... for the unit price per ton of -	Unit Price	50.00	131,750.00	42.00	110,670.00	75.00	197,625.00				
TOTAL:											
CERTIFIED CHECK OR BOND:											

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SPECIFICATIONS FOR: Shore to Ship Power Project at Pier T, Berths T132-T140

NO. HD-S2348

DATE OPENED: February 14, 2012

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ITEM	ESTIMATED QUANTITIES	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT
ITEM NO. 6 - Soil Handling and Reuse, Fill Material: Furnish all labor, materials, power, equipment, tools, transportation and supervision necessary to handle and dispose as backfill approximately the... for the unit price per cubic yard of -	Unit Price	35.00	214,200.00	5.00	30,600.00	25.00	153,000.00				
ITEM NO. 7 - Import Material: Furnish all labor, materials, power, equipment, tools, transportation and supervision necessary to load, haul, place and compact as backfill approximately the estimated quantity of import... for the unit price per ton of -	Unit Price	35.00	21,000.00	48.00	28,800.00	35.00	21,000.00				
ITEM NO. 8 - 8-Foot Chain Link Fence with Barbed Wire: Furnish all labor, materials, power, equipment, tools, transportation and supervision necessary to furnish and install approximately the estimated quantity of... for unit price per linear foot of -	Unit Price	50.00	37,500.00	55.00	41,250.00	56.00	42,000.00				
ITEM NO. 9 - Chain Link Single Gate with Barbed Wire: Furnish all labor, materials, power, equipment, tools, transportation and supervision necessary to provide and install approximately the estimated quantity of chain... for the unit price per each of -	Unit Price	1,000.00	11,000.00	1,050.00	11,550.00	1,300.00	14,300.00				
ITEM NO. 10 - Chain Link Double Gates with Barbed Wire: Furnish all labor, materials, power, equipment, tools, transportation and supervision necessary to provide and install approximately the estimated quantity of chain... for the unit price per each of -	Unit Price	2,500.00	10,000.00	2,300.00	9,200.00	2,300.00	9,200.00				
TOTAL:											
CERTIFIED CHECK OR BOND:											

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NO. HD-S2348

DATE OPENED: February 14, 2012

ITEM	ESTIMATED QUANTITIES	Shimmick Construction Company 8201 Edgewater Drive #202 Oakland, CA 94612 Phone: (949) 333-1500 Fax: (949) 333-1510		Helix Electric 8260 Camino Santa Fe #A San Diego, CA 92121 Phone: (858) 535-0505 Fax: (858) 535-0738		Griffith/Comet JV 12200 Bloomfield Avenue Santa Fe Springs, CA 90670 Phone: (562) 929-1128 Fax: (562) 864-7938					
		RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT
ITEM NO. 11 - Pipe Bollards, 12-Inch: Furnish all labor, materials, power, equipment, tools, transportation and supervision necessary to provide and install approximately the estimated quantity of 12-inch diameter pipe... for the unit price per each of -	Unit Price	2,500.00	342,500.00	1,900.00	260,300.00	2,200.00	301,400.00				
ITEM NO. 12 - Removable Pipe Bollards, 12-Inch: Furnish all labor, materials, power, equipment, tools, transportation and supervision necessary to provide and install approximately the estimated quantity of 12-inch... for the unit price per each of -	Unit Price	4,000.00	100,000.00	2,800.00	70,000.00	3,250.00	81,250.00				
ITEM NO. 13 - Shallow Pipe Bollards, 12-Inch: Furnish all labor, materials, power, equipment, tools, transportation and supervision necessary to provide and install approximately the estimated quantity of 12-inch... for the unit price per each of -	Unit Price	2,500.00	80,000.00	3,000.00	96,000.00	3,660.00	117,120.00				
ITEM NO. 14 - New Pavement Striping and Markings: Furnish all labor, materials, power, equipment, tools, transportation and supervision necessary to install new paint striping and markings, complete as shown and specified and... for the lump sum price of -	Lump Sum	6,500.00	6,500.00	7,000.00	7,000.00	5,230.00	5,230.00				
ITEM NO. 15 - Replacement of Existing Pavement Striping: Furnish all labor, materials, power, equipment, tools, transportation and supervision necessary to replace approximately the estimated quantity of existing... for the unit price per linear foot of -	Unit Price	1.00	3,500.00	2.00	7,000.00	1.10	3,850.00				
TOTAL:											
CERTIFIED CHECK OR BOND:											

The Ryan Company
LOWEST RESPONSIBLE BIDDER

774698/Exp. 02/28/2014
LICENSE NUMBER

$20,559,112.22
AMOUNT

AUTHORIZED SIGNATURE

Port of LONG BEACH
The Green Port

ANALYSIS OF BIDS
CITY OF LONG BEACH, HARBOR DEPARTMENT

SPECIFICATIONS FOR: Shore to Ship Power Project at Pier T, Berths T132-T140 | **NO. HD-S2348** | **DATE OPENED: February 14, 2012**

		Shimmick Construction Company 8201 Edgewater Drive #202 Oakland, CA 94612 Phone: (949) 333-1500 Fax: (949) 333-1510		Helix Electric 8260 Camino Santa Fe #A San Diego, CA 92121 Phone: (858) 535-0505 Fax: (858) 535-0738		Griffith/Comet JV 12200 Bloomfield Avenue Santa Fe Springs, CA 90670 Phone: (562) 929-1128 Fax: (562) 864-7938					
ITEM	ESTIMATED QUANTITIES	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT
ITEM NO. 16 - Removal of Existing Pavement Striping: Furnish all labor, materials, power, equipment, tools, transportation and supervision necessary to replace and remove approximately the estimated quantity of... for the unit price per linear foot of -	Unit Price	10.00	1,200.00	14.00	1,680.00	35.00	4,200.00				
ITEM NO. 17 - Relocation of Water Lines and Power/Telephone/Water ("PTW") Vaults: Furnish all labor, materials, power, equipment, tools, transportation and supervision necessary to relocate water lines and PTW vaults... for the lump sum price of -	Lump Sum	100,000.00	100,000.00	100,000.00	100,000.00	300,000.00	300,000.00				
ITEM NO. 18 - Transformers (for Berth 140 as noted in Special Condition SC-25): Furnish all labor, materials, power, equipment, tools, transportation and supervision necessary to provide, install and connect one (1) medium... for the lump sum price of -	Lump Sum	625,000.00	625,000.00	640,000.00	640,000.00	715,585.00	715,585.00				
ITEM NO. 19 - Transformers (for Berth 138 as noted in Special Condition SC-25): Furnish all labor, materials, power, equipment, tools, transportation and supervision necessary to provide, install and connect one (1) medium... for the lump sum price of -	Lump Sum	625,000.00	625,000.00	640,000.00	640,000.00	715,585.00	715,585.00				
ITEM NO. 20 - Transformers (for Berth 136 as noted in Special Condition SC-25): Furnish all labor, materials, power, equipment, tools, transportation and supervision necessary to provide, install and connect one (1) medium... for the lump sum price of -	Lump Sum	625,000.00	625,000.00	640,000.00	640,000.00	715,585.00	715,585.00				
TOTAL:											
CERTIFIED CHECK OR BOND:											

The Ryan Company — LOWEST RESPONSIBLE BIDDER

774698/Exp. 02/28/2014 — LICENSE NUMBER

$20,559,112.22 — AMOUNT

AUTHORIZED SIGNATURE

Port of LONG BEACH
The Green Port

ANALYSIS OF BIDS
CITY OF LONG BEACH, HARBOR DEPARTMENT

SPECIFICATIONS FOR: Shore to Ship Power Project at Pier T, Berths T132-T140

NO. HD-S2348

DATE OPENED: February 14, 2012

		Shimmick Construction Company 8201 Edgewater Drive #202 Oakland, CA 94612 Phone: (949) 333-1500 Fax: (949) 333-1510		Helix Electric 8260 Camino Santa Fe #A San Diego, CA 92121 Phone: (858) 535-0505 Fax: (858) 535-0738		Griffith/Comet JV 12200 Bloomfield Avenue Santa Fe Springs, CA 90670 Phone: (562) 929-1128 Fax: (562) 864-7938					
ITEM	ESTIMATED QUANTITIES	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT
ITEM NO. 21 - Transformers (for Berth 132-134 as noted in Special Condition SC-25): Furnish all labor, materials, power, equipment, tools, transportation and supervision necessary to provide, install and connect one (1)... for the lump sum price of -	Lump Sum	625,000.00	625,000.00	640,000.00	640,000.00	715,585.00	715,585.00				
ITEM NO. 22 - Switchgear Assembly(s) (for Berth 140 as noted in Special Condition SC-25): Furnish all labor, materials, power, equipment, tools, transportation and supervision necessary to provide, install and connect two (2)... for the lump sum price of -	Lump Sum	3,250,000.00	3,250,000.00	3,600,000.00	3,600,000.00	4,038,100.00	4,038,100.00				
ITEM NO. 23 - Switchgear Assembly(s) (for Berth 138 as noted in Special Condition SC-25): Furnish all labor, materials, power, equipment, tools, transportation and supervision necessary to provide, install and connect one (1)... for the lump sum price of -	Lump Sum	1,750,000.00	1,750,000.00	1,800,000.00	1,800,000.00	1,938,685.00	1,938,685.00				
ITEM NO. 24 - Switchgear Assembly(s) (for Berth 136 as noted in Special Condition SC-25): Furnish all labor, materials, power, equipment, tools, transportation and supervision necessary to provide, install and connect one (1)... for the lump sum price of -	Lump Sum	1,650,000.00	1,650,000.00	1,700,000.00	1,700,000.00	1,783,458.00	1,783,458.00				
ITEM NO. 25 - Switchgear Assembly(s) (for Berth 132-134 as noted in Special Condition SC-25): Furnish all labor, materials, power, equipment, tools, transportation and supervision necessary to provide, install and connect one... for the lump sum price of -	Lump Sum	1,950,000.00	1,950,000.00	1,900,000.00	1,900,000.00	2,130,242.00	2,130,242.00				
TOTAL:											
CERTIFIED CHECK OR BOND:											

The Ryan Company
LOWEST RESPONSIBLE BIDDER

774698/Exp. 02/28/2014
LICENSE NUMBER

$20,559,112.22
AMOUNT

AUTHORIZED SIGNATURE

Port of LONG BEACH
The Green Port

ANALYSIS OF BIDS
CITY OF LONG BEACH, HARBOR DEPARTMENT

SPECIFICATIONS FOR: Shore to Ship Power Project at Pier T, Berths T132-T140 | **NO. HD-S2348** | **DATE OPENED: February 14, 2012**

		Shimmick Construction Company 8201 Edgewater Drive #202 Oakland, CA 94612 Phone: (949) 333-1500 Fax: (949) 333-1510		Helix Electric 8260 Camino Santa Fe #A San Diego, CA 92121 Phone: (858) 535-0505 Fax: (858) 535-0738		Griffith/Comet JV 12200 Bloomfield Avenue Santa Fe Springs, CA 90670 Phone: (562) 929-1128 Fax: (562) 864-7938					
ITEM	ESTIMATED QUANTITIES	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT
ITEM NO. 26 - Ductbanks and Raceways (for Berth 140 as noted in Special Condition SC-25): Furnish all labor, materials, power, equipment, tools, transportation and supervision necessary to construct a complete and functioning... for the lump sum price of -	Lump Sum	700,000.00	700,000.00	847,000.00	847,000.00	750,000.00	750,000.00				
ITEM NO. 27 - Ductbanks and Raceways (for Berth 138 as noted in Special Condition SC-25): Furnish all labor, materials, power, equipment, tools, transportation and supervision necessary to construct a complete and functioning... for the lump sum price of -	Lump Sum	700,000.00	700,000.00	1,346,000.00	1,346,000.00	890,000.00	890,000.00				
ITEM NO. 28 - Ductbanks and Raceways (for Berth 136 as noted in Special Condition SC-25): Furnish all labor, materials, power, equipment, tools, transportation and supervision necessary to construct a complete and functioning... for the lump sum price of -	Lump Sum	600,000.00	600,000.00	1,195,000.00	1,195,000.00	550,000.00	550,000.00				
ITEM NO. 29 - Ductbanks and Raceways (for Berth 132-134 as noted in Special Condition SC-25): Furnish all labor, materials, power, equipment, tools, transportation and supervision necessary to construct a complete and... for the lump sum price of -	Lump Sum	1,050,000.00	1,050,000.00	2,092,000.00	2,092,000.00	1,165,000.00	1,165,000.00				
ITEM NO. 30 - Conductors (for Berth 140 as noted in Special Condition SC-25): Furnish all labor, materials, power, equipment, tools, transportation and supervision necessary to provide, install and connect all conductors and... for the lump sum price of -	Lump Sum	600,000.00	600,000.00	300,000.00	300,000.00	1,286,952.00	1,286,952.00				
TOTAL:											
CERTIFIED CHECK OR BOND:											

The Ryan Company	774698/Exp. 02/28/2014	$20,559,112.22	
LOWEST RESPONSIBLE BIDDER	LICENSE NUMBER	AMOUNT	AUTHORIZED SIGNATURE

Port of LONG BEACH
The Green Port

ANALYSIS OF BIDS
CITY OF LONG BEACH, HARBOR DEPARTMENT

SPECIFICATIONS FOR: Shore to Ship Power Project at Pier T, Berths T132-T140

NO. HD-S2348

DATE OPENED: February 14, 2012

		Shimmick Construction Company 8201 Edgewater Drive #202 Oakland, CA 94612 Phone: (949) 333-1500 Fax: (949) 333-1510		Helix Electric 8260 Camino Santa Fe #A San Diego, CA 92121 Phone: (858) 535-0505 Fax: (858) 535-0738		Griffith/Comet JV 12200 Bloomfield Avenue Santa Fe Springs, CA 90670 Phone: (562) 929-1128 Fax: (562) 864-7938					
ITEM	ESTIMATED QUANTITIES	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT
ITEM NO. 31 - Conductors (for Berth 138 as noted in Special Condition SC-25): Furnish all labor, materials, power, equipment, tools, transportation and supervision necessary to provide, install and connect all conductors and... for the lump sum price of -	Lump Sum	650,000.00	650,000.00	400,000.00	400,000.00	449,167.00	449,167.00				
ITEM NO. 32 - Conductors (for Berth 136 as noted in Special Condition SC-25): Furnish all labor, materials, power, equipment, tools, transportation and supervision necessary to provide, install and connect all conductors and... for the lump sum price of -	Lump Sum	400,000.00	400,000.00	300,000.00	300,000.00	369,902.00	369,902.00				
ITEM NO. 33 - Conductors (for Berth 132-134 as noted in Special Condition SC-25): Furnish all labor, materials, power, equipment, tools, transportation and supervision necessary to provide, install and connect all conductors... for the lump sum price of -	Lump Sum	1,025,000.00	1,025,000.00	500,000.00	500,000.00	790,446.00	790,446.00				
ITEM NO. 34 - SPO Receptacles (for Berth 140 as noted in Special Condition SC-25): Furnish all labor, materials, power, equipment, tools, transportation and supervision necessary to perform demolition and construction of two... for the lump sum price of -	Lump Sum	350,000.00	350,000.00	180,000.00	180,000.00	320,714.00	320,714.00				
ITEM NO. 35 - SPO Receptacles (for Berth 138 as noted in Special Conditon SC-25): Furnish all labor, materials, power, equipment, tools, transportation and supervision necessary to perform demolition and construction of three... for the lump sum price of -	Lump Sum	450,000.00	450,000.00	270,000.00	270,000.00	489,653.00	489,653.00				
TOTAL:											
CERTIFIED CHECK OR BOND:											

The Ryan Company	774698/Exp. 02/28/2014	$20,559,112.22	
LOWEST RESPONSIBLE BIDDER	LICENSE NUMBER	AMOUNT	AUTHORIZED SIGNATURE

Port of LONG BEACH
The Green Port

ANALYSIS OF BIDS
CITY OF LONG BEACH, HARBOR DEPARTMENT

SPECIFICATIONS FOR: Shore to Ship Power Project at Pier T, Berths T132-T140 | **NO. HD-S2348** | **DATE OPENED: February 14, 2012**

		Shimmick Construction Company 8201 Edgewater Drive #202 Oakland, CA 94612 Phone: (949) 333-1500 Fax: (949) 333-1510		Helix Electric 8260 Camino Santa Fe #A San Diego, CA 92121 Phone: (858) 535-0505 Fax: (858) 535-0738		Griffith/Comet JV 12200 Bloomfield Avenue Santa Fe Springs, CA 90670 Phone: (562) 929-1128 Fax: (562) 864-7938					
ITEM	ESTIMATED QUANTITIES	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT
ITEM NO. 36 - SPO Receptacles (for Berth 136 as noted in Special Conditions SC-25): Furnish all labor, materials, power, equipment, tools, transportation and supervision necessary to perform demolition and construction of two... for the lump sum price of -	Lump Sum	350,000.00	350,000.00	180,000.00	180,000.00	322,894.00	322,894.00				
ITEM NO. 37 - SPO Receptacles (for Berth 132-134 as noted in Special Condition SC-25): Furnish all labor, materials, power, equipment, tools, transportation and supervision necessary to perform demolition and construction of... for the lump sum price of -	Lump Sum	525,000.00	525,000.00	360,000.00	360,000.00	646,189.00	646,189.00				
ITEM NO. 38 - All Other Electrical Work (for Berth 140 as noted in Special Condition SC-25): Furnish all labor, materials, power, equipment, tools, transportation and supervision necessary to construct reinforced concrete... for the lump sum price of -	Lump Sum	400,000.00	400,000.00	300,000.00	300,000.00	80,000.00	80,000.00				
ITEM NO. 39 - All Other Electrical Work (for Berth 138 as noted in Special Condition SC-25): Furnish all labor, materials, power, equipment, tools, transportation and supervision necessary to construct reinforced concrete... for the lump sum price of -	Lump Sum	350,000.00	350,000.00	333,000.00	333,000.00	50,000.00	50,000.00				
ITEM NO. 40 - All Other Electrical Work (for Berth 136 as noted in Special Condition SC-25): Furnish all labor, materials, power, equipment, tools, transportation and supervision necessary to construct reinforced concrete... for the lump sum price of -	Lump Sum	350,000.00	350,000.00	326,000.00	326,000.00	52,000.00	52,000.00				
TOTAL:											
CERTIFIED CHECK OR BOND:											

The Ryan Company	774698/Exp. 02/28/2014	$20,559,112.22	
LOWEST RESPONSIBLE BIDDER	LICENSE NUMBER	AMOUNT	AUTHORIZED SIGNATURE

Port of LONG BEACH
The Green Port

ANALYSIS OF BIDS
CITY OF LONG BEACH, HARBOR DEPARTMENT

SPECIFICATIONS FOR: Shore to Ship Power Project at Pier T, Berths T132-T140 | **NO. HD-S2348** | **DATE OPENED: February 14, 2012**

ITEM	ESTIMATED QUANTITIES	Shimmick Construction Company 8201 Edgewater Drive #202 Oakland, CA 94612 Phone: (949) 333-1500 Fax: (949) 333-1510		Helix Electric 8260 Camino Santa Fe #A San Diego, CA 92121 Phone: (858) 535-0505 Fax: (858) 535-0738		Griffith/Comet JV 12200 Bloomfield Avenue Santa Fe Springs, CA 90670 Phone: (562) 929-1128 Fax: (562) 864-7938					
		RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT
ITEM NO. 41 - All Other Electrical Work (for Berth 132-134 as noted in Special Condition SC-25): Furnish all labor, materials, power, equipment, tools, transportation and supervision necessary to construct reinforced concrete... for the lump sum price of -	Lump Sum	600,000.00	600,000.00	396,000.00	396,000.00	80,000.00	80,000.00				
ITEM NO. 42 - Paving at Switchgear MTS4 and MTS5 and at SSP Substations: Furnish all labor, materials, power, equipment, tools, transportation and supervision necessary to construct paving at the Switchgear MTS4 and MTS5... for the lump sum price of -	Lump Sum	100,000.00	100,000.00	20,000.00	20,000.00	250,000.00	250,000.00				
ITEM NO. 43 - Standby Time: Furnish all labor, materials, power, equipment, tools, transportation and supervision necessary to provide approximately the estimated hours of standby time for crew, land-based equipment and... for the unit price per hour of -	Unit Price	350.00	35,000.00	500.00	50,000.00	200.00	20,000.00				
ITEM NO. 44 - Scheduling: Furnish all labor, materials, power, equipment, tools, transportation and supervision necessary to develop and update all schedules, complete as specified and as directed... for the lump sum price of (not less than $20,000) -	Lump Sum	20,000.00	20,000.00	40,000.00	40,000.00	20,000.00	20,000.00				
ITEM NO. 45 - Ship Commissioning: Furnish all labor, materials, equipment, tools, transportation and personnel necessary to provide approximately the estimated crew hours for ship commissioning for work in all phases... for the unit price per cew hour of -	Unit Price	315.00	41,580.00	900.00	118,800.00	272.50	35,970.00				
TOTAL:											
CERTIFIED CHECK OR BOND:											

The Ryan Company
LOWEST RESPONSIBLE BIDDER

774698/Exp. 02/28/2014
LICENSE NUMBER

$20,559,112.22
AMOUNT

AUTHORIZED SIGNATURE

File: Bid Analysis HD-S2348 Gordon[BID ANALYSIS] 2/14/2012 12:48 PM

Port of LONG BEACH
The Green Port

ANALYSIS OF BIDS
CITY OF LONG BEACH, HARBOR DEPARTMENT

SPECIFICATIONS FOR: Shore to Ship Power Project at Pier T, Berths T132-T140 | **NO. HD-S2348** | **DATE OPENED: February 14, 2012**

		Shimmick Construction Company 8201 Edgewater Drive #202 Oakland, CA 94612 Phone: (949) 333-1500 Fax: (949) 333-1510		Helix Electric 8260 Camino Santa Fe #A San Diego, CA 92121 Phone: (858) 535-0505 Fax: (858) 535-0738		Griffith/Comet JV 12200 Bloomfield Avenue Santa Fe Springs, CA 90670 Phone: (562) 929-1128 Fax: (562) 864-7938					
ITEM	ESTIMATED QUANTITIES	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT
ITEM NO. 46 - Power for Acceptance Testing: Reimburse the Tenant for the cost of all electrical power used by the Contractor for all specified acceptance testing -	Allowance	50,000.00	50,000.00	50,000.00	50,000.00	50,000.00	50,000.00				
TOTAL:		$22,065,730.00		$23,460,850.00		$24,213,887.00					
CERTIFIED CHECK OR BOND:		10% Bond		10% Bond		10% Bond					

The Ryan Company	774698/Exp. 02/28/2014	$20,559,112.22	
LOWEST RESPONSIBLE BIDDER	LICENSE NUMBER	AMOUNT	AUTHORIZED SIGNATURE

Progress Payment No. 19
Period Ending : 11/30/14
PAYMENT DUE: 3/3/2015
Specification: HD-S2348 Shore to Ship Power Project at Pier T, Berths 132-140
Contractor: The Ryan Company

LBHD Contract No: HD-7928
Original Bid Amt: $20,559,112.22

Item No.	Item	Unit	Est. Qty.	Unit Price	Bid Amount	Qty This Month	T140 $ Amount This Month	T138 $ Amount This Month	T136 $ Amount This Month	T132 $ Amount This Month	Previous Qty or %	Total % of Item Comp	TOTAL $ Amount to Date
1	Mobilization and Demobilization	Lump Sum	1	1,161,050.43	1,161,050.43	-	-	-	-	-	100%	100%	1,161,050.43
2	Excavation Support Systems	Lump Sum	1	18,240.49	18,240.49	0%	-	-	0	0	100%	100%	18,240.49
3	SWPPP Development and Compliance	Lump Sum	1	16,772.86	16,772.86	-	-	0	0	0	100%	100%	16,772.86
4	Demolition of Chain Link Fence and Gates, Bollards, and Paving	Lump Sum	1	33,632.23	33,632.23	0.00%	-	-	-	-	100%	100%	33,632.23
5	Soil Handling and Disposal, Non-Hazardous Waste	Unit Price	2,635	40.26	106,085.10	-	-	-	-	-	6,430.43	244%	258,889.12
6	Soil Handling and Reuse, Fill Material	Unit Price	6,120	22.36	136,843.20	-	-	-	-	-	2,265.00	37%	50,645.40
7	Import Material	Unit Price	600	15.66	9,396.00						0%	0%	-
8	8-Foot Chain Link Fence with Barbed Wire	Unit Price	750	44.73	33,547.50	-	-	-	-	-	100%	100%	33,547.50
9	Chain Link Single Gate with Barbed Wire	Unit Price	11	670.92	7,380.12	-	0	0	0	-	100%	100%	7,380.12
10	Chain Link Double Gates with Barbed Wire	Unit Price	4	1,677.29	6,709.16	-	0	0	0	-	100%	100%	6,709.16
11	Pipe Bollards, 12-Inch	Unit Price	137	1,341.83	183,830.71	-	-	-	-	-	100%	100%	183,830.71
12	Removable Pipe Bollards, 12-Inch	Unit Price	25	1,677.29	41,932.25	-	-	-	-	-	100%	100%	41,932.25
13	Shallow Pipe Bollards, 12-Inch	Unit Price	32	1,341.83	42,938.56	-	-	-	-	-	100%	100%	42,938.56
14	New Pavement Striping and Markings	Lump Sum	1	8,386.43	8,386.43	0%	0	0	0	0	100%	20%	8,386.43
15	Replacement of Existing Pavement Striping	Unit Price	3500	0.95	3,325.00	-	-	-	-	-	7,665.00	219%	7,281.75
16	Removal of Existing Pavement Striping	Unit Price	120	9.51	1,141.20								-
17	Relocation of Water Lines and Power/Telephone/Water ("PTW") Vaults	Lump Sum	1	26,836.58	26,836.58	0.00%	0	-	0	-	100%	100%	26,836.58
18	Transformers (for Berth 140 as noted in Special Condition SC-25)	Lump Sum	1	709,593.23	709,593.23	-	-	N/A	N/A	N/A	100%	100%	709,593.23
19	Transformers (for Berth 138 as noted in Special Condition SC-25)	Lump Sum	1	709,593.23	709,593.23	0%	N/A	-	N/A	N/A	100%	100%	709,593.23
20	Transformers (for Berth 136 as noted in Special Condition SC-25)	Lump Sum	1	709,593.23	709,593.23	0%	N/A	N/A	-	N/A	100%	100%	709,593.23
21	Transformers (for Berth 132-134 as noted in Special Condition SC-25)	Lump Sum	1	709,593.23	709,593.23	0%	N/A	N/A	N/A	-	100%	100%	709,593.23
22	Switchgear Assembly(s) (for Berth 140 as noted in Special Condition SC-25)	Lump Sum	1	3,939,255.79	3,939,255.79	-	-	N/A	N/A	N/A	100%	100%	3,939,255.79
23	Switchgear Assembly(s) (for Berth 138 as noted in Special Condition SC-25)	Lump Sum	1	1,921,221.76	1,921,221.76	-	N/A	-	-	N/A	100%	100%	1,921,221.76
24	Switchgear Assembly(s) (for Berth 136 as noted in Special Condition SC-25)	Lump Sum	1	1,779,834.87	1,779,834.87	0%	N/A	N/A	-	N/A	100%	100%	1,779,834.87
25	Switchgear Assembly(s) (for Berth 132-134 as noted in Special Condition SC-25)	Lump Sum	1	2,105,417.86	2,105,417.86	0%	N/A	N/A	N/A	-	100%	100%	2,105,417.86
26	Ductbanks and Raceways (for Berth 140 as noted in Special Condition SC-25)	Lump Sum	1	349,501.65	349,501.65	0%	-	N/A	N/A	N/A	100%	100%	349,501.65

Progress Payment No. 19
Period Ending : 11/30/14
PAYMENT DUE: 3/3/2015
Specification: HD-S2348 Shore to Ship Power Project at Pier T, Berths 132-140
Contractor: The Ryan Company

LBHD Contract No: HD-7928
Original Bid Amt: $20,559,112.22

Item No.	Item	Unit	Est. Qty.	Unit Price	Bid Amount	Qty This Month	T140 $ Amount This Month	T138 $ Amount This Month	T136 $ Amount This Month	T132 $ Amount This Month	Previous Qty or %	Total % of Item Comp	TOTAL $ Amount to Date
27	Ductbanks and Raceways (for Berth 138 as noted in Special Condition SC-25)	Lump Sum	1	599,461.62	599,461.62	0%	N/A	-	N/A	N/A	100%	100%	599,461.62
28	Ductbanks and Raceways (for Berth 136 as noted in Special Condition SC-25)	Lump Sum	1	394,105.50	394,105.50	0%	N/A	N/A	-	N/A	100%	100%	394,105.50
29	Ductbanks and Raceways (for Berth 132-134 as noted in Special Condition SC-25)	Lump Sum	1	765,573.51	765,573.51	0%	N/A	N/A	N/A	-	100%	100%	765,573.51
30	Conductors (for Berth 140 as noted in Special Condition SC-25)	Lump Sum	1	413,138.96	413,138.96	0%	-	N/A	N/A	N/A	100%	100%	413,138.96
31	Conductors (for Berth 138 as noted in Special Condition SC-25)	Lump Sum	1	518,338.89	518,338.89	0%	N/A	-	N/A	N/A	100%	100%	518,338.89
32	Conductors (for Berth 136 as noted in Special Condition SC-25)	Lump Sum	1	471,591.80	471,591.80	0%	N/A	N/A	-	N/A	100%	100%	471,591.80
33	Conductors (for Berth 132-134 as noted in Special Condition SC-25)	Lump Sum	1	692,948.22	692,948.22	0%		N/A	N/A	-	100%	100%	692,948.22
34	SPO Receptacles (for Berth 140 as noted in Special Condition SC-25)	Lump Sum	1	226,959.75	226,959.75	0%	-	N/A	N/A	N/A	100%	100%	226,959.75
35	SPO Receptacles (for Berth 138 as noted in Special Conditon SC-25)	Lump Sum	1	340,439.63	340,439.63	0%	N/A	-	N/A	N/A	100%	100%	340,439.63
36	SPO Receptacles (for Berth 136 as noted in Special Conditions SC-25)	Lump Sum	1	226,959.75	226,959.75	0%	N/A		-	N/A	100%	100%	226,959.75
37	SPO Receptacles (for Berth 132-134 as noted in Special Condition SC-25)	Lump Sum	1	453,919.50	453,919.50	0%		N/A	N/A	-	100%	100%	453,919.50
38	All Other Electrical Work (for Berth 140 as noted in Special Condition SC-25)	Lump Sum	1	86,714.11	86,714.11	0%	-	N/A	N/A	N/A	100%	100%	86,714.11
39	All Other Electrical Work (for Berth 138 as noted in Special Condition SC-25)	Lump Sum	1	81,156.80	81,156.80	0%	N/A	-	N/A	N/A	100%	100%	81,156.80
40	All Other Electrical Work (for Berth 136 as noted in Special Condition SC-25)	Lump Sum	1	79,665.13	79,665.13	0%	N/A	N/A	-	-	100%	100%	79,665.13
41	All Other Electrical Work (for Berth 132-134 as noted in Special Condition SC-25)	Lump Sum	1	89,190.97	89,190.97	0%		N/A	N/A	-	100%	100%	89,190.97
42	Paving at Switchgear MTS4 and MTS5 and at SSP Substations	Lump Sum	1	135,862.43	135,862.43	0%	-	0			100%	100%	135,862.43
43	Standby Time	Unit Price	100	377.42	37,742.00	48.34	-	9,123.10	9,123.10	-	48%	96%	36,362.37
44	Scheduling	Lump Sum	1	22,363.82	22,363.82	0%	-	-	-	-	100%	100%	22,363.82
45	Ship Commissioning	Unit Price	132	767.63	101,327.16			-		16143.63	25%	41%	41,475.42
46	Power for Acceptance Testing	Allowance	1	50,000.00	50,000.00	0%	-	-	-	-	18.00%	18%	9,000.00
CO 1	CHANGE ORDER #1	Lump Sum	1	2,160,000.00		0%	-	-	-	-	100%	100%	2,160,000.00
CO 2	CHANGE ORDER #2	Lump Sum	1	38,008.63			-	-	-	-	100%	100%	38,008.63
CO 3	CHANGE ORDER #3	Lump Sum	1	(2,155.00)							100%	100%	(2,155.00)
CO 4	CHANGE ORDER #4	Lump Sum	1	26,737.00			-	-	-	-	100%	100%	26,737.00
CO 5	CHANGE ORDER #5	Lump Sum	1	2,290,790.00		38%	767,776.70	53,400.33	57,235.47	-	61.65%	100%	2,290,790.00
CO 6	CHANGE ORDER #6	Lump Sum	1	4,949.00		0%	-	-	-	-	100.00%	100%	4,949.00

Progress Payment No. 19
Period Ending : 11/30/14
PAYMENT DUE: 3/3/2015
Specification: HD-S2348 Shore to Ship Power Project at Pier T, Berths 132-140
Contractor: The Ryan Company

LBHD Contract No: HD-7928
Original Bid Amt: $20,559,112.22

Item	Unit	Est. Qty.	Unit Price	Bid Amount	Qty This Month	T140 $ Amount This Month	T138 $ Amount This Month	T136 $ Amount This Month	T132 $ Amount This Month	Previous Qty or %	Total % of Item Comp	TOTAL $ Amount to Date
CHANGE ORDER #7	Lump Sum	1	70,000.00		100%	17,500.00	17,500.00	17,500.00	17,500.00	0.00%	100%	70,000.00
			4,588,329.63									
TOTALS				20,559,112.22	4%	$ 785,276.70	$ 80,023.43	$ 83,858.58	$ 33,643.63	96%	100%	$ 25,105,236.25
NEW CONTRACT AMOUNT			25,147,441.85									

SIGN HERE

CM Initials

George Gordon
Project Manager

Date

SIGN HERE

SIGN HERE

Suzanne C. Plezia, P.E.
Director of Construction

Date

Gross Earnings:	$ 25,105,236.25
Previous Payments:	$ 23,906,498.34
Previous Retention:	$ (72,220.53)
STOP NOTICE HARDY & HARPER,INC. $23,750 + 25%	$ (29,687.50)
STOP NOTICE HAMPTON TEDDER TECHNICAL SERVICES, INC. $91,221.02 + 25%	$ (114,027.51)
Earned This Period:	$ 982,802.35
Less Retention: ESCROW #2	$ (49,140.12)
STOP NOTICE ROBERTSON'S $1,885.99 + 25%	$ (2,357.49)
STOP NOTICE ABC RESOURCES INC $8,000.00 + 25%	$ (10,000.00)
AMOUNT DUE THIS ESTIMATE:	$ 921,304.75

BPO No.	INDEX CODE	PROJ	PROJ DET	Subobject Code
BPHA12000127	HACDCMCN	HA1317	1H2348	210009

Project & Grant Revenue/Expenditure Financial Summary

Criteria: As Of = 3/26/2019 (48% of Year Elapsed)

Project Detail	Title	ITD Adjusted Budget	Month-To-Date Actual Activity	Quarter-To-Date Actual Activity	ITD Actual	ITD Encumbrance incl Pre-Encumb	ITD Adjusted Budget - Actuals	ITD % Actuals to Adjusted Budget
Revenue								
Project HA1314 - CLOSED-PIER A SHORE TO SHP PWR RETROFIT								
1H2342	CONSTRUCTION, PROGRAM-WIDE	0.00	0.00	0.00	6,207,535.72	0.00	(6,207,535.72)	0.0%
Total Project HA1314		0.00	0.00	0.00	6,207,535.72	0.00	(6,207,535.72)	0.0%
Project HA1317 - CLS-PIER T,T132-T140 SHORE TO SHIP POWER								
1H2348	1H2348/CONST/ELECTRICAL INFRA	0.00	0.00	0.00	10,000,000.00	0.00	(10,000,000.00)	0.0%
Total Project HA1317		0.00	0.00	0.00	10,000,000.00	0.00	(10,000,000.00)	0.0%
Total		0.00	0.00	0.00	16,207,535.72	0.00	(16,207,535.72)	0.0%
Total Revenue		0.00	0.00	0.00	16,207,535.72	0.00	(16,207,535.72)	0.0%
Expenditures								
Project HA1314 - CLOSED-PIER A SHORE TO SHP PWR RETROFIT								
1B2342	ENVIRONMENTAL, PROGRAM-WIDE	76,955.40	0.00	0.00	76,955.40	0.00	0.00	100.0%
1C2342	DESIGN, PROGRAM-WIDE	2,313,600.40	0.00	0.00	2,313,600.40	0.00	0.00	100.0%
1H2342	CONSTRUCTION, PROGRAM-WIDE	16,162,985.63	0.00	0.00	16,163,251.75	0.00	(266.12)	100.0%
Total Project HA1314		18,553,541.43	0.00	0.00	18,553,807.55	0.00	(266.12)	100.0%
Project HA1317 - CLS-PIER T,T132-T140 SHORE TO SHIP POWER								
1B2348	1B2348/PERMITTING/ELECT INFRASTRUCTURE	291,851.12	0.00	0.00	291,851.12	0.00	0.00	100.0%
1C2348	1C2348/DESIGN/ELECTRICAL INFRASTRUCTURE	4,709,456.06	0.00	0.00	4,709,456.06	0.00	0.00	100.0%
1H2348	1H2348/CONST/ELECTRICAL INFRA	29,415,926.69	0.00	0.00	29,416,228.51	0.00	(301.82)	100.0%
Total Project HA1317		34,417,233.87	0.00	0.00	34,417,535.69	0.00	(301.82)	100.0%
Total		52,970,775.30	0.00	0.00	52,971,343.24	0.00	(567.94)	100.0%
Total Expenditures		52,970,775.30	0.00	0.00	52,971,343.24	0.00	(567.94)	100.0%

Criteria: Project = HA1314, HA1317; Project Detail = !9*

Run: 3/27/2019 8:20 AM Includes transactions posted through: 3/26/2019

Port of LONG BEACH
The Green Port

ANALYSIS OF BIDS
CITY OF LONG BEACH, HARBOR DEPARTMENT

SPECIFICATIONS FOR: Pier A, Berths A88-A96, Shore to Ship Power Retrofit at Pier A Container Terminal

NO. HD-S2342A

DATE OPENED: January 31, 2012

		Shimmick Construction Company 8201 Edgewater Drive #202 Oakland, Ca 94612 Phone: (949) 333-1500 Fax: (949) 333-1510		KDC, Inc. dba Dynalectric 4462 Corporate Center Drive Los Alamitos, CA 90720 Phone: (714) 828-7000 Fax: (714) 484-2385		Griffith/Neubauer JV 12200 Bloomfield Avenue Santa Fe Springs, CA 90670 Phone: (562) 929-1128 Fax: (562) 864-7938		Minako America Corporation 522 E. Airline Way Gardena, CA 90248 Phone: (310) 516-8100 Fax: (310) 516-7404		Sully-Miller Contracting Company 135 S. State College Blvd #400 Brea, CA 92821 Phone: (714) 578-9600 Fax: (714) 449-8775	
ITEM	ESTIMATED QUANTITIES	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT
ITEM NO. 1 - Mobilization and Demobilization: Furnish all labor, materials, tools, equipment, incidentals and supervision necessary to perform... as specified and shown for the lump sum price (of which only 50% may be applied to mobilization) of -	Lump Sum	130,000.00	130,000.00	100,000.00	100,000.00	670,000.00	670,000.00	377,000.00	377,000.00	1,250,000.00	1,250,000.00
ITEM NO. 2 - Site Specific Safety Plan: Provide and implement an approved Site Specific Safety Plan for the lump sum price of -	Lump Sum	15,000.00	15,000.00	10,000.00	10,000.00	10,000.00	10,000.00	17,000.00	17,000.00	22,106.00	22,106.00
ITEM NO. 3 - Asphalt Concrete Pavement Demolition: Provide all labor, equipment, materials and incidentals necessary to perform demolition, removal and disposal of existing asphalt pavement and... as shown and specified for the lump sum price of -	Lump Sum	150,000.00	150,000.00	105,000.00	105,000.00	100,000.00	100,000.00	107,000.00	107,000.00	201,857.00	201,857.00
ITEM NO. 4 - Soil Handling and Disposal of Surplus Soil: Provide all labor, equipment, materials and incidentals necessary to stockpile... approximately one thousand one hundred (1,100) tons... as specified and shown for the unit price per ton of -	Unit Price	10.00	11,000.00	33.00	36,300.00	19.50	21,450.00	33.64	37,004.00	66.82	73,502.00
ITEM NO. 5 - Soil Handling and Disposal of Non-Hazardous Waste: Provide all labor, equipment, materials and incidentals necessary to... approximately six hundred fifty (650) tons of Non-Hazardous... as specified and shown for the unit price per ton of -	Unit Price	80.00	52,000.00	71.00	46,150.00	58.00	37,700.00	56.92	36,998.00	78.34	50,921.00
TOTAL:											
CERTIFIED CHECK OR BOND:											

Shimmick Construction Company
LOWEST RESPONSIBLE BIDDER

594575/Exp. 05/31/2012
LICENSE NUMBER

$11,513,850.00
AMOUNT

AUTHORIZED SIGNATURE

Port of LONG BEACH
The Green Port

ANALYSIS OF BIDS
CITY OF LONG BEACH, HARBOR DEPARTMENT

SPECIFICATIONS FOR: Pier A, Berths A88-A96, Shore to Ship Power Retrofit at Pier A Container Terminal | **NO. HD-S2342A** | **DATE OPENED: January 31, 2012**

		Shimmick Construction Company 8201 Edgewater Drive #202 Oakland, Ca 94612 Phone: (949) 333-1500 Fax: (949) 333-1510		KDC, Inc. dba Dynalectric 4462 Corporate Center Drive Los Alamitos, CA 90720 Phone: (714) 828-7000 Fax: (714) 484-2385		Griffith/Neubauer JV 12200 Bloomfield Avenue Santa Fe Springs, CA 90670 Phone: (562) 929-1128 Fax: (562) 864-7938		Minako America Corporation 522 E. Airline Way Gardena, CA 90248 Phone: (310) 516-8100 Fax: (310) 516-7404		Sully-Miller Contracting Company 135 S. State College Blvd #400 Brea, CA 92821 Phone: (714) 578-9600 Fax: (714) 449-8775	
ITEM	ESTIMATED QUANTITIES	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT
ITEM NO. 6 - Port Furnished Crushed Miscellaneous Base: Provide all labor, equipment, materials and incidentals necessary to mix, load... approximately two thousand six hundred fifty (2,650) tons... as specified and shown for the unit price per ton of -	Unit Price	15.00	39,750.00	42.00	111,300.00	40.00	106,000.00	40.38	107,007.00	34.14	90,471.00
ITEM NO. 7 - Asphalt Concrete Pavement: Provide all labor, equipment, materials and incidentals necessary to construct approximately two thousand five hundred fifty (2,550) tons of asphalt... as specified and shown for the unit price per ton of -	Unit Price	89.00	226,950.00	213.00	543,150.00	108.00	275,400.00	108.63	277,006.50	118.60	302,430.00
ITEM NO. 8 - 8-Foot Chain Link Fence with Barbed Wire: Provide all labor, material, equipment and incidentals... approx four hundred eighty (480) linear feet of 8-foot chain link... as specified and shown for the unit price per linear foot of -	Unit Price	40.00	19,200.00	71.00	34,080.00	41.00	19,680.00	77.09	37,003.20	44.70	21,456.00
ITEM NO. 9 - Chain Link Gates: Provide all labor, material, equipment and incidentals necessary to furnish and install all chain link gates as specified and shown for the lump sum price of -	Lump Sum	15,000.00	15,000.00	10,000.00	10,000.00	14,200.00	14,200.00	17,000.00	17,000.00	10,301.00	10,301.00
ITEM NO. 10 - Pipe Bollards, 12-Inch: Provide all labor, equipment, materials and incidentals necessary to furnish, install, and coat fifty seven (57) 12-inch diameter pipe bollards, as specified and shown for the unit price per each of -	Unit Price	1,200.00	68,400.00	1,700.00	96,900.00	1,320.00	75,240.00	1,877.20	107,000.40	1,707.00	97,299.00
TOTAL:											
CERTIFIED CHECK OR BOND:											

Shimmick Construction Company
LOWEST RESPONSIBLE BIDDER

594575/Exp. 05/31/2012
LICENSE NUMBER

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AMOUNT

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Port of LONG BEACH
The Green Port

ANALYSIS OF BIDS
CITY OF LONG BEACH, HARBOR DEPARTMENT

SPECIFICATIONS FOR: Pier A, Berths A88-A96, Shore to Ship Power Retrofit at Pier A Container Terminal

NO. HD-S2342A

DATE OPENED: January 31, 2012

		Shimmick Construction Company 8201 Edgewater Drive #202 Oakland, Ca 94612 Phone: (949) 333-1500 Fax: (949) 333-1510		KDC, Inc. dba Dynalectric 4462 Corporate Center Drive Los Alamitos, CA 90720 Phone: (714) 828-7000 Fax: (714) 484-2385		Griffith/Neubauer JV 12200 Bloomfield Avenue Santa Fe Springs, CA 90670 Phone: (562) 929-1128 Fax: (562) 864-7938		Minako America Corporation 522 E. Airline Way Gardena, CA 90248 Phone: (310) 516-8100 Fax: (310) 516-7404		Sully-Miller Contracting Company 135 S. State College Blvd #400 Brea, CA 92821 Phone: (714) 578-9600 Fax: (714) 449-8775	
ITEM	**ESTIMATED QUANTITIES**	**RATE**	**AMOUNT**	**RATE**	**AMOUNT**	**RATE**	**AMOUNT**	**RATE**	**AMOUNT**	**RATE**	**AMOUNT**
ITEM NO. 11 - Bid Item Removed: Bid item removed per Addendum No. 1 issued January 4, 2012.	Lump Sum	0	0	0	0	0	0	0	0	0	0
ITEM NO. 12 - Repair of Existing Striping: Provide all labor, equipment, materials and incidentals necessary to repair approximately three thousand eight hundred (3,800) linear feet of... as specified and required for the unit price per linear foot of -	Unit Pricie	1.00	3,800.00	2.50	9,500.00	1.15	4,370.00	1.85	7,030.00	1.12	4,256.00
ITEM NO. 13 - Repair of Existing Pavement Markings: Provide all labor, equipment, materials and incidentals necessary to repair approximately one hundred fifty five (155) existing markings, as specified and required for the unit price per each of -	Unit Pricie	50.00	7,750.00	142.00	22,010.00	46.00	7,130.00	109.68	17,000.40	45.00	6,975.00
ITEM NO. 14 - Shore Power Outlet Vaults for Berth 90 (SPO 7, SPO 8 & SPO 9): Provide all labor, material, equipment and incidentals necessary to perform demolition and construction of shore to ship... as specified and shown for the lump sum price of -	Lump Sum	250,000.00	250,000.00	365,000.00	365,000.00	340,000.00	340,000.00	377,000.00	377,000.00	343,615.00	343,615.00
ITEM NO. 15 - Shore Power Outlet Vaults for Berth 92 (SPO 4, SPO 5 & SPO 6): Provide all labor, material, equipment and incidentals necessary to perform demolition and construction of shore to ship... as specified and shown for the lump sum price of -	Lump Sum	250,000.00	250,000.00	365,000.00	365,000.00	340,000.00	340,000.00	377,000.00	377,000.00	343,615.00	343,615.00
TOTAL:											
CERTIFIED CHECK OR BOND:											

Shimmick Construction Company
LOWEST RESPONSIBLE BIDDER

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The Green Port

ANALYSIS OF BIDS
CITY OF LONG BEACH, HARBOR DEPARTMENT

SPECIFICATIONS FOR: Pier A, Berths A88-A96, Shore to Ship Power Retrofit at Pier A Container Terminal | **NO. HD-S2342A** | **DATE OPENED: January 31, 2012**

ITEM	ESTIMATED QUANTITIES	Shimmick Construction Company 8201 Edgewater Drive #202 Oakland, Ca 94612 Phone: (949) 333-1500 Fax: (949) 333-1510		KDC, Inc. dba Dynalectric 4462 Corporate Center Drive Los Alamitos, CA 90720 Phone: (714) 828-7000 Fax: (714) 484-2385		Griffith/Neubauer JV 12200 Bloomfield Avenue Santa Fe Springs, CA 90670 Phone: (562) 929-1128 Fax: (562) 864-7936		Minako America Corporation 522 E. Airline Way Gardena, CA 90248 Phone: (310) 516-8100 Fax: (310) 516-7404		Sully-Miller Contracting Company 135 S. State College Blvd #400 Brea, CA 92821 Phone: (714) 578-9600 Fax: (714) 449-8775	
		RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT
ITEM NO. 16 - Shore Power Outlet Vaults for Berth 94 (SPO 1, SPO 2 & SPO 3): Povide all labor, material, equipment and incidentals necessary to perform demolition and construction of shore to ship... as specified and shown for the lump sum price of -	Lump Sum	250,000.00	250,000.00	365,000.00	365,000.00	340,000.00	340,000.00	377,000.00	377,000.00	343,615.00	343,615.00
ITEM NO. 17 - Cut-Off Wall Plug/Penetrations: Provide all labor, material, equipment and incidentals necessary to perform demolition, coring and construction of four (4) cut-off wall plug... as specified and shown for the unit price per each of -	Unit Price	7,000.00	28,000.00	6,000.00	24,000.00	5,400.00	21,600.00	4,250.00	17,000.00	9,300.00	37,200.00
ITEM NO. 18 - SPO "Dry Run" Cable Connection Support: Provide all labor, materials, tools, equipment and incidentals necessary to support approximately four (4) ship-side "dry... as specified and directed by the Engineer for the unit price per each of -	Unit Price	3,000.00	12,000.00	1,500.00	6,000.00	2,180.00	8,720.00	1,750.00	7,000.00	2,122.00	8,488.00
ITEM NO. 19 - Ship Testing and Commissioning: Provide all labor, materials, tools, equipment and incidentals necessary to support approximately four (4) ship-side commissioning... as specified and directed by the Engineer for the unit price per each of -	Unit Price	15,000.00	60,000.00	17,500.00	70,000.00	20,437.50	81,750.00	17,500.00	70,000.00	18,392.00	73,568.00
ITEM NO. 20 - Transformer for Berth 90: Provide al labor, material, equipment, and incidentals required to furnish, install, test and commission the transformer(s) as part of a complete system as specified and shown for the lump sum price of -	Lump Sum	650,000.00	650,000.00	600,000.00	600,000.00	654,000.00	654,000.00	477,000.00	477,000.00	599,982.00	599,982.00
TOTAL:											
CERTIFIED CHECK OR BOND:											

Shimmick Construction Company
LOWEST RESPONSIBLE BIDDER

594575/Exp. 05/31/2012
LICENSE NUMBER

$11,513,850.00
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Port of LONG BEACH
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ANALYSIS OF BIDS
CITY OF LONG BEACH, HARBOR DEPARTMENT

SPECIFICATIONS FOR: Pier A, Berths A88-A96, Shore to Ship Power Retrofit at Pier A Container Terminal | **NO. HD-S2342A** | **DATE OPENED: January 31, 2012**

		Shimmick Construction Company 8201 Edgewater Drive #202 Oakland, Ca 94612 Phone: (949) 333-1500 Fax: (949) 333-1510		KDC, Inc. dba Dynalectric 4462 Corporate Center Drive Los Alamitos, CA 90720 Phone: (714) 828-7000 Fax: (714) 484-2385		Griffith/Neubauer JV 12200 Bloomfield Avenue Santa Fe Springs, CA 90670 Phone: (562) 929-1128 Fax: (562) 864-7938		Minako America Corporation 522 E. Airline Way Gardena, CA 90248 Phone: (310) 516-8100 Fax: (310) 516-7404		Sully-Miller Contracting Company 135 S. State College Blvd #400 Brea, CA 92821 Phone: (714) 578-9600 Fax: (714) 449-8775	
ITEM	ESTIMATED QUANTITIES	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT
ITEM NO. 21 - Transformer for Berth 92: Provide al labor, material, equipment, and incidentals required to furnish, install, test and commission the transformer(s) as part of a complete system as specified and shown for the lump sum price of -	Lump Sum	650,000.00	650,000.00	600,000.00	600,000.00	654,000.00	654,000.00	477,000.00	477,000.00	599,982.00	599,982.00
ITEM NO. 22 - Transformer for Berth 94: Provide al labor, material, equipment, and incidentals required to furnish, install, test and commission the transformer(s) as part of a complete system as specified and shown for the lump sum price of -	Lump Sum	650,000.00	650,000.00	600,000.00	600,000.00	654,000.00	654,000.00	477,000.00	477,000.00	599,982.00	599,982.00
ITEM NO. 23 - Switchgear Assembly for Berth 90: Provide all labor, material, equipment and incidentals required to furnish, install, test and commission the switchgear assembly as part of a complete... as specified and shown for the lump sum price of -	Lump Sum	1,750,000.00	1,750,000.00	1,690,000.00	1,690,000.00	1,744,000.00	1,744,000.00	1,777,000.00	1,777,000.00	1,582,989.00	1,582,989.00
ITEM NO. 24 - Switchgear Assembly for Berth 92: Provide all labor, material, equipment and incidentals required to furnish, install, test and commission the switchgear assembly as part of a complete... as specified and shown for the lump sum price of -	Lump Sum	1,475,000.00	1,475,000.00	1,510,000.00	1,510,000.00	1,417,000.00	1,417,000.00	1,777,000.00	1,777,000.00	1,448,485.00	1,448,485.00
ITEM NO. 25 - Switchgear Assembly for Berth 94: Provide all labor, material, equipment and incidentals required to furnish, install, test and commission the switchgear assembly as part of a complete... as specified and shown for the lump sum price of -	Lump Sum	1,500,000.00	1,500,000.00	1,600,000.00	1,600,000.00	1,471,500.00	1,471,500.00	1,377,000.00	1,377,000.00	1,469,022.00	1,469,022.00
TOTAL:											
CERTIFIED CHECK OR BOND:											

Shimmick Construction Company	594575/Exp. 05/31/2012	$11,513,850.00	
LOWEST RESPONSIBLE BIDDER	LICENSE NUMBER	AMOUNT	AUTHORIZED SIGNATURE

Port of LONG BEACH
The Green Port

ANALYSIS OF BIDS
CITY OF LONG BEACH, HARBOR DEPARTMENT

SPECIFICATIONS FOR: Pier A, Berths A88-A96, Shore to Ship Power Retrofit at Pier A Container Terminal

NO. HD-S2342A

DATE OPENED: January 31, 2012

		Shimmick Construction Company 8201 Edgewater Drive #202 Oakland, Ca 94612 Phone: (949) 333-1500 Fax: (949) 333-1510		KDC, Inc. dba Dynalectric 4462 Corporate Center Drive Los Alamitos, CA 90720 Phone: (714) 828-7000 Fax: (714) 484-2385		Griffith/Neubauer JV 12200 Bloomfield Avenue Santa Fe Springs, CA 90670 Phone: (562) 929-1128 Fax: (562) 864-7938		Minako America Corporation 522 E. Airline Way Gardena, CA 90248 Phone: (310) 516-8100 Fax: (310) 516-7404		Sully-Miller Contracting Company 135 S. State College Blvd #400 Brea, CA 92821 Phone: (714) 578-9600 Fax: (714) 449-8775	
ITEM	ESTIMATED QUANTITIES	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT
ITEM NO. 26 - Ductbanks and Raceways for Berth 90: Provide all labor, material, equipment and incidentals required to furnish and install the ductbanks and raceways as part of a complete system as specified and shown for the lump sum price of -	Lump Sum	500,000.00	500,000.00	581,000.00	581,000.00	435,000.00	435,000.00	577,000.00	577,000.00	384,754.00	384,754.00
ITEM NO. 27 - Ductbanks and Raceways for Berth 92: Provide all labor, material, equipment and incidentals required to furnish and install the ductbanks and raceways as part of a complete system as specified and shown for the lump sum price of -	Lump Sum	450,000.00	450,000.00	537,000.00	537,000.00	435,000.00	435,000.00	577,000.00	577,000.00	374,855.00	374,855.00
ITEM NO. 28 - Ductbanks and Raceways for Berth 94: Provide all labor, material, equipment and incidentals required to furnish and install the ductbanks and raceways as part of a complete system as specified and shown for the lump sum price of -	Lump Sum	325,000.00	325,000.00	436,000.00	436,000.00	355,000.00	355,000.00	477,000.00	477,000.00	342,606.00	342,606.00
ITEM NO. 29 - Conductors for Berth 90: Provide all labor, material, equipment and incidentals required to furnish, install and test the conductors as part of a complete system as specified and shown for the lump sum price of -	Lump Sum	300,000.00	300,000.00	250,000.00	250,000.00	332,450.00	332,450.00	377,000.00	377,000.00	331,972.00	331,972.00
ITEM NO. 30 - Conductors for Berth 92: Provide all labor, material, equipment and incidentals required to furnish, install and test the conductors as part of a complete system as specified and shown for the lump sum price of -	Lump Sum	300,000.00	300,000.00	260,000.00	260,000.00	332,450.00	332,450.00	277,000.00	277,000.00	345,359.00	345,359.00
TOTAL:											
CERTIFIED CHECK OR BOND:											

Shimmick Construction Company
LOWEST RESPONSIBLE BIDDER

594575/Exp. 05/31/2012
LICENSE NUMBER

$11,513,850.00
AMOUNT

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Port of LONG BEACH
The Green Port

ANALYSIS OF BIDS
CITY OF LONG BEACH, HARBOR DEPARTMENT

SPECIFICATIONS FOR: Pier A, Berths A88-A96, Shore to Ship Power Retrofit at Pier A Container Terminal | **NO. HD-S2342A** | **DATE OPENED: January 31, 2012**

		Shimmick Construction Company 6201 Edgewater Drive #202 Oakland, Ca 94612 Phone: (949) 333-1500 Fax: (949) 333-1510		KDC, Inc. dba Dynalectric 4462 Corporate Center Drive Los Alamitos, CA 90720 Phone: (714) 828-7000 Fax: (714) 484-2385		Griffith/Neubauer JV 12200 Bloomfield Avenue Santa Fe Springs, CA 90670 Phone: (562) 929-1128 Fax: (562) 864-7938		Minako America Corporation 522 E. Airline Way Gardena, CA 90248 Phone: (310) 516-8100 Fax: (310) 516-7404		Sully-Miller Contracting Company 135 S. State College Blvd #400 Brea, CA 92821 Phone: (714) 578-9600 Fax: (714) 449-8775	
ITEM	ESTIMATED QUANTITIES	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT
ITEM NO. 31 - Conductors for Berth 94: Provide all labor, material, equipment and incidentals required to furnish, install and test the conductors as part of a complete system as specified and shown for the lump sum price of -	Lump Sum	325,000.00	325,000.00	180,000.00	180,000.00	332,450.00	332,450.00	377,000.00	377,000.00	400,643.00	400,643.00
ITEM NO. 32 - SPO Receptacles for Berth 90: Provide all labor, material, equipment and incidentals required to furnish, install, test and commission the SPO receptacles as part of a complete system as specified and shown for the lump sum price of -	Lump Sum	100,000.00	100,000.00	110,000.00	110,000.00	88,000.00	88,000.00	177,000.00	177,000.00	108,398.00	108,398.00
ITEM NO. 33 - SPO Receptacles for Berth 92: Provide all labor, material, equipment and incidentals required to furnish, install, test and commission the SPO receptacles as part of a complete system as specified and shown for the lump sum price of -	Lump Sum	100,000.00	100,000.00	110,000.00	110,000.00	88,000.00	88,000.00	177,000.00	177,000.00	108,158.00	108,158.00
ITEM NO. 34 - SPO Receptacles for Berth 94: Provide all labor, material, equipment and incidentals required to furnish, install, test and commission the SPO receptacles as part of a complete system as specified and shown for the lump sum price of -	Lump Sum	100,000.00	100,000.00	110,000.00	110,000.00	88,000.00	88,000.00	177,000.00	177,000.00	108,158.00	108,158.00
ITEM NO. 35 - All Other Electrical Work for Berth 90: Provide all labor, material, equipment and incidentals required to furnish, install, test and commission all other electrical work for Berth 90 ... as specified and shown for the lump sum price of -	Lump Sum	475,000.00	475,000.00	230,750.00	230,750.00	456,000.00	456,000.00	177,000.00	177,000.00	433,504.00	433,504.00
TOTAL:											
CERTIFIED CHECK OR BOND:											

Shimmick Construction Company
LOWEST RESPONSIBLE BIDDER

594575/Exp. 05/31/2012
LICENSE NUMBER

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AMOUNT

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Port of LONG BEACH
The Green Port

ANALYSIS OF BIDS
CITY OF LONG BEACH, HARBOR DEPARTMENT

SPECIFICATIONS FOR: Pier A, Berths A88-A96, Shore to Ship Power Retrofit at Pier A Container Terminal

NO. HD-S2342A

DATE OPENED: January 31, 2012

		Shimmick Construction Company 8201 Edgewater Drive #202 Oakland, Ca 94612 Phone: (949) 333-1500 Fax: (949) 333-1510		KDC, Inc. dba Dynalectric 4462 Corporate Center Drive Los Alamitos, CA 90720 Phone: (714) 828-7000 Fax: (714) 484-2385		Griffith/Neubauer JV 12200 Bloomfield Avenue Santa Fe Springs, CA 90670 Phone: (562) 929-1128 Fax: (562) 864-7938		Minako America Corporation 522 E. Airline Way Gardena, CA 90248 Phone: (310) 516-8100 Fax: (310) 516-7404		Sully-Miller Contracting Company 135 S. State College Blvd #400 Brea, CA 92821 Phone: (714) 578-9600 Fax: (714) 449-8775	
ITEM	ESTIMATED QUANTITIES	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT
ITEM NO. 36 - All Other Electrical Work for Berth 92: Provide all labor, material, equipment and incidentals required to furnish, install, test and commission all other electrical work for Berth 92 ... as specified and shown for the lump sum price of -	Lump Sum	70,000.00	70,000.00	100,000.00	100,000.00	107,000.00	107,000.00	177,000.00	177,000.00	47,341.00	47,341.00
ITEM NO. 37 - All Other Electrical Work for Berth 94: Provide all labor, material, equipment and incidentals required to furnish, install, test and commission all other electrical work for Berth 94 ... as specified and shown for the lump sum price of -	Lump Sum	105,000.00	105,000.00	150,000.00	150,000.00	126,000.00	126,000.00	177,000.00	177,000.00	50,750.00	50,750.00
ITEM NO. 38 - Allowance for Load Bank Test Energy Usage: Provide all labor, materials, tools, equipment and incidentals necessary to reimburse the Tenant for energy... The limits and use of the Allowance shall be solely as directed by the Engineer -	Allowance	50,000.00	50,000.00	50,000.00	50,000.00	50,000.00	50,000.00	50,000.00	50,000.00	50,000.00	50,000.00
ITEM NO. 39 - Stand-by Time: Provide all labor, equipment, materials and incidentals necessary to provide approximately twenty-five (25) hours of stand-by time for personnel and equipment, including, but not limited to... for the unit price per hour of -	Unit Price	1,000.00	25,000.00	720.00	18,000.00	2,100.00	52,500.00	680.00	17,000.00	1,268.00	31,700.00
ITEM NO. 40 - Environmental Protection Plan (E.P.P) Compliance: Provide all labor, equipment, materials and incidentals necessary to develop Environmental Protection Plan, including SWPPP (see Appendix... as specified and shown for the lump sum price of -	Lump Sum	20,000.00	20,000.00	72,000.00	72,000.00	34,500.00	34,500.00	77,000.00	77,000.00	22,106.00	22,106.00
TOTAL:											
CERTIFIED CHECK OR BOND:											

Shimmick Construction Company
LOWEST RESPONSIBLE BIDDER

594575/Exp. 05/31/2012
LICENSE NUMBER

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AMOUNT

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Port of LONG BEACH
The Green Port

ANALYSIS OF BIDS
CITY OF LONG BEACH, HARBOR DEPARTMENT

SPECIFICATIONS FOR: Pier A, Berths A88-A96, Shore to Ship Power Retrofit at Pier A Container Terminal | **NO. HD-S2342A** | **DATE OPENED: January 31, 2012**

		Shimmick Construction Company 8201 Edgewater Drive #202 Oakland, Ca 94612 Phone: (949) 333-1500 Fax: (949) 333-1510		KDC, Inc. dba Dynalectric 4462 Corporate Center Drive Los Alamitos, CA 90720 Phone: (714) 828-7000 Fax: (714) 484-2385		Griffith/Neubauer JV 12200 Bloomfield Avenue Santa Fe Springs, CA 90670 Phone: (562) 929-1128 Fax: (562) 864-7938		Minako America Corporation 522 E. Airline Way Gardena, CA 90248 Phone: (310) 516-8100 Fax: (310) 516-7404		Sully-Miller Contracting Company 135 S. State College Blvd #400 Brea, CA 92821 Phone: (714) 578-9600 Fax: (714) 449-8775	
ITEM	ESTIMATED QUANTITIES	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT
ITEM NO. 41 - Schedule: Provide all labor, equipment, materials and incidentals necessary to develop and update all schedules complete as specified for the lump sum price of -	Lump Sum	5,000.00	5,000.00	50,000.00	50,000.00	15,000.00	15,000.00	7,000.00	7,000.00	50,363.00	50,363.00
TOTAL:		$11,513,850.00		$12,164,140.00		$12,395,090.00		$12,606,049.50		$12,772,784.00	
CERTIFIED CHECK OR BOND:		10% Bond		10% Bond		10% Bond		10% Bond		10% Bond	

Shimmick Construction Company
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CITY OF LONG BEACH, HARBOR DEPARTMENT

SPECIFICATIONS FOR: Pier A, Berths A88-A96, Shore to Ship Power Retrofit at Pier A Container Terminal

NO. HD-S2342A

DATE OPENED: January 31, 2012

		Cupertino Electric, Inc. 1132 N. Seventh Street San Jose, CA 95112 Phone: (562) 641-2400 Fax: (562) 946-9988		Vellutini Corp dba Royal Electric 8481 Carbide Ct Sacramento, CA 95828 Phone: (916) 226-2100 Fax: (916) 226-2150		Comet Electric 7760 Deering Avenue Canoga Park, CA 91304 Phone: (818) 340-0965 Fax: (818) 340-4033		The Ryan Company 15 Commerce Way Norton, MA 02766 Phone: (508) 742-2500 Fax: (508) 742-2540		Marathon Construction Company 10108 Riverford Road Lakeside, CA 92040 Phone: (619) 276-4401 Fax: (619) 276-0717	
ITEM	ESTIMATED QUANTITIES	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT
ITEM NO. 1 - Mobilization and Demobilization: Furnish all labor, materials, tools, equipment, incidentals and supervision necessary to perform... as specified and shown for the lump sum price (of which only 50% may be applied to mobilization) of -	Lump Sum	150,000.00	150,000.00	150,000.00	150,000.00	651,217.00	651,217.00	1,472,000.00	1,472,000.00	511,322.00	511,322.00
ITEM NO. 2 - Site Specific Safety Plan: Provide and implement an approved Site Specific Safety Plan for the lump sum price of -	Lump Sum	60,000.00	60,000.00	50,000.00	50,000.00	175,982.00	175,982.00	12,000.00	12,000.00	15,000.00	15,000.00
ITEM NO. 3 - Asphalt Concrete Pavement Demolition: Provide all labor, equipment, materials and incidentals necessary to perform demolition, removal and disposal of existing asphalt pavement and... as shown and specified for the lump sum price of -	Lump Sum	113,156.00	113,156.00	101,000.00	101,000.00	351,965.00	351,965.00	54,000.00	54,000.00	215,000.00	215,000.00
ITEM NO. 4 - Soil Handling and Disposal of Surplus Soil: Provide all labor, equipment, materials and incidentals necessary to stockpile... approximately one thousand one hundred (1,100) tons... as specified and shown for the unit price per ton of -	Unit Price	34.91	38,401.00	20.10	22,110.00	44.00	48,400.00	66.30	72,930.00	40.00	44,000.00
ITEM NO. 5 - Soil Handling and Disposal of Non-Hazardous Waste: Provide all labor, equipment, materials and incidentals necessary to... approximately six hundred fifty (650) tons of Non-Hazardous... as specified and shown for the unit price per ton of -	Unit Price	53.00	34,450.00	110.00	71,500.00	57.00	37,050.00	42.20	27,430.00	75.00	48,750.00
TOTAL:											
CERTIFIED CHECK OR BOND:											

Shimmick Construction Company
LOWEST RESPONSIBLE BIDDER

594575/Exp. 05/31/2012
LICENSE NUMBER

$11,513,850.00
AMOUNT

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Port of LONG BEACH
The Green Port

ANALYSIS OF BIDS
CITY OF LONG BEACH, HARBOR DEPARTMENT

SPECIFICATIONS FOR: Pier A, Berths A88-A96, Shore to Ship Power Retrofit at Pier A Container Terminal | **NO. HD-S2342A** | **DATE OPENED: January 31, 2012**

		Cupertino Electric, Inc. 1132 N. Seventh Street San Jose, CA 95112 Phone: (562) 641-2400 Fax: (562) 946-9988		Vellutini Corp dba Royal Electric 8481 Carbide Ct Sacramento, CA 95828 Phone: (916) 226-2100 Fax: (916) 226-2150		Comet Electric 7760 Deering Avenue Canoga Park, CA 91304 Phone: (818) 340-0965 Fax: (818) 340-4033		The Ryan Company 15 Commerce Way Norton, MA 02766 Phone: (508) 742-2500 Fax: (508) 742-2540		Marathon Construction Company 10108 Riverford Road Lakeside, CA 92040 Phone: (619) 276-4401 Fax: (619) 276-0717	
ITEM	ESTIMATED QUANTITIES	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT
ITEM NO. 6 - Port Furnished Crushed Miscellaneous Base: Provide all labor, equipment, materials and incidentals necessary to mix, load... approximately two thousand six hundred fifty (2,650) tons... as specified and shown for the unit price per ton of -	Unit Price	42.00	111,300.00	42.00	111,300.00	42.00	111,300.00	36.15	95,797.50	40.00	106,000.00
ITEM NO. 7 - Asphalt Concrete Pavement: Provide all labor, equipment, materials and incidentals necessary to construct approximately two thousand five hundred fifty (2,550) tons of asphalt... as specified and shown for the unit price per ton of -	Unit Price	204.50	521,475.00	124.00	316,200.00	106.00	270,300.00	112.00	285,600.00	130.00	331,500.00
ITEM NO. 8 - 8-Foot Chain Link Fence with Barbed Wire: Provide all labor, material, equipment and incidentals... approx four hundred eighty (480) linear feet of 8-foot chain link... as specified and shown for the unit price per linear foot of -	Unit Price	77.00	36,960.00	42.00	20,160.00	36.00	17,280.00	41.00	19,680.00	50.00	24,000.00
ITEM NO. 9 - Chain Link Gates: Provide all labor, material, equipment and incidentals necessary to furnish and install all chain link gates as specified and shown for the lump sum price of -	Lump Sum	11,436.00	11,436.00	14,600.00	14,600.00	12,318.00	12,318.00	3,455.00	3,455.00	15,000.00	15,000.00
ITEM NO. 10 - Pipe Bollards, 12-inch: Provide all labor, equipment, materials and incidentals necessary to furnish, install, and coat fifty seven (57) 12-inch diameter pipe bollards, as specified and shown for the unit price per each of -	Unit Price	1,800.00	102,600.00	1,360.00	77,520.00	1,161.00	66,177.00	1,579.00	90,003.00	2,000.00	114,000.00
TOTAL:											
CERTIFIED CHECK OR BOND:											

Shimmick Construction Company — LOWEST RESPONSIBLE BIDDER

594575/Exp. 05/31/2012 — LICENSE NUMBER

$11,513,850.00 — AMOUNT

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Port of LONG BEACH
The Green Port

ANALYSIS OF BIDS
CITY OF LONG BEACH, HARBOR DEPARTMENT

SPECIFICATIONS FOR: Pier A, Berths A88-A96, Shore to Ship Power Retrofit at Pier A Container Terminal

NO. HD-S2342A

DATE OPENED: January 31, 2012

ITEM	ESTIMATED QUANTITIES	Cupertino Electric, Inc. 1132 N. Seventh Street San Jose, CA 95112 Phone: (562) 641-2400 Fax: (562) 946-9988		Vellutini Corp dba Royal Electric 8481 Carbide Ct Sacramento, CA 95828 Phone: (916) 226-2100 Fax: (916) 226-2150		Comet Electric 7760 Deering Avenue Canoga Park, CA 91304 Phone: (818) 340-0965 Fax: (818) 340-4033		The Ryan Company 15 Commerce Way Norton, MA 02766 Phone: (508) 742-2500 Fax: (508) 742-2540		Marathon Construction Company 10108 Riverford Road Lakeside, CA 92040 Phone: (619) 276-4401 Fax: (619) 276-0717	
		RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT
ITEM NO. 11 - Bid Item Removed: Bid item removed per Addendum No. 1 issued January 4, 2012.	Lump Sum	0	0	0	0	0	0	0	0	0	0
ITEM NO. 12 - Repair of Existing Striping: Provide all labor, equipment, materials and incidentals necessary to repair approximately three thousand eight hundred (3,800) linear feet of... as specified and required for the unit price per linear foot of -	Unit Pricie	2.40	9,120.00	3.40	12,920.00	2.25	8,550.00	3.65	13,870.00	2.00	7,600.00
ITEM NO. 13 - Repair of Existing Pavement Markings: Provide all labor, equipment, materials and incidentals necessary to repair approximately one hundred fifty five (155) existing markings, as specified and required for the unit price per each of -	Unit Pricie	120.00	18,600.00	90.00	13,950.00	315.00	48,825.00	18.10	2,805.50	71.00	11,005.00
ITEM NO. 14 - Shore Power Outlet Vaults for Berth 90 (SPO 7, SPO 8 & SPO 9): Provide all labor, material, equipment and incidentals necessary to perform demolition and construction of shore to ship... as specified and shown for the lump sum price of -	Lump Sum	463,458.00	463,458.00	353,666.00	353,666.00	389,124.00	389,124.00	232,000.00	232,000.00	600,000.00	600,000.00
ITEM NO. 15 - Shore Power Outlet Vaults for Berth 92 (SPO 4, SPO 5 & SPO 6): Provide all labor, material, equipment and incidentals necessary to perform demolition and construction of shore to ship... as specified and shown for the lump sum price of -	Lump Sum	463,458.00	463,458.00	353,666.00	353,666.00	389,124.00	389,124.00	142,000.00	142,000.00	600,000.00	600,000.00
TOTAL:											
CERTIFIED CHECK OR BOND:											

Shimmick Construction Company
LOWEST RESPONSIBLE BIDDER

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LICENSE NUMBER

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CITY OF LONG BEACH, HARBOR DEPARTMENT

SPECIFICATIONS FOR: Pier A, Berths A88-A96, Shore to Ship Power Retrofit at Pier A Container Terminal

NO. HD-S2342A

DATE OPENED: January 31, 2012

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ITEM	ESTIMATED QUANTITIES	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT
ITEM NO. 16 - Shore Power Outlet Vaults for Berth 94 (SPO 1, SPO 2 & SPO 3): Povide all labor, material, equipment and incidentals necessary to perform demolition and construction of shore to ship... as specified and shown for the lump sum price of -	Lump Sum	463,458.00	463,458.00	353,666.00	353,666.00	389,124.00	389,124.00	142,000.00	142,000.00	600,000.00	600,000.00
ITEM NO. 17 - Cut-Off Wall Plug/Penetrations: Provide all labor, material, equipment and incidentals necessary to perform demolition, coring and construction of four (4) cut-off wall plug... as specified and shown for the unit price per each of -	Unit Price	7,223.00	28,892.00	6,200.00	24,800.00	4,180.00	16,720.00	14,500.00	58,000.00	12,000.00	48,000.00
ITEM NO. 18 - SPO "Dry Run" Cable Connection Support: Provide all labor, materials, tools, equipment and incidentals necessary to support approximately four (4) ship-side "dry... as specified and directed by the Engineer for the unit price per each of -	Unit Price	621.00	2,484.00	640.00	2,560.00	519.00	2,076.00	775.00	3,100.00	1,400.00	5,600.00
ITEM NO. 19 - Ship Testing and Commissioning: Provide all labor, materials, tools, equipment and incidentals necessary to support approximately four (4) ship-side commissioning... as specified and directed by the Engineer for the unit price per each of -	Unit Price	17,915.00	71,660.00	14,000.00	56,000.00	3,754.00	15,016.00	61,400.00	245,600.00	20,000.00	80,000.00
ITEM NO. 20 - Transformer for Berth 90: Provide al labor, material, equipment, and incidentals required to furnish, install, test and commission the transformer(s) as part of a complete system as specified and shown for the lump sum price of -	Lump Sum	625,700.00	625,700.00	609,000.00	609,000.00	1,208,972.00	1,208,972.00	662,000.00	662,000.00	740,000.00	740,000.00
TOTAL:											
CERTIFIED CHECK OR BOND:											

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CITY OF LONG BEACH, HARBOR DEPARTMENT

SPECIFICATIONS FOR: Pier A, Berths A88-A96, Shore to Ship Power Retrofit at Pier A Container Terminal | **NO. HD-S2342A** | **DATE OPENED: January 31, 2012**

ITEM	ESTIMATED QUANTITIES	Cupertino Electric, Inc. 1132 N. Seventh Street San Jose, CA 95112 Phone: (562) 641-2400 Fax: (562) 946-9988		Vellutini Corp dba Royal Electric 8481 Carbide Ct Sacramento, CA 95828 Phone: (916) 226-2100 Fax: (916) 226-2150		Comet Electric 7760 Deering Avenue Canoga Park, CA 91304 Phone: (818) 340-0965 Fax: (818) 340-4033		The Ryan Company 15 Commerce Way Norton, MA 02766 Phone: (508) 742-2500 Fax: (508) 742-2540		Marathon Construction Company 10108 Riverford Road Lakeside, CA 92040 Phone: (619) 276-4401 Fax: (619) 276-0717	
		RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT
ITEM NO. 21 - Transformer for Berth 92: Provide al labor, material, equipment, and incidentals required to furnish, install, test and commission the transformer(s) as part of a complete system as specified and shown for the lump sum price of -	Lump Sum	625,700.00	625,700.00	609,000.00	609,000.00	1,211,997.00	1,211,997.00	662,000.00	662,000.00	665,000.00	665,000.00
ITEM NO. 22 - Transformer for Berth 94: Provide al labor, material, equipment, and incidentals required to furnish, install, test and commission the transformer(s) as part of a complete system as specified and shown for the lump sum price of -	Lump Sum	625,700.00	625,700.00	609,000.00	609,000.00	1,215,296.00	1,215,296.00	662,000.00	662,000.00	710,000.00	710,000.00
ITEM NO. 23 - Switchgear Assembly for Berth 90: Provide all labor, material, equipment and incidentals required to furnish, install, test and commission the switchgear assembly as part of a complete... as specified and shown for the lump sum price of -	Lump Sum	1,648,325.00	1,648,325.00	1,655,000.00	1,655,000.00	1,232,346.00	1,232,346.00	2,008,000.00	2,008,000.00	1,790,000.00	1,790,000.00
ITEM NO. 24 - Switchgear Assembly for Berth 92: Provide all labor, material, equipment and incidentals required to furnish, install, test and commission the switchgear assembly as part of a complete... as specified and shown for the lump sum price of -	Lump Sum	1,384,637.00	1,384,637.00	1,396,000.00	1,396,000.00	1,232,346.00	1,232,346.00	1,475,000.00	1,475,000.00	1,600,000.00	1,600,000.00
ITEM NO. 25 - Switchgear Assembly for Berth 94: Provide all labor, material, equipment and incidentals required to furnish, install, test and commission the switchgear assembly as part of a complete... as specified and shown for the lump sum price of -	Lump Sum	1,418,089.00	1,418,089.00	1,439,000.00	1,439,000.00	1,237,462.00	1,237,462.00	1,507,000.00	1,507,000.00	1,635,000.00	1,635,000.00
TOTAL:											
CERTIFIED CHECK OR BOND:											

Shimmick Construction Company
LOWEST RESPONSIBLE BIDDER

594575/Exp. 05/31/2012
LICENSE NUMBER

$11,513,850.00
AMOUNT

AUTHORIZED SIGNATURE

Port of LONG BEACH
The Green Port

ANALYSIS OF BIDS
CITY OF LONG BEACH, HARBOR DEPARTMENT

SPECIFICATIONS FOR: Pier A, Berths A88-A96, Shore to Ship Power Retrofit at Pier A Container Terminal | **NO. HD-S2342A** | **DATE OPENED: January 31, 2012**

		Cupertino Electric, Inc. 1132 N. Seventh Street San Jose, CA 95112 Phone: (562) 641-2400 Fax: (562) 946-9988		Vellutini Corp dba Royal Electric 8481 Carbide Ct Sacramento, CA 95828 Phone: (916) 226-2100 Fax: (916) 226-2150		Comet Electric 7760 Deering Avenue Canoga Park, CA 91304 Phone: (818) 340-0965 Fax: (818) 340-4033		The Ryan Company 15 Commerce Way Norton, MA 02766 Phone: (508) 742-2500 Fax: (508) 742-2540		Marathon Construction Company 10108 Riverford Road Lakeside, CA 92040 Phone: (619) 276-4401 Fax: (619) 276-0717	
ITEM	ESTIMATED QUANTITIES	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT
ITEM NO. 26 - Ductbanks and Raceways for Berth 90: Provide all labor, material, equipment and incidentals required to furnish and install the ductbanks and raceways as part of a complete system as specified and shown for the lump sum price of -	Lump Sum	762,606.00	762,606.00	750,000.00	750,000.00	507,835.00	507,835.00	578,000.00	578,000.00	745,000.00	745,000.00
ITEM NO. 27 - Ductbanks and Raceways for Berth 92: Provide all labor, material, equipment and incidentals required to furnish and install the ductbanks and raceways as part of a complete system as specified and shown for the lump sum price of -	Lump Sum	678,099.00	678,099.00	576,000.00	576,000.00	505,492.00	505,492.00	449,000.00	449,000.00	660,000.00	660,000.00
ITEM NO. 28 - Ductbanks and Raceways for Berth 94: Provide all labor, material, equipment and incidentals required to furnish and install the ductbanks and raceways as part of a complete system as specified and shown for the lump sum price of -	Lump Sum	559,890.00	559,890.00	443,000.00	443,000.00	473,340.00	473,340.00	353,000.00	353,000.00	540,000.00	540,000.00
ITEM NO. 29 - Conductors for Berth 90: Provide all labor, material, equipment and incidentals required to furnish, install and test the conductors as part of a complete system as specified and shown for the lump sum price of -	Lump Sum	376,811.00	376,811.00	372,000.00	372,000.00	318,573.00	318,573.00	374,000.00	374,000.00	340,000.00	340,000.00
ITEM NO. 30 - Conductors for Berth 92: Provide all labor, material, equipment and incidentals required to furnish, install and test the conductors as part of a complete system as specified and shown for the lump sum price of -	Lump Sum	381,578.00	381,578.00	369,000.00	369,000.00	304,540.00	304,540.00	425,000.00	425,000.00	310,000.00	310,000.00
TOTAL:											
CERTIFIED CHECK OR BOND:											

Shimmick Construction Company
LOWEST RESPONSIBLE BIDDER

594575/Exp. 05/31/2012
LICENSE NUMBER

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AMOUNT

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Port of LONG BEACH
The Green Port

ANALYSIS OF BIDS
CITY OF LONG BEACH, HARBOR DEPARTMENT

SPECIFICATIONS FOR: Pier A, Berths A88-A96, Shore to Ship Power Retrofit at Pier A Container Terminal | **NO. HD-S2342A** | **DATE OPENED: January 31, 2012**

		Cupertino Electric, Inc. 1132 N. Seventh Street San Jose, CA 95112 Phone: (562) 641-2400 Fax: (562) 946-9988		Vellutini Corp dba Royal Electric 8481 Carbide Ct Sacramento, CA 95828 Phone: (916) 226-2100 Fax: (916) 226-2150		Comet Electric 7760 Deering Avenue Canoga Park, CA 91304 Phone: (818) 340-0965 Fax: (818) 340-4033		The Ryan Company 15 Commerce Way Norton, MA 02766 Phone: (508) 742-2500 Fax: (508) 742-2540		Marathon Construction Company 10108 Riverford Road Lakeside, CA 92040 Phone: (619) 276-4401 Fax: (619) 276-0717	
ITEM	ESTIMATED QUANTITIES	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT
ITEM NO. 31 - Conductors for Berth 94: Provide all labor, material, equipment and incidentals required to furnish, install and test the conductors as part of a complete system as specified and shown for the lump sum price of -	Lump Sum	385,757.00	385,757.00	431,000.00	431,000.00	359,649.00	359,649.00	336,000.00	336,000.00	340,000.00	340,000.00
ITEM NO. 32 - SPO Receptacles for Berth 90: Provide all labor, material, equipment and incidentals required to furnish, install, test and commission the SPO receptacles as part of a complete system as specified and shown for the lump sum price of -	Lump Sum	114,664.00	114,664.00	102,000.00	102,000.00	243,810.00	243,810.00	257,000.00	257,000.00	160,000.00	160,000.00
ITEM NO. 33 - SPO Receptacles for Berth 92: Provide all labor, material, equipment and incidentals required to furnish, install, test and commission the SPO receptacles as part of a complete system as specified and shown for the lump sum price of -	Lump Sum	114,664.00	114,664.00	102,000.00	102,000.00	269,943.00	269,943.00	257,000.00	257,000.00	160,000.00	160,000.00
ITEM NO. 34 - SPO Receptacles for Berth 94: Provide all labor, material, equipment and incidentals required to furnish, install, test and commission the SPO receptacles as part of a complete system as specified and shown for the lump sum price of -	Lump Sum	117,737.00	117,737.00	102,000.00	102,000.00	243,880.00	243,880.00	257,000.00	257,000.00	160,000.00	160,000.00
ITEM NO. 35 - All Other Electrical Work for Berth 90: Provide all labor, material, equipment and incidentals required to furnish, install, test and commission all other electrical work for Berth 90 ... as specified and shown for the lump sum price of -	Lump Sum	204,842.00	204,842.00	883,000.00	883,000.00	128,770.00	128,770.00	510,000.00	510,000.00	525,000.00	525,000.00
TOTAL:											
CERTIFIED CHECK OR BOND:											

Shimmick Construction Company
LOWEST RESPONSIBLE BIDDER

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LICENSE NUMBER

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Port of LONG BEACH
The Green Port

ANALYSIS OF BIDS
CITY OF LONG BEACH, HARBOR DEPARTMENT

SPECIFICATIONS FOR: Pier A, Berths A88-A96, Shore to Ship Power Retrofit at Pier A Container Terminal | **NO. HD-S2342A** | **DATE OPENED: January 31, 2012**

ITEM	ESTIMATED QUANTITIES	Cupertino Electric, Inc. 1132 N. Seventh Street San Jose, CA 95112 Phone: (562) 641-2400 Fax: (562) 946-9988		Vellutini Corp dba Royal Electric 8481 Carbide Ct Sacramento, CA 95828 Phone: (916) 226-2100 Fax: (916) 226-2150		Comet Electric 7760 Deering Avenue Canoga Park, CA 91304 Phone: (818) 340-0965 Fax: (818) 340-4033		The Ryan Company 15 Commerce Way Norton, MA 02766 Phone: (508) 742-2500 Fax: (508) 742-2540		Marathon Construction Company 10108 Riverford Road Lakeside, CA 92040 Phone: (619) 276-4401 Fax: (619) 276-0717	
		RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT
ITEM NO. 36 - All Other Electrical Work for Berth 92: Provide all labor, material, equipment and incidentals required to furnish, install, test and commission all other electrical work for Berth 92 ... as specified and shown for the lump sum price of -	Lump Sum	108,225.00	108,225.00	91,000.00	91,000.00	51,957.00	51,957.00	272,000.00	272,000.00	68,000.00	68,000.00
ITEM NO. 37 - All Other Electrical Work for Berth 94: Provide all labor, material, equipment and incidentals required to furnish, install, test and commission all other electrical work for Berth 94 ... as specified and shown for the lump sum price of -	Lump Sum	130,900.00	130,900.00	64,000.00	64,000.00	59,268.00	59,268.00	155,000.00	155,000.00	100,000.00	100,000.00
ITEM NO. 38 - Allowance for Load Bank Test Energy Usage: Provide all labor, materials, tools, equipment and incidentals necessary to reimburse the Tenant for energy... The limits and use of the Allowance shall be solely as directed by the Engineer -	Allowance	50,000.00	50,000.00	50,000.00	50,000.00	50,000.00	50,000.00	50,000.00	50,000.00	50,000.00	50,000.00
ITEM NO. 39 - Stand-by Time: Provide all labor, equipment, materials and incidentals necessary to provide approximately twenty-five (25) hours of stand-by time for personnel and equipment, including, but not limited to... for the unit price per hour of -	Unit Price	725.00	18,125.00	1,350.00	33,750.00	855.00	21,375.00	760.00	19,000.00	1,000.00	25,000.00
ITEM NO. 40 - Environmental Protection Plan (E.P.P) Compliance: Provide all labor, equipment, materials and incidentals necessary to develop Environmental Protection Plan, including SWPPP (see Appendix... as specified and shown for the lump sum price of -	Lump Sum	77,042.00	77,042.00	53,000.00	53,000.00	70,394.00	70,394.00	25,000.00	25,000.00	50,000.00	50,000.00
TOTAL:											
CERTIFIED CHECK OR BOND:											

Shimmick Construction Company
LOWEST RESPONSIBLE BIDDER

594575/Exp. 05/31/2012
LICENSE NUMBER

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Port of LONG BEACH
The Green Port

ANALYSIS OF BIDS
CITY OF LONG BEACH, HARBOR DEPARTMENT

SPECIFICATIONS FOR: Pier A, Berths A88-A96, Shore to Ship Power Retrofit at Pier A Container Terminal

NO. HD-S2342A

DATE OPENED: January 31, 2012

		Cupertino Electric, Inc. 1132 N. Seventh Street San Jose, CA 95112 Phone: (562) 641-2400 Fax: (562) 946-9988		Vellutini Corp dba Royal Electric 8481 Carbide Ct Sacramento, CA 95828 Phone: (916) 226-2100 Fax: (916) 226-2150		Comet Electric 7760 Deering Avenue Canoga Park, CA 91304 Phone: (818) 340-0965 Fax: (818) 340-4033		The Ryan Company 15 Commerce Way Norton, MA 02766 Phone: (508) 742-2500 Fax: (508) 742-2540		Marathon Construction Company 10108 Riverford Road Lakeside, CA 92040 Phone: (619) 276-4401 Fax: (619) 276-0717	
ITEM	ESTIMATED QUANTITIES	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT
ITEM NO. 41 - Schedule: Provide all labor, equipment, materials and incidentals necessary to develop and update all schedules complete as specified for the lump sum price of -	Lump Sum	50,000.00	50,000.00	163,000.00	163,000.00	35,196.00	35,196.00	80,000.00	80,000.00	250,000.00	250,000.00
TOTAL:		$13,159,999.00		$13,007,368.00		$13,982,989.00		$14,345,271.00		$14,999,777.00	
CERTIFIED CHECK OR BOND:		10% Bond		10% Bond		10% Bond		10% Bond		10% Bond	

Shimmick Construction Company
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CITY OF LONG BEACH, HARBOR DEPARTMENT

SPECIFICATIONS FOR: Pier A, Berths A88-A96, Shore to Ship Power Retrofit at Pier A Container Terminal | **NO. HD-S2342A** | **DATE OPENED: January 31, 2012**

		Steiny and Company 221 N. Ardmore Ave Los Angeles, CA 90004 Phone: (213) 341-2149 Fax: (213) 382-0612									
		NON-RESPONSIVE									
ITEM	ESTIMATED QUANTITIES	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT
ITEM NO. 1 - Mobilization and Demobilization: Furnish all labor, materials, tools, equipment, incidentals and supervision necessary to perform... as specified and shown for the lump sum price (of which only 50% may be applied to mobilization) of -	Lump Sum	300,000.00	300,000.00								
ITEM NO. 2 - Site Specific Safety Plan: Provide and implement an approved Site Specific Safety Plan for the lump sum price of -	Lump Sum	10,000.00	10,000.00								
ITEM NO. 3 - Asphalt Concrete Pavement Demolition: Provide all labor, equipment, materials and incidentals necessary to perform demolition, removal and disposal of existing asphalt pavement and... as shown and specified for the lump sum price of -	Lump Sum	126,206.00	126,206.00								
ITEM NO. 4 - Soil Handling and Disposal of Surplus Soil: Provide all labor, equipment, materials and incidentals necessary to stockpile... approximately one thousand one hundred (1,100) tons... as specified and shown for the unit price per ton of -	Unit Price	38.94	42,834.00								
ITEM NO. 5 - Soil Handling and Disposal of Non-Hazardous Waste: Provide all labor, equipment, materials and incidentals necessary to... approximately six hundred fifty (650) tons of Non-Hazardous... as specified and shown for the unit price per ton of -	Unit Price	59.08	38,402.00								
TOTAL:											
CERTIFIED CHECK OR BOND:											

Shimmick Construction Company
LOWEST RESPONSIBLE BIDDER

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CITY OF LONG BEACH, HARBOR DEPARTMENT

SPECIFICATIONS FOR: Pier A, Berths A88-A96, Shore to Ship Power Retrofit at Pier A Container Terminal | **NO. HD-S2342A** | **DATE OPENED: January 31, 2012**

		Steiny and Company 221 N. Ardmore Ave Los Angeles, CA 90004 Phone: (213) 341-2149 Fax: (213) 382-0612									
		NON-RESPONSIVE									
ITEM	ESTIMATED QUANTITIES	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT
ITEM NO. 6 - Port Furnished Crushed Miscellaneous Base: Provide all labor, equipment, materials and incidentals necessary to mix, load... approximately two thousand six hundred fifty (2,650) tons... as specified and shown for the unit price per ton of -	Unit Price	47.00	124,550.00								
ITEM NO. 7 - Asphalt Concrete Pavement: Provide all labor, equipment, materials and incidentals necessary to construct approximately two thousand five hundred fifty (2,550) tons of asphalt... as specified and shown for the unit price per ton of -	Unit Price	230.00	586,500.00								
ITEM NO. 8 - 8-Foot Chain Link Fence with Barbed Wire: Provide all labor, material, equipment and incidentals... approx four hundred eighty (480) linear feet of 8-foot chain link... as specified and shown for the unit price per linear foot of -	Unit Price	86.00	41,280.00								
ITEM NO. 9 - Chain Link Gates: Provide all labor, material, equipment and incidentals necessary to furnish and install all chain link gates as specified and shown for the lump sum price of -	Lump Sum	12,754.00	12,754.00								
ITEM NO. 10 - Pipe Bollards, 12-inch: Provide all labor, equipment, materials and incidentals necessary to furnish, install, and coat fifty seven (57) 12-inch diameter pipe bollards, as specified and shown for the unit price per each of -	Unit Price	2,014.00	114,798.00								
TOTAL:											
CERTIFIED CHECK OR BOND:											

Shimmick Construction Company	**594575/Exp. 05/31/2012**	**$11,513,850.00**	
LOWEST RESPONSIBLE BIDDER	LICENSE NUMBER	AMOUNT	AUTHORIZED SIGNATURE

Port of LONG BEACH
The Green Port

ANALYSIS OF BIDS
CITY OF LONG BEACH, HARBOR DEPARTMENT

SPECIFICATIONS FOR: Pier A, Berths A88-A96, Shore to Ship Power Retrofit at Pier A Container Terminal | **NO. HD-S2342A** | **DATE OPENED: January 31, 2012**

		Steiny and Company 221 N. Ardmore Ave Los Angeles, CA 90004 Phone: (213) 341-2149 Fax: (213) 382-0612 NON-RESPONSIVE									
ITEM	ESTIMATED QUANTITIES	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT
ITEM NO. 11 - Bid Item Removed: Bid item removed per Addendum No. 1 Issued January 4, 2012.	Lump Sum	0	0								
ITEM NO. 12 - Repair of Existing Striping: Provide all labor, equipment, materials and incidentals necessary to repair approximately three thousand eight hundred (3,800) linear feet of... as specified and required for the unit price per linear foot of -	Unit Pricie	269.00	1,022,200.00								
ITEM NO. 13 - Repair of Existing Pavement Markings: Provide all labor, equipment, materials and incidentals necessary to repair approximately one hundred fifty five (155) existing markings, as specified and required for the unit price per each of -	Unit Pricie	134.25	20,808.75								
ITEM NO. 14 - Shore Power Outlet Vaults for Berth 90 (SPO 7, SPO 8 & SPO 9): Provide all labor, material, equipment and incidentals necessary to perform demolition and construction of shore to ship... as specified and shown for the lump sum price of -	Lump Sum	516,911.00	516,911.00								
ITEM NO. 15 - Shore Power Outlet Vaults for Berth 92 (SPO 4, SPO 5 & SPO 6): Provide all labor, material, equipment and incidentals necessary to perform demolition and construction of shore to ship... as specified and shown for the lump sum price of -	Lump Sum	516,911.00	516,911.00								
TOTAL:											
CERTIFIED CHECK OR BOND:											

Shimmick Construction Company — LOWEST RESPONSIBLE BIDDER

594575/Exp. 05/31/2012 — LICENSE NUMBER

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SPECIFICATIONS FOR: Pier A, Berths A88-A96, Shore to Ship Power Retrofit at Pier A Container Terminal | **NO. HD-S2342A** | **DATE OPENED: January 31, 2012**

		Steiny and Company 221 N. Ardmore Ave Los Angeles, CA 90004 Phone: (213) 341-2149 Fax: (213) 382-0612 NON-RESPONSIVE									
ITEM	ESTIMATED QUANTITIES	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT
ITEM NO. 16 - Shore Power Outlet Vaults for Berth 94 (SPO 1, SPO 2 & SPO 3): Povide all labor, material, equipment and incidentals necessary to perform demolition and construction of shore to ship... as specified and shown for the lump sum price of -	Lump Sum	516,911.00	516,911.00								
ITEM NO. 17 - Cut-Off Wall Plug/Penetrations: Provide all labor, material, equipment and incidentals necessary to perform demolition, coring and construction of four (4) cut-off wall plug... as specified and shown for the unit price per each of -	Unit Price	8,055.05	32,220.20								
ITEM NO. 18 - SPO "Dry Run" Cable Connection Support: Provide all labor, materials, tools, equipment and incidentals necessary to support approximately four (4) ship-side "dry... as specified and directed by the Engineer for the unit price per each of -	Unit Price	1,250.00	5,000.00								
ITEM NO. 19 - Ship Testing and Commissioning: Provide all labor, materials, tools, equipment and incidentals necessary to support approximately four (4) ship-side commissioning... as specified and directed by the Engineer for the unit price per each of -	Unit Price	17,796.05	71,184.20								
ITEM NO. 20 - Transformer for Berth 90: Provide al labor, material, equipment, and incidentals required to furnish, install, test and commission the transformer(s) as part of a complete system as specified and shown for the lump sum price of -	Lump Sum	707,440.00	707,440.00								
TOTAL:											
CERTIFIED CHECK OR BOND:											

Shimmick Construction Company
LOWEST RESPONSIBLE BIDDER

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ANALYSIS OF BIDS
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SPECIFICATIONS FOR: Pier A, Berths A88-A96, Shore to Ship Power Retrofit at Pier A Container Terminal | **NO. HD-S2342A** | **DATE OPENED: January 31, 2012**

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		NON-RESPONSIVE									
ITEM	ESTIMATED QUANTITIES	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT
ITEM NO. 21 - Transformer for Berth 92: Provide al labor, material, equipment, and incidentals required to furnish, install, test and commission the transformer(s) as part of a complete system as specified and shown for the lump sum price of -	Lump Sum	707,440.00	707,440.00								
ITEM NO. 22 - Transformer for Berth 94: Provide al labor, material, equipment, and incidentals required to furnish, install, test and commission the transformer(s) as part of a complete system as specified and shown for the lump sum price of -	Lump Sum	707,440.00	707,440.00								
ITEM NO. 23 - Switchgear Assembly for Berth 90: Provide all labor, material, equipment and incidentals required to furnish, install, test and commission the switchgear assembly as part of a complete... as specified and shown for the lump sum price of -	Lump Sum	1,781,839.00	1,781,839.00								
ITEM NO. 24 - Switchgear Assembly for Berth 92: Provide all labor, material, equipment and incidentals required to furnish, install, test and commission the switchgear assembly as part of a complete... as specified and shown for the lump sum price of -	Lump Sum	1,465,896.00	1,465,896.00								
ITEM NO. 25 - Switchgear Assembly for Berth 94: Provide all labor, material, equipment and incidentals required to furnish, install, test and commission the switchgear assembly as part of a complete... as specified and shown for the lump sum price of -	Lump Sum	1,501,827.00	1,501,827.00								
TOTAL:											
CERTIFIED CHECK OR BOND:											

Shimmick Construction Company
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ITEM	ESTIMATED QUANTITIES	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT
ITEM NO. 26 - Ductbanks and Raceways for Berth 90: Provide all labor, material, equipment and incidentals required to furnish and install the ductbanks and raceways as part of a complete system as specified and shown for the lump sum price of -	Lump Sum	727,666.00	727,666.00								
ITEM NO. 27 - Ductbanks and Raceways for Berth 92: Provide all labor, material, equipment and incidentals required to furnish and install the ductbanks and raceways as part of a complete system as specified and shown for the lump sum price of -	Lump Sum	777,400.00	777,400.00								
ITEM NO. 28 - Ductbanks and Raceways for Berth 94: Provide all labor, material, equipment and incidentals required to furnish and install the ductbanks and raceways as part of a complete system as specified and shown for the lump sum price of -	Lump Sum	569,505.00	569,505.00								
ITEM NO. 29 - Conductors for Berth 90: Provide all labor, material, equipment and incidentals required to furnish, install and test the conductors as part of a complete system as specified and shown for the lump sum price of -	Lump Sum	407,685.00	407,685.00								
ITEM NO. 30 - Conductors for Berth 92: Provide all labor, material, equipment and incidentals required to furnish, install and test the conductors as part of a complete system as specified and shown for the lump sum price of -	Lump Sum	570,934.00	570,934.00								
TOTAL:											
CERTIFIED CHECK OR BOND:											

Shimmick Construction Company
LOWEST RESPONSIBLE BIDDER

594575/Exp. 05/31/2012
LICENSE NUMBER

$11,513,850.00
AMOUNT

AUTHORIZED SIGNATURE

Port of LONG BEACH
The Green Port

ANALYSIS OF BIDS
CITY OF LONG BEACH, HARBOR DEPARTMENT

SPECIFICATIONS FOR: Pier A, Berths A88-A96, Shore to Ship Power Retrofit at Pier A Container Terminal | **NO. HD-S2342A** | **DATE OPENED: January 31, 2012**

		Steiny and Company 221 N. Ardmore Ave Los Angeles, CA 90004 Phone: (213) 341-2149 Fax: (213) 382-0612 NON-RESPONSIVE									
ITEM	ESTIMATED QUANTITIES	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT
ITEM NO. 31 - Conductors for Berth 94: Provide all labor, material, equipment and incidentals required to furnish, install and test the conductors as part of a complete system as specified and shown for the lump sum price of -	Lump Sum	347,513.00	347,513.00								
ITEM NO. 32 - SPO Receptacles for Berth 90: Provide all labor, material, equipment and incidentals required to furnish, install, test and commission the SPO receptacles as part of a complete system as specified and shown for the lump sum price of -	Lump Sum	259,726.00	259,726.00								
ITEM NO. 33 - SPO Receptacles for Berth 92: Provide all labor, material, equipment and incidentals required to furnish, install, test and commission the SPO receptacles as part of a complete system as specified and shown for the lump sum price of -	Lump Sum	259,726.00	259,726.00								
ITEM NO. 34 - SPO Receptacles for Berth 94: Provide all labor, material, equipment and incidentals required to furnish, install, test and commission the SPO receptacles as part of a complete system as specified and shown for the lump sum price of -	Lump Sum	259,726.00	259,726.00								
ITEM NO. 35 - All Other Electrical Work for Berth 90: Provide all labor, material, equipment and incidentals required to furnish, install, test and commission all other electrical work for Berth 90 ... as specified and shown for the lump sum price of -	Lump Sum	660,975.00	660,975.00								
TOTAL:											
CERTIFIED CHECK OR BOND:											

Shimmick Construction Company
LOWEST RESPONSIBLE BIDDER

594575/Exp. 05/31/2012
LICENSE NUMBER

$11,513,850.00
AMOUNT

AUTHORIZED SIGNATURE

File: Bid Analysis HD-S2342A Segredo[BID ANALYSIS] 1/31/2012 3:04 PM

Port of LONG BEACH
The Green Port

ANALYSIS OF BIDS
CITY OF LONG BEACH, HARBOR DEPARTMENT

SPECIFICATIONS FOR: Pier A, Berths A88-A96, Shore to Ship Power Retrofit at Pier A Container Terminal | **NO. HD-S2342A** | **DATE OPENED: January 31, 2012**

		Steiny and Company 221 N. Ardmore Ave Los Angeles, CA 90004 Phone: (213) 341-2149 Fax: (213) 382-0612 NON-RESPONSIVE									
ITEM	ESTIMATED QUANTITIES	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT
ITEM NO. 36 - All Other Electrical Work for Berth 92: Provide all labor, material, equipment and incidentals required to furnish, install, test and commission all other electrical work for Berth 92 ... as specified and shown for the lump sum price of -	Lump Sum	153,354.00	153,354.00								
ITEM NO. 37 - All Other Electrical Work for Berth 94: Provide all labor, material, equipment and incidentals required to furnish, install, test and commission all other electrical work for Berth 94 ... as specified and shown for the lump sum price of -	Lump Sum	223,576.00	223,576.00								
ITEM NO. 38 - Allowance for Load Bank Test Energy Usage: Provide all labor, materials, tools, equipment and incidentals necessary to reimburse the Tenant for energy... The limits and use of the Allowance shall be solely as directed by the Engineer -	Allowance	50,000.00	50,000.00								
ITEM NO. 39 - Stand-by Time: Provide all labor, equipment, materials and incidentals necessary to provide approximately twenty-five (25) hours of stand-by time for personnel and equipment, including, but not limited to... for the unit price per hour of -	Unit Price	805.52	20,138.00								
ITEM NO. 40 - Environmental Protection Plan (E.P.P) Compliance: Provide all labor, equipment, materials and incidentals necessary to develop Environmental Protection Plan, including SWPPP (see Appendix... as specified and shown for the lump sum price of -	Lump Sum	75,928.00	75,928.00								
TOTAL:											
CERTIFIED CHECK OR BOND:											

Shimmick Construction Company
LOWEST RESPONSIBLE BIDDER

594575/Exp. 05/31/2012
LICENSE NUMBER

$11,513,850.00
AMOUNT

AUTHORIZED SIGNATURE

Port of LONG BEACH
The Green Port

ANALYSIS OF BIDS
CITY OF LONG BEACH, HARBOR DEPARTMENT

SPECIFICATIONS FOR: Pier A, Berths A88-A96, Shore to Ship Power Retrofit at Pier A Container Terminal

NO. HD-S2342A

DATE OPENED: January 31, 2012

		Steiny and Company 221 N. Ardmore Ave Los Angeles, CA 90004 Phone: (213) 341-2149 Fax: (213) 382-0612 NON-RESPONSIVE									
ITEM	ESTIMATED QUANTITIES	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT
ITEM NO. 41 - Schedule: Provide all labor, equipment, materials and incidentals necessary to develop and update all schedules complete as specified for the lump sum price of -	Lump Sum	20,000.00	20,000.00								
TOTAL:		$16,355,204.15									
CERTIFIED CHECK OR BOND:		10% Bond									

Shimmick Construction Company
LOWEST RESPONSIBLE BIDDER

594575/Exp. 05/31/2012
LICENSE NUMBER

$11,513,850.00
AMOUNT

AUTHORIZED SIGNATURE

File: Bid Analysis HD-S2342A Sagredo[BID ANALYSIS] 1/31/2012 3:04 PM

Progress Payment No. 15
Period Ending: OCTOBER 1 THRU NOVEMBER 13, 2014
PAYMENT DUE : 12-14-14
Specification: HD-S2342A Shore to Ship Retrofit at Pier A, Berths A88-A96
Contractor: Shimmick Construction Company

LBHD Contract No: HD-7912
Original Bid Amt: $11,513,850

Item No.	Item	Unit	Est. Qty.	Unit Price	Bid Amount	Qty This Month	A90 $ Amount This Month	A92 $ Amount This Month	A94 $ Amount This Month	Previous Qty or %	% of Item Comp	TOTAL $ Amount to Date
1	Mobilization and Demobilization	Lump Sum	1	130,000.00	130,000.00	0%	-	-	-	100%	100%	130,000.00
2	Site Specific Safety Plan	Lump Sum	1	15,000.00	15,000.00	0%	-	-	-	100%	100%	15,000.00
3	Asphalt Concrete Pavement Demolition	Lump Sum	1	150,000.00	150,000.00	0%	-	-	-	100%	100%	150,000.00
4	Soil Handling and Disposal of Surplus Soil	Tons	1100	10.00	11,000.00	-		-		862.43	78%	8,624.30
5	Soil Handling and Disposal of Non-Hazardous Waste	Tons	650	80.00	52,000.00	-	-	-	-	2,000.56	308%	160,044.64
6	Port Furnished Crushed Miscellaneous Base	Tons	2,650	15.00	39,750.00	-	-	-	-	2,137.65	81%	32,064.75
7	Asphalt Concrete Pavement	Tons	2,550	89.00	226,950.00	-	-	-	-	2,291.07	90%	203,905.23
8	8-Foot Chain Link Fence with Barbed Wire	LF	480	40.00	19,200.00	-	-	-	-	480.00	100%	19,200.00
9	Chain Link Gates	Lump Sum	1	15,000.00	15,000.00	0%	-	-	-	100%	100%	15,000.00
10	Pipe Bollards, 12-inch	Each	57	1,200.00	68,400.00	-			-	60.00	105%	72,000.00
11	Bid Item Removed	-	1	-	-	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12	Repair of Existing Striping	LF	3,800	1.00	3,800.00	-	-	-	-	5,747.00	151%	5,747.00
13	Repair of Existing Pavement Markings	Each	155	50.00	7,750.00	-	-	-	-	148.00	95%	7,400.00
14	Shore Power Outlet Vaults for Berth 90 (SPO 7, SPO 8 & SPO 9)	Lump Sum	1	250,000.00	250,000.00	0%	-	N/A	N/A	100%	100%	250,000.00
15	Shore Power Outlet Vaults for Berth 92 (SPO 4, SPO 5 & SPO 6)	Lump Sum	1	250,000.00	250,000.00	0%	N/A	-	N/A	100%	100%	250,000.00
16	Shore Power Outlet Vaults for Berth 94 (SPO 1, SPO 2 & SPO 3)	Lump Sum	1	250,000.00	250,000.00	0%	N/A	N/A	-	100%	100%	250,000.00
17	Cut-Off Wall Plug/Penetrations	Each	4	7,000.00	28,000.00	-	-	-	-	4.00	100%	28,000.00
18	SPO "Dry Run" Cable Connection Support	Each	4	3,000.00	12,000.00	-	-	-	-	2.00	50%	6,000.00
19	Ship Testing and Commissioning	Each	4	15,000.00	60,000.00	-	-	-	-	3.00	75%	45,000.00
20	Transformer for Berth 90	Lump Sum	1	650,000.00	650,000.00	0.00%	-	N/A	N/A	100%	100%	650,000.00
21	Transformer for Berth 92	Lump Sum	1	650,000.00	650,000.00	0.00%	-	-	N/A	100%	100%	650,000.00
22	Transformer for Berth 94	Lump Sum	1	650,000.00	650,000.00	0.00%	-	N/A	-	100%	100%	650,000.00
23	Switchgear Assembly for Berth 90	Lump Sum	1	1,750,000.00	1,750,000.00	0.00%	-	N/A	N/A	100%	100%	1,750,000.00
24	Switchgear Assembly for Berth 92	Lump Sum	1	1,475,000.00	1,475,000.00	0.00%	N/A	-	N/A	100%	100%	1,475,000.00
25	Switchgear Assembly for Berth 94	Lump Sum	1	1,500,000.00	1,500,000.00	0.00%	N/A	N/A	-	100%	100%	1,500,000.00
26	Ductbanks and Raceways for Berth 90	Lump Sum	1	500,000.00	500,000.00	0%	-	N/A	N/A	100%	100%	500,022.00

Progress Payment No. 15
Period Ending: OCTOBER 1 THRU NOVEMBER 13, 2014
PAYMENT DUE : 12-14-14
Specification: HD-S2342A Shore to Ship Retrofit at Pier A, Berths A88-A96
Contractor: Shimmick Construction Company

LBHD Contract No: HD-7912
Original Bid Amt: $11,513,850

Item No.	Item	Unit	Est. Qty.	Unit Price	Bid Amount	Qty This Month	A90 $ Amount This Month	A92 $ Amount This Month	A94 $ Amount This Month	Previous Qty or %	% of Item Comp	TOTAL $ Amount to Date
27	Ductbanks and Raceways for Berth 92	Lump Sum	1	450,000.00	450,000.00	0%	N/A	-	N/A	100%	100%	450,000.00
28	Ductbanks and Raceways for Berth 94	Lump Sum	1	325,000.00	325,000.00	0%	N/A	N/A	-	100%	100%	325,000.00
29	Conductors for Berth 90	Lump Sum	1	300,000.00	300,000.00	0%	-	N/A	N/A	100%	100%	300,000.00
30	Conductors for Berth 92	Lump Sum	1	300,000.00	300,000.00	0%	N/A	-	N/A	100%	100%	300,000.00
31	Conductors for Berth 94	Lump Sum	1	325,000.00	325,000.00	0%	N/A	N/A	-	100%	100%	325,000.00
32	SPO Receptacles for Berth 90	Lump Sum	1	100,000.00	100,000.00	0%	-	N/A	N/A	100%	100%	100,000.00
33	SPO Receptacles for Berth 92	Lump Sum	1	100,000.00	100,000.00	0%	N/A	-	N/A	100%	100%	100,000.00
34	SPO Receptacles for Berth 94	Lump Sum	1	100,000.00	100,000.00	0%	N/A	N/A	-	100%	100%	100,000.00
35	All Other Electrical Work for Berth 90	Lump Sum	1	475,000.00	475,000.00	0%	-	N/A	N/A	100%	100%	475,000.00
36	All Other Electrical Work for Berth 92	Lump Sum	1	70,000.00	70,000.00	0%	N/A	-	N/A	100%	100%	70,000.00
37	All Other Electrical Work for Berth 94	Lump Sum	1	105,000.00	105,000.00	0%	N/A	-	-	100%	100%	105,000.00
38	Allowance for Load Bank Test Energy Usage	Allowance	1	50,000.00	50,000.00		0	0	0	1%	1%	707.61
39	Stand-by Time	Hour	25	1,000.00	25,000.00	-			-	5	20%	5,000.00
40	Environmental Protection Plan (E.P.P) Compliance	Lump Sum	1	20,000.00	20,000.00	0%	-	-	-	100%	100%	20,000.00
41	Schedule	Lump Sum	1	5,000.00	5,000.00	0%	0	0	0	100%	100%	5,000.00
	CHANGE ORDERS						-	-	-			
	CHANGE ORDER #1	Lump Sum	1	2,660.13		0%	-			100%	100%	2,660.13
	CHANGE ORDER #2 - WORK											
	CHANGE ORDER #3L	Lump Sum	1	185,000.00		0%	-	-		100%	100%	185,000.00
	CHANGE ORDER #4	L	1	10,230.67			-	-	-	100%	100%	10,230.67
	CHANGE ORDER # 5	Lump Sum	1	38,737.84			-	-	-	100%	100%	38,737.84
	CHANGE ORDER #6	Lump Sum	1	251,913.40			83,971.13	83,971.13	83,971.14	0%	100%	251,913.40
TOTALS				488,542.04	11,513,850.00	2.19%	$ 83,971.13	$ 83,971.13	$ 83,971.14	97.82%	100%	$ 11,992,257.57
	NEW CONTRACT AMOUNT			**12,002,392.04**								$ -

Progress Payment No. 15
Period Ending: OCTOBER 1 THRU NOVEMBER 13, 2014
PAYMENT DUE : 12-14-14
Specification: HD-S2342A Shore to Ship Retrofit at Pier A, Berths A88-A96
Contractor: Shimmick Construction Company

LBHD Contract No: HD-7912
Original Bid Amt: $11,513,850

Item No.	Item	Unit	Est. Qty.	Unit Price	Bid Amount	Qty This Month	A90 $ Amount This Month	A92 $ Amount This Month	A94 $ Amount This Month	Previous Qty or %	% of Item Comp	TOTAL $ Amount to Date

CM Initials

Victor Sagredo 12/4/14

Victor Sagredo
Project Manger

Date

SIGN HERE

Suzanne C. Plezia P.E.
Director of Construction Management

Date

SIGN HERE

INITIAL HERE

Gross Earnings:	$ 11,992,257.57
Previous Payments:	$ 11,670,247.87
Previous Retention:	$ (70,096.32)
Earned This Period:	$ 251,913.40
STOP NOTICE R J NOBLE $13,310.88+25%	$ (16,638.60)
Less Retention: E	$ -
RELEASE STOP NOTICE R J NOBLE $13,310.88+25%	$ 16,638.60
AMOUNT DUE THIS ESTIMATE:	$ 251,913.40

BPO No.	INDEX CODE	PROJ	PROJ DET	Subobject Code
BPHA12000126	HACDCMCN	HA1314	1H2342A	210009

ATTACHMENT B
Prop 1B Shore Power Infrastructure Costs

Costs Accrued Per Berth - Pier A

A90

Contract Cost Category Description	Contract Cost Category No.	Corresponding Bid Item No.	Cost Estimates (Submitted 11-2012)	Progress Payment No. 1	2	3	4	5	6	7	8	9	10	11	12	13	TOTAL TO DATE
Mobilization and Demobilization	1	1	$43,333.33	$21,666.00													$21,666.00
Chain-Link Fence and Gates	2	8, 9	$11,400.00											$1,300.00	$2,880.00		$4,180.00
Pipe Bollards	3	10	$22,800.00														$0.00
Pavement (including striping)	4	3, 7, 12, 13	$79,500.00		$12,951.71	$34,389.23	$26,685.00	$18,382.50	$26,407.14	$550.00	$1,530.00	$1,585.00				$3,415.52	$125,896.10
Relocation of utilities	5	n/a	$0.00														$0.00
Transformers	6	20	$650,000.00					$560,000.00		$63,750.00				$4,500.00	$20,500.00	$750.00	$649,500.00
Switchgear assembly(s)	7	23	$1,750,000.00						$81,000.00	$1,339,600.00			$6,000.00	$48,000.00	$247,200.00	$6,000.00	$1,727,800.00
Ductbanks and raceways	8	26	$500,000.00	$6,053.54	$11,275.42	$86,538.14	$159,127.61	$91,580.97	$95,446.32		$22,000.00	$25,000.00				$500.00	$497,522.00
Conductors	9	29	$300,000.00										$16,000.00	$22,853.00	$198,750.00	$50,250.00	$287,853.00
SPO Receptacles	10	32	$100,000.00			$85,000.00						$11,400.00					$96,400.00
SPO Vaults	11	14	$250,000.00				$160,700.00	$18,225.00	$2,075.00	$46,000.00	$10,500.00		$7,500.00			$5,000.00	$250,000.00
All other electrical work	12	35	$475,000.00	$17,555.56	$8,777.78	$8,777.78	$8,777.78	$8,777.78	$124,777.78	$8,777.78	$8,777.78	$8,777.78	$8,777.78	$109,277.78	$77,577.78	$27,797.78	$427,208.92
Commissioning and testing	13	19, 38	$20,000.00												$200.00	$1,400.00	$1,600.00
Demolition	14	n/a	$50,000.00														$0.00
Soil, excavation, fill and waste handling	15	4, 5, 6	$34,250.00			$3,957.75	$29,616.60		$28,290.00							$30,826.67	$92,691.02
Other costs*	16	2, 39, 40, 41, 17, 18	$51,666.67	$1,488.00	$740.33	$740.33	$740.33	$740.33	$14,740.33	$740.33	$740.33	$740.33	$740.33	$740.33	$740.33	$740.33	$24,371.96
Change Order #1												$2,660.13					$2,660.13
Change Order #2																	$0.00
Change Order #3												$35,000.00		$7,500.00			$42,500.00
Total Berth Cost			$4,337,950	$46,763.10	$33,745.24	$219,403.23	$385,647.32	$697,706.58	$372,736.57	$1,459,418.11	$43,548.11	$85,163.24	$39,018.11	$194,171.11	$547,848.11	$126,680.30	$4,251,849.13
			Cost Breakdown														
			Labor ($)	$0.00	$22,669.89	$15,006.18	$43,666.76	$17,576.56	$23,990.62	$34,395.30	$27,354.00	$22,160.27	$0.00	$45,262.70	$15,458.86	$18,031.25	
			Labor (man-hours)	0	452.50	281.00	843.00	344.50	429.00	684.25	508.40	387.50	0.00	856.50	281.50	305.00	
			Materials	$6,825.74	$9,763.79	$111,975.75	$159,990.31	$555,285.46	$190,949.10	$1,983,738.06	$7,699.24	$7,024.26	$0.00	$18,588.43	$96,163.74	$1,780.25	
			Equipment	$0.00	$7,149.60	$5,814.10	$18,026.20	$7,750.53	$16,774.88	$6,709.60	$563.55	$0.00	$0.00	$2,743.65	$1,193.40	$754.40	
			Other	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00		$0.00	$0.00	$0.00	$0.00			

A92

Contract Cost Category Description	Contract Cost Category No.	Corresponding Bid Item No.	Cost Estimates (Submitted 11-2012)	Progress Payment No. 1	2	3	4	5	6	7	8	9	10	11	12	13	TOTAL TO DATE
Mobilization and Demobilization	1	1	$43,333.33	$21,666.00													$21,666.00
Chain-Link Fence and Gates	2	8, 9	$11,400.00											$1,300.00			$1,300.00
Pipe Bollards	3	10	$22,800.00														$0.00
Pavement (including striping)	4	3, 7, 12, 13	$79,500.00								$73,864.43	$45,746.00		$5,450.00		$3,415.52	$128,475.95
Relocation of utilities	5	n/a	$0.00														$0.00
Transformers	6	21	$650,000.00					$560,000.00		$63,750.00				$4,500.00	$20,500.00		$648,750.00
Switchgear assembly(s)	7	24	$1,475,000.00							$1,222,300.00					$226,500.00	$6,000.00	$1,454,800.00
Ductbanks and raceways	8	27	$450,000.00			$12,000.00	$17,800.00	$25,200.00			$266,300.00	$83,700.00		$39,820.00	$2,680.00		$447,500.00
Conductors	9	30	$300,000.00										$7,500.00		$212,000.00	$67,700.00	$287,200.00
SPO Receptacles	10	33	$100,000.00			$85,000.00							$10,800.00		$600.00		$96,400.00
SPO Vaults	11	15	$250,000.00				$152,000.00				$85,500.00				$7,500.00	$4,700.00	$249,700.00
All other electrical work	12	36	$70,000.00	$7,792.00	$3,888.00	$3,888.00	$3,888.00	$3,888.00	$3,888.00	$3,888.00	$3,888.00	$3,888.00	$3,888.00	$3,888.00	$3,888.00	$9,721.00	$60,281.00
Commissioning and testing	13	19, 38	$20,000.00												$200.00	$1,400.00	$1,600.00
Demolition	14	n/a	$50,000.00														$0.00
Soil, excavation, fill and waste handling	15	4, 5, 6	$34,250.00								$42,815.00	$5,325.00	$8,624.30	$104,382.80		$30,826.67	$191,973.77
Other costs*	16	2, 39, 40, 41, 17, 18	$51,666.67	$1,488.00	$740.33	$740.33	$740.33	$740.33	$740.33	$740.33	$7,740.33	$740.33	$740.33	$740.33	$740.33	$740.33	$17,371.96
Change Order #1																	$0.00
Change Order #2																	$0.00
Change Order #3												$50,000.00		$7,500.00		$8,800.00	$106,300.00
Total Berth Cost			$3,607,950	$30,946.00	$4,628.33	$101,628.33	$174,428.33	$589,828.33	$4,628.33	$1,290,678.33	$480,107.76	$229,399.33	$31,552.63	$167,581.13	$474,608.33	$133,303.52	$3,713,316.68
			Cost Breakdown														
			Labor ($)	$0.00	$0.00	$0.00	$21,833.38	$17,576.56	$0.00	$847.81	$76,398.39	$15,851.64	$0.00	$25,622.31	$20,113.49	$18,270.80	
			Labor (man-hours)	0.00	0.00	0.00	421.50	344.50	0.00	15.25	1,442.50	279.50	0.00	432.10	372.00	308.00	
			Materials	$772.20	$3,590.93	$98,741.48	$137,740.31	$575,988.93	$3,726.88	$1,872,326.20	$37,705.32	$22,766.37	$3,861.87	$3,861.87	$91,025.16		
			Equipment	$0.00	$0.00	$0.00	$9,084.60	$2,065.65	$0.00	$140.40	$8,192.60	$1,444.30	$0.00	$976.95	$1,872.00	$70.20	
			Other	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00		$0.00	$0.00	$0.00				

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Contract Cost Category Description	Contract Cost Category No.	Corresponding Bid Item No.	Cost Estimates (Submitted 11-2012)	Progress Payment No. 1	2	3	4	5	6	7	8	9	10	11	12	13	TOTAL TO DATE
Mobilization and Demobilization	1	1	$43,333.33	$21,666.00													$21,666.00
Chain-Link Fence and Gates	2	8, 9	$11,400.00										$4,120.00		$4,380.00		$8,500.00
Pipe Bollards	3	10	$22,800.00													$12,000.00	$12,000.00
Pavement (including striping)	4	3, 7, 12, 13	$79,500.00									$3,300.00	$24,876.19	$35,760.18		$3,415.52	$67,351.89
Relocation of utilities	5	n/a	$0.00														$0.00
Transformers	6	22	$650,000.00							$623,750.00				$4,500.00	$20,500.00		$648,750.00
Switchgear assembly(s)	7	25	$1,500,000.00							$1,201,050.00			$35,500.00	$12,500.00	$223,750.00	$6,000.00	$1,478,800.00
Ductbanks and raceways	8	28	$325,000.00			$12,000.00	$17,800.00	$25,200.00				$39,323.00	$93,467.00	$92,050.00	$40,460.00	$2,200.00	$322,500.00
Conductors	9	31	$325,000.00										$10,000.00		$192,000.00	$54,000.00	$256,000.00
SPO Receptacles	10	34	$100,000.00			$85,000.00						$3,600.00			$7,800.00		$96,400.00
SPO Vaults	11	16	$250,000.00				$152,000.00					$42,299.00	$34,135.00	$14,566.00	$2,000.00	$4,700.00	$249,700.00
All other electrical work	12	37	$105,000.00	$11,672.00	$5,833.00	$5,833.00	$5,833.00	$5,833.00	$5,833.00	$5,833.00	$5,833.00	$5,833.00	$5,833.00	$5,833.00	$5,833.00		$75,835.00
Commissioning and testing	13	19, 38	$20,000.00												$200.00	$1,400.00	$1,600.00
Demolition	14	n/a	$50,000.00														$0.00
Soil, excavation, fill and waste handling	15	4, 5, 6	$34,250.00										$750.00	$115,932.80		$30,826.67	$147,509.47

Other costs*	16	2, 39, 40, 41, 17, 18	$51,666.67	$1,488.00	$740.33	$740.33	$740.33	$740.33	$740.33	$740.33	$740.33	$1,740.33	$740.33	$4,240.33	$1,440.33	$3,740.33	$18,571.96
Change Order #1																	$0.00
Change Order #2																	$0.00
Change Order #3																	$0.00
Total Berth Cost			$3,567,950	$34,826.00	$6,573.33	$103,573.33	$176,373.33	$31,773.33	$6,573.33	$1,831,373.33	$6,573.33	$96,095.33	$209,421.52	$285,382.31	$498,363.33	$118,282.52	$3,405,184.32
			Cost Breakdown														
			Labor ($)	$0.00	$0.00	$0.00	$21,833.38	$0.00	$0.00	$1,766.13	$0.00	$37,472.27	$0.00	$37,174.00	$20,272.89	$18,131.39	
			Labor (man-hours)	0.00	0.00	0.00	421.50	0.00	0.00	32.00	0.00	703.00	0.00	673.30	374.50	306.50	
			Materials	$772.20	$6,003.00	$99,972.79	$137,740.31	$30,251.90	$5,773.72	$1,980,795.16	$5,973.20	$7,904.60	$5,440.52	$33,711.66	$92,066.73		
			Equipment	$0.00	$0.00	$0.00	$9,084.60	$0.00	$0.00	$2,250.52	$0.00	$2,853.50	$0.00	$4,989.29	$2,033.55	$153.68	
			Other	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00		$0.00	$0.00	$0.00				

Actual Port Payment Amounts (Less Retentions)

	8/30/2012	9/30/2012	10/30/2012	11/30/2012	12/31/2012	1/31/2013	2/28/2013	3/31/2013	4/30/2013	5/31/2013	6/30/2013	7/31/2013	8/31/2013
A90	$44,424.94	$32,057.98	$208,433.07	$366,364.95	$662,821.25	$347,294.90	$1,386,447.20	$41,370.70	$87,710.31	$37,067.21	$184,462.56	$520,455.71	$120,346.29
A92	$29,398.70	$4,396.91	$96,546.91	$165,706.92	$560,336.92	$4,396.91	$1,226,144.42	$456,102.38	$217,929.36	$29,975.00	$159,202.07	$450,877.91	$126,638.34
A94	$33,084.70	$6,244.66	$98,394.66	$167,554.66	$30,184.66	$6,244.66	$1,739,804.66	$6,244.66	$91,290.56	$198,950.44	$271,113.19	$473,445.16	$112,368.39
Total	$106,908.34	$42,699.56	$403,374.64	$699,626.53	$1,253,342.83	$357,936.47	$4,352,396.28	$503,717.74	$396,930.23	$265,992.65	$614,777.82	$1,444,778.78	$359,353.02

		A90				A92				A94			
Progress Payment No.	Period Ending	Paid		Retention		Paid		Retention		Paid		Retention	
		Amount	Check No.	Amount	Check No.	Amount	Check No.	Amount	Check No.	Amount	Check No.	Amount	Check No.
1	8/30/2012	$44,424.94	1010292	$2,338.16	1010294	$29,398.70	1010292	$1,547.30	1010294	$33,084.70	1010292	$1,741.30	1010294
2	9/30/2012	$32,057.98	1011437	$1,687.26	1011438	$4,396.91	1011437	$231.42	1011438	$6,244.66	1011437	$328.67	1011438
3	10/30/2012	$208,433.07	1017592	$10,970.16	1017593	$96,546.91	1017592	$5,081.42	1017593	$98,394.66	1017592	$5,178.67	1017593
4	11/30/2012	$366,364.95	1023063	$19,282.37	1023064	$165,706.92	1023063	$8,721.42	1023064	$167,554.66	1023063	$8,818.67	1023064
5	12/31/2012	$662,821.25	1027973	$34,885.33	1027972	$560,336.92	1027973	$29,491.42	1027972	$30,184.66	1027973	$1,588.66	1027972
6	1/31/2013	$347,294.90	1033258	$18,636.85	1033260	$4,396.91	1033258	$231.42	1033260	$6,244.66	1033258	$328.66	1033260
7	2/28/2013	$1,386,447.20	1037109	$72,970.91	1037110	$1,226,144.42	1037109	$64,553.92	1037110	$1,739,804.66	1037109	$91,568.66	1037110
8	3/31/2013	$41,370.70	1039225	$2,177.40	1039226	$456,102.38	1039225	$24,005.39	1039226	$6,244.66	1039225	$328.67	1039226
9	4/30/2013	$87,710.31	1043037	$4,258.16	1043038	$217,929.36	1043037	$11,469.97	1043038	$91,290.56	1043037	$4,804.77	1043038
10	5/31/2013	$37,067.21	1045328	$1,950.90	1045329	$29,975.00	1045328	$1,577.63	1045329	$198,950.44	1045328	$10,471.08	1045329
11	6/30/2013	$184,462.56	1051035	$9,708.55	1051036	$159,202.07	1051035	$8,379.06	1051036	$271,113.19	1051035	$14,269.12	1051036
12	7/31/2013	$520,455.71	1054083	$27,392.40	1054084	$450,877.91	1054083	$23,730.42	1054084	$473,445.16	1054083	$24,918.17	1054084
13	8/31/2013	$120,346.29	1059186	$6,334.02	1059187	$126,638.39	1059186	$6,665.18	1059187	$112,368.39	1059186	$5,914.12	1059187
TOTAL		$4,039,257.07		$212,592.47		$3,527,652.80		$185,685.97		$3,234,925.06		$170,259.22	
GRAND TOTAL		$4,251,849.54				$3,713,338.77							

G236				Progress Payment No.														
Contract Cost Category Description	Contract Cost Category No.	Corresponding Bid Item No.	Cost Estimates (Submitted 11-2012)	1	2	3	4	5	6	7	8	9	10	11	12	13	TOTAL
Mobilization and Demobilization	1	4, 5	$ 350,000.00	$ 169,998.00	$ 3,000.04	$ 6,000.07	$ 3,000.04	$ 3,000.04	$ 3,000.04	$ 3,000.04	$ 3,000.04	$ 3,000.04	$ 3,000.03	$ 3,000.04	$ 58,930.70	$ 61,670.72	$ 323,599.84
Chain-Link Fence and Gates	2	3, 16, 17	$ 260,000.00	$ 102,142.86	$ -	$ 40,000.00	$ -	$ 33,571.43	$ -	$ 29,285.71		$ 20,000.00	$ 27,300.00	$ 7,283.33	$ 416.67		$ 260,000.00
Pipe Bollards	3	n/a	$ -	$ -	$ -	$ -	$ -	$ -	$ -								$ -
Pavement (including striping)	4	15	$ 15,000.00	$ -	$ -	$ -	$ -	$ -	$ 4,950.00	$ 4,950.00		$ 5,100.00					$ 15,000.00
Relocation of utilities	5	n/a	$ -	$ -	$ -	$ -	$ -	$ -	$ -								$ -
Transformers	6	19	$ 650,000.00	$ -	$ -	$ -	$ 635,000.00	$ -	$ -		$ 7,500.00	$ 7,500.00					$ 650,000.00
Switchgear assembly(s)	7	20, 24	$ 3,195,000.00	$ -	$ -	$ 1,517,500.00	$ 321,998.30	$ 146,854.96	$ -	$ 45,245.90	$ 844,525.00	$ 483,875.84	$ 90,000.00	$ 3,500.00	$ 76,500.00		$ 3,530,000.00
Ductbanks and raceways	8	21	$ 1,300,000.00	$ 50,500.00	$ 76,913.46	$ 170,315.01	$ 201,817.70	$ 171,727.91	$ 259,572.60	$ 195,170.07	$ 145,693.03	$ 28,290.19					$ 1,299,999.97
Conductors	9	22	$ 600,000.00	$ -	$ -	$ -	$ -	$ -	$ -	$ 5,000.00	$ 5,000.00	$ 171,000.00	$ 332,000.00	$ 87,000.00			$ 600,000.00
SPO Receptacles	10	23	$ 350,000.00	$ -	$ 272,000.00	$ 20,000.00	$ 10,000.00	$ -	$ -	$ 20,000.00	$ 10,000.00			$ 18,000.00			$ 350,000.00
SPO Vaults	11	18	$ 500,000.00	$ -	$ 6,000.00	$ 204,583.33	$ 84,916.67	$ -	$ 118,750.00	$ 64,750.00	$ 21,000.00						$ 500,000.00
All other electrical work	12	25	$ 535,000.00	$ 47,969.88	$ 10,859.27	$ 21,718.59	$ 10,859.29	$ 10,859.29	$ 10,859.29	$ 10,859.29	$ 10,859.28	$ 10,859.29	$ 10,859.30	$ 10,859.29	$ 32,577.88		$ 199,999.94
Commissioning and testing	13	26	$ 187,500.00	$ -	$ -	$ -	$ -	$ -	$ -					$ 1,085.65	$ 30,000.00	$ 11,250.00	$ 42,335.65
Demolition	14	n/a	$ -	$ -	$ -	$ -	$ -	$ -	$ -								$ -
Soil, excavation, fill and waste handling	15	8, 9, 10, 11, 12, 14	$ 295,400.00	$ -	$ 16,588.00	$ 24,112.54	$ 34,496.13	$ 48,600.25	$ 22,650.74	$ 47,287.37	$ 33,652.58	$ 29,356.37		$ 100.00	$ (12,109.00)		$ 244,734.98
Other costs*	16	1, 2, 6, 7, 13, 27, 28, 29	$ 310,000.00	$ 34,815.80	$ 7,870.31	$ 43,064.50	$ 9,193.84	$ 7,870.31	$ 7,870.31	$ 20,370.31	$ 12,870.31	$ 7,870.31	$ 7,870.30	$ 12,664.65	$ 21,280.50	$ 3,406.86	$ 197,018.31
Change Order 1																	$ -
Change Order 2							$ 24,725.82										$ 24,725.82
Change Order 3																	$ -
Change Order 4											$ 20,138.44						$ 20,138.44
Total Berth Cost			$ 8,547,900.00	$ 405,426.54	$ 393,231.08	$ 2,047,294.04	$ 1,336,007.79	$ 422,484.19	$ 427,652.98	$ 445,918.69	$ 1,114,238.68	$ 766,852.04	$ 471,029.63	$ 143,492.96	$ 207,596.75	$ 76,327.58	$ 8,257,552.95
			Cost Breakdown														
			Labor ($)	$7,272.59	$12,827.76	$75,503.95	$94,544.61	$56,838.11	$82,809.64	$78,928.94	$141,743.04	$88,905.63	$42,895.98	$68,206.99	$33,322.71	$16,527.70	$800,327.65
			Labor (man-hours)	99.00	275.75	1,513.50	1,673.00	996.00	950.70	1,430.50	2,511.00	1,572.00	826.00	1,181.50	589.00	282.50	13,900.45
			Materials	$69,181.54	$285,375.31	$1,561,028.21	$738,870.99	$216,772.90	$123,909.57	$110,219.21	$572,256.82	$243,134.87	$259,784.60	$113,883.30	$151,748.49	$462.31	$4,446,628.12
			Equipment	$5,456.46	$14,875.66	$5,642.23	$2,607.32	$16,544.75	$8,254.61	$10,908.59	$6,213.98	$6,524.54	$1,356.88	$10,206.64	$300.48	$1,001.60	$89,893.74
			Other	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00

Port Payments

	Payment 1 (October 2012)	Payment 2 (January 2013)	Payment 3 (January 2013)	Payment 4 (12/31/2013)	Payment 5 (1/31/2013	Payment 6 (2/282013)	Payment 7 (3/31/2013)	Payment 8 (4/30/2013)	Payment 9 (5/31/2013)	Payment 10 (5/31/2013)	Payment 11 (7/31/2013)	Payment 12 (8/31/2013)	Payment 13 (9/30/2013)	
	Amount	Amount	Amount	Amount	Amount	Amount	Amount	Amount	Amount	Amount	Amount	Amount	Amount	
G236	$405,426.54	$393,231.08	$2,047,294.04	$ 1,336,007.78	$422,484.19	$427,652.98	$445,918.69	$1,114,238.68	$766,852.04	$471,029.63	$143,492.96	$207,596.75	$76,327.58	
Contractor Invoice Amount (less retentions)	$385,155.21	$373,569.52	$1,944,929.34	$1,269,207.39	$390,859.98	$416,770.33	$419,622.76	$1,062,526.75	$727,709.44	$419,278.15	$130,418.31	$214,616.91	$75,657.97	
Port Payment to Contractor	$385,155.21	$373,569.52	$1,944,929.34	$1,269,207.39	$390,859.98	$416,770.33	$419,622.76	$1,062,526.75	$727,709.44	$419,278.15	$130,418.31	$214,616.91	$75,657.97	
Port Set Aside for Retention	$20,271.33	$19,661.56	$102,364.70	$66,800.39	$21,124.21	$21,382.65	$22,295.93	$55,711.93	$38,342.60	$23,551.48	$7,174.65	$10,379.84	$7,853.23	
Check Totals	$405,426.54	$393,231.08	$2,047,294.04	$1,336,007.78	$411,984.19	$438,152.98	$441,918.69	$1,118,238.68	$766,052.04	$442,829.63	$137,592.96	$224,996.75	$83,511.20	$8,247,236.56

I245					Progress Payment No.																	
Contract Cost Category Description	Contract Cost Category No.	Corresponding Bid Item No.	Cost Estimates (Submitted 11-2012)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16**	TOTAL
Mobilization and Demobilization	1	4, 5	$ 333,750.00	$ 100,500.00	$ 49,500.00	$ -	$ -	$ -	$ -							$ 27,000.00	$ 67,875.00	$ 4,500.00	$ 26,250.00	$ 275,625.00
Chain-Link Fence and Gates	2	3, 16, 17	$ 398,250.00	$ 212,000.00	$ 45,250.00	$ 3,000.00	$ 24,750.00	$ 3,000.00	$ 3,000.00	$ 3,000.00	$ 3,000.00	$ 3,000.00	$ 3,000.00	$ 3,000.00	$ 52,000.00	$ 19,950.00	$ 16,000.00			$ 393,950.00
Pipe Bollards	3	n/a	$ -	$ -	$ -	$ -	$ -	$ -	$ -											$ -
Pavement (including striping)	4	14, 15	$ 12,000.00	$ -	$ -	$ 1,034.00	$ 3,540.00	$ 1,531.50	$ -				$ 3,382.50	$ (4,841.00)		$ 1,404.50				$ 6,051.50
Relocation of utilities	5	n/a	$ -	$ -	$ -	$ -	$ -	$ -	$ -											$ -
Transformers	6	22	$ 600,000.00	$ -	$ -	$ -	$ -	$ -	$ -						$ 583,000.00	$ 12,000.00	$ 5,000.00			$ 600,000.00
Switchgear assembly(s)	7	26	$ 1,112,440.00	$ -	$ -	$ -	$ -	$ -	$ -					$ 1,094,940.00		$ 7,500.00	$ 10,000.00			$ 1,112,440.00
Ductbanks and raceways	8	30	$ 1,500,000.00	$ 187,080.00	$ 100,530.00	$ 357,700.00	$ 361,705.00	$ 23,060.00	$ 154,035.00	$ 105,760.00	$ 78,900.00	$ 238,150.00	$ 92,150.00							$ 1,500,000.00
Conductors	9	34	$ 400,000.00	$ -	$ -	$ -	$ -	$ -	$ -		$ 320,000.00	$ 1,500.00			$ 68,500.00	$ 7,500.00	$ 2,500.00			$ 400,000.00
SPO Receptacles	10	38	$ 150,000.00	$ -	$ -	$ -	$ 125,000.00	$ -	$ -			$ 5,000.00			$ 7,500.00	$ 5,000.00	$ 7,500.00			$ 150,000.00
SPO Vaults	11	18	$ 400,000.00	$ -	$ -	$ -	$ 250,000.00	$ -	$ -	$ 25,000.00	$ 65,000.00		$ 60,000.00							$ 400,000.00
All other electrical work	12	42	$ 150,000.00	$ 70,000.00	$ -	$ -	$ 70,000.00	$ -	$ -									$ 5,000.00	$ 2,500.00	$ 147,500.00
Commissioning and testing	13	49	$ 100,000.00	$ -	$ -	$ -	$ -	$ -	$ -											$ -
Demolition	14	n/a	$ -	$ -	$ -	$ -	$ -	$ -	$ -											$ -
Soil, excavation, fill and waste handling	15	8, 9, 10, 11, 12, 13	$ 215,390.00	$ 3,280.00	$ 18,609.00	$ 18,232.00	$ 46,572.25	$ 21,296.75	$ 14,601.50	$ 20,793.25	$ 28,574.00	$ 13,789.00	$ 13,013.75	$ (8,754.00)	$ (21,290.00)	$ 29,014.00	$ (3,510.00)			$ 192,221.44
Other costs*	16	1, 2, 6, 7, 46, 47, 48	$ 262,500.00	$ 40,875.00	$ 6,437.50	$ 6,437.50	$ 6,437.50	$ 11,207.50	$ 6,437.50	$ 18,937.50	$ 6,437.50	$ 6,437.50	$ 43,937.50	$ 6,437.50	$ 6,437.50	$ 66,437.50	$ 13,937.50	$ 9,167.50	$ 3,500.00	$ 259,500.00
Change Order #2 - R14A (acceleration)							$ 10,000.00													$ 10,000.00
Change Order #2 (GCC rounding)							$ 2,625.75													$ 2,625.75
Change Order #3									$ 6,397.60											$ 6,397.60
Change Order #4									$ 72,542.10	$ 10,042.10	$ 10,042.10	$ 10,042.10	$ 10,042.10	$ 10,042.10	$ 10,042.10	$ 10,042.10	$ 10,042.10	$ 10,042.10		$ 342,301.50
Change Order #5											$ 18,937.50									$ 18,937.50
Change Order #6													$ 10,500.00							$ 10,500.00
Change Order #7																				$ -
Change Order #8													$ 13,177.00	$ 3,165.00			$ 12,754.51			$ 29,096.51
Change Order #9																		$ 10,780.00		$ 10,780.00
Change Order #10																			$ 14,294.75	$ 14,294.75
Total Berth Cost			$ 5,834,330.00	$ 813,735.00	$ 320,326.50	$ 386,403.50	$ 720,613.50	$ 60,995.75	$ 240,013.10	$ 209,532.85	$ 550,851.10	$ 285,918.60	$ 366,731.85	$ 1,124,007.54	$ 726,189.80	$ 205,868.10	$ 162,049.11	$ 59,489.60	$ 48,544.75	$ 5,905,349.45
			Cost Breakdown																	
			Labor ($)	$11,398.38	$36,325.28	$60,406.67	$67,465.81	$38,485.03	$51,849.95	$68,743.17	$75,072.22	$270,248.52	$191,535.07	$16,855.38	$52,160.89	$63,385.34	$24,588.28	$329.56	$13,683.38	$1,042,530.53
			Labor (man-hours)	337.39	591.18	943.67	1,133.38	626.10	856.45	1,160.66	1,257.20	3,848.33	3,060.15	281.40	898.25	1,191.00	483.40	7.00	182.00	16,856
			Materials	$89,606.14	$81,605.79	$125,142.66	$260,111.02	$199,546.64	$14,345.95	$21,688.36	$191,364.94	$390,174.41	$58,918.26	$1,222,208.18	$551,460.02	$458,237.67	$54,755.55	$21,553.81	$2,274.16		$3,796,717.80
			Equipment	$3,046.86	$24,846.50	$17,106.61	$3,759.16	$0.00	$0.00	$24,813.33	$28,639.64	$35,442.03	$37,524.33	$441.45	$0.00	$0.00	$0.00				$193,719.12
			Other	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00			$0.00		$0.00				$0.00

**Not submitted to AQMD.

I247					Progress Payment No.																	
Contract Cost Category Description	Contract Cost Category No.	Corresponding Bid Item No.	Cost Estimates (Submitted 11-2012)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16**	TOTAL
Mobilization and Demobilization	1	4, 5	$ 333,750.00	$ 100,500.00	$ 49,500.00	$ -	$ -	$ -	$ -							$ 27,000.00	$ 67,875.00	$ 4,500.00	$ 26,250.00	$ 275,625.00
Chain-Link Fence and Gates	2	3, 16, 17	$ 398,250.00	$ 212,000.00	$ 45,250.00	$ 3,000.00	$ 24,750.00	$ 3,000.00	$ 3,000.00	$ 3,000.00	$ 3,000.00	$ 3,000.00	$ 3,000.00	$ 3,000.00	$ 52,000.00	$ 19,950.00	$ 16,000.00			$ 393,950.00
Pipe Bollards	3	n/a	$ -	$ -	$ -	$ -	$ -	$ -	$ -											$ -
Pavement (including striping)	4	14, 15	$ 12,000.00	$ -	$ -	$ 1,034.00	$ 3,540.00	$ 1,531.50	$ -				$ 3,382.50	$ (4,841.00)		$ 1,404.50				$ 6,051.50
Relocation of utilities	5	n/a	$ -	$ -	$ -	$ -	$ -	$ -	$ -											$ -
Transformers	6	23	$ 600,000.00	$ -	$ -	$ -	$ -	$ -	$ -						$ 583,000.00	$ 12,000.00	$ 5,000.00			$ 600,000.00
Switchgear assembly(s)	7	27	$ 1,000,000.00	$ -	$ -	$ -	$ -	$ -	$ -					$ 982,500.00	$ 10,000.00	$ 7,500.00	$ 10,000.00			$ 1,000,000.00
Ductbanks and raceways	8	31	$ 1,500,000.00	$ 159,760.00	$ 48,330.00	$ 274,990.00	$ 242,465.00	$ 292,280.00	$ 40,425.00	$ 10,800.00	$ 37,710.00	$ 42,480.00	$ 79,760.00	$ 207,000.00	$ 69,100.00					$ 1,500,000.00
Conductors	9	35	$ 200,000.00	$ -	$ -	$ -	$ -	$ -	$ -		$ 160,000.00	$ 1,500.00			$ 36,500.00		$ 2,000.00			$ 200,000.00
SPO Receptacles	10	39	$ 100,000.00	$ -	$ -	$ -	$ 80,000.00	$ -	$ 2,500.00						$ 7,500.00	$ 4,000.00	$ 6,000.00			$ 100,000.00
SPO Vaults	11	19	$ 500,000.00	$ -	$ -	$ 57,500.00	$ 257,500.00	$ 35,000.00	$ -				$ 115,000.00	$ 35,000.00						$ 500,000.00
All other electrical work	12	43	$ 150,000.00	$ 70,000.00	$ -	$ -	$ 70,000.00	$ -	$ -									$ 5,000.00	$ 2,500.00	$ 147,500.00
Commissioning and testing	13	49	$ 100,000.00	$ -	$ -	$ -	$ -	$ -	$ -											$ -
Demolition	14	n/a	$ -	$ -	$ -	$ -	$ -	$ -	$ -											$ -
Soil, excavation, fill and waste handling	15	8, 9, 10, 11, 12, 13	$ 215,390.00	$ 3,280.00	$ 18,609.00	$ 18,232.00	$ 46,572.25	$ 21,296.75	$ 14,601.50	$ 20,793.25	$ 28,574.00	$ 13,789.00	$ 13,013.75	$ (8,754.00)	$ (21,290.00)	$ 29,014.00	$ (3,510.00)			$ 192,221.44
Other costs*	16	1, 2, 6, 7, 46, 47, 48	$ 262,500.00	$ 40,875.00	$ 6,437.50	$ 6,437.50	$ 6,437.50	$ 11,207.50	$ 6,437.50	$ 18,937.50	$ 6,437.50	$ 6,437.50	$ 43,937.50	$ 6,437.50	$ 6,437.50	$ 66,437.50	$ 13,937.50	$ 9,167.50	$ 3,500.00	$ 259,500.00
Change Order #2 - R14A (acceleration)							$ 10,000.00													$ 10,000.00
Change Order #2 (GCC rounding)							$ 2,625.75													$ 2,625.75
Change Order #3									$ 42,397.60											$ 42,397.60
Change Order #4									$ 72,542.10	$ 10,042.10	$ 10,042.10	$ 10,042.10	$ 10,042.10	$ 10,042.10	$ 10,042.10	$ 10,042.10	$ 10,042.10	$ 10,042.10		$ 342,301.50
Change Order #5											$ 18,937.50									$ 18,937.50
Change Order #6													$ 10,500.00							$ 10,500.00
Change Order #7																				$ -
Change Order #8													$ 13,177.00	$ 3,165.00			$ 12,754.51			$ 29,096.51
Change Order #9																		$ 10,780.00		$ 10,780.00
Change Order #10																			$ 14,294.75	$ 14,294.75
Total Berth Cost			$ 5,371,890.00	$ 586,415.00	$ 168,026.50	$ 363,193.50	$ 763,871.50	$ 364,315.75	$ 180,903.10	$ 83,572.85	$ 284,761.10	$ 95,248.60	$ 304,112.85	$ 1,328,567.54	$ 783,289.60	$ 197,348.10	$ 160,049.11	$ 59,489.60	$ 48,544.75	$ 5,667,709.43
			Cost Breakdown																	
			Labor ($)	$11,398.38	$36,325.28	$60,406.67	$72,441.76	$38,485.03	$51,849.95	$68,827.50	$59,933.88	$21,128.93	$95,510.08	$143,781.91	$49,979.01	$35,842.80	$20,993.19	$258.04	$11,507.21	
			Labor (man-hours)	337.39	591.18	943.67	1,211.38	652.10	58.1	910.4	971.9	315.9	1,458.7	2,338.3	1,258.3	678.0	412.3	5.5	160.0	
			Materials	$89,606.14	$81,605.79	$125,142.66	$215,958.52	$154,487.77	$0.00	$11,247.73	$151,978.75	$309,475.24	$57,997.18	$672,956.13	$1,126,128.85	$4,945.46	$45,519.07	$19,541.83	$2,274.16		
			Equipment	$3,046.86	$24,846.50	$17,106.61	$3,759.16	$0.00	$0.00	$12,426.37	$29,012.83	$18,597.73	$8,558.36	$353.16	$0.00	$0.00	$0.00				
			Other	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00			$0.00	$0.00	$0.00				

**Not submitted to AQMD.

I266					Progress Payment No.																	
Contract Cost Category Description	Contract Cost Category No.	Corresponding Bid Item No.	Cost Estimates (Submitted 11-2012)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16**	TOTAL
Mobilization and Demobilization	1	4, 5	$ 333,750.00	$ 100,500.00	$ 49,500.00	$ -	$ -	$ -								$ 27,000.00	$ 67,875.00	$ 4,500.00	$ 26,250.00	$ 275,625.00
Chain-Link Fence and Gates	2	3, 16, 17	$ 398,250.00	$ 212,000.00	$ 45,250.00	$ 3,000.00	$ 24,750.00	$ 3,000.00	$ 3,000.00	$ 3,000.00	$ 3,000.00	$ 3,000.00	$ 3,000.00	$ 17,250.00	$ 38,250.00	$ 19,950.00	$ 16,000.00			$ 382,450.00
Pipe Bollards	3	n/a	$ -	$ -	$ -	$ -	$ -	$ -												$ -
Pavement (including striping)	4	14, 15	$ 12,000.00	$ -	$ -	$ 1,034.00	$ 3,540.00	$ 1,531.50												$ 6,051.50
Relocation of utilities	5	n/a	$ -	$ -	$ -	$ -	$ -	$ -												$ -
Transformers	6	24	$ 600,000.00	$ -	$ -	$ -	$ 149,270.00	$ 113,650.00	$ 177,520.00	$ 363,220.00	$ 192,500.00		$ 7,500.00							$ 600,000.00
Switchgear assembly(s)	7	28	$ 2,000,000.00	$ -	$ -	$ -	$ -	$ -			$ 1,982,500.00		$ 17,500.00							$ 2,000,000.00
Ductbanks and raceways	8	32	$ 2,000,000.00	$ 226,180.00	$ 211,400.00	$ 316,410.00	$ 141,000.00	$ -			$ 317,600.00	$ 25,830.00	$ 50,920.00		$ 48,000.00					$ 2,000,000.00
Conductors	9	36	$ 500,000.00	$ -	$ -	$ -	$ 300,000.00	$ -			$ 401,200.00	$ 48,800.00	$ 15,400.00	$ 34,400.00						$ 500,000.00
SPO Receptacles	10	40	$ 170,000.00	$ -	$ -	$ -	$ 70,000.00	$ -			$ 14,000.00			$ 12,000.00		$ 3,000.00				$ 170,000.00
SPO Vaults	11	20	$ 580,000.00	$ -	$ -	$ -	$ -	$ -		$ 25,000.00	$ 231,000.00	$ 24,000.00								$ 580,000.00
All other electrical work	12	44	$ 150,000.00	$ 70,000.00	$ -	$ -	$ 70,000.00	$ -										$ 5,000.00	$ 2,500.00	$ 147,500.00
Commissioning and testing	13	50	$ 100,000.00	$ -	$ -	$ -	$ -	$ -												$ -

Demolition	14	n/a	$ -	$ -	$ -	$ -	$ -	$ -															$ -
Soil, excavation, fill and waste handling	15	8, 9, 10, 11, 12, 13	$ 215,390.00	$ 3,280.00	$ 18,609.00	$ 18,232.00	$ 46,572.25	$ 21,296.75	$ 14,601.50	$ 20,793.25	$ 28,574.00	$ 11,789.00	$ 13,013.75	$ (8,754.00)	$ (21,200.00)	$ 29,014.00	$ (3,510.00)					$ 192,221.44
Other costs*	16	1, 2, 6, 7, 46, 47, 48	$ 262,500.00	$ 40,875.00	$ 6,437.50	$ 6,437.50	$ 6,437.50	$ 11,207.50	$ 18,937.50	$ 43,937.50	$ 6,437.50	$ 6,437.50	$ 6,437.50	$ 6,437.50	$ 6,437.50	$ 66,437.50	$ 13,937.50	$ 9,167.50	$ 3,500.00			$ 259,500.00
Change Order #2 (SCE grounding)						$ 2,606.75																$ 2,606.75
Change Order #3									$ 5,351.50													$ 5,351.50
Change Order #4									$ 72,542.10	$ 30,042.10	$ 30,042.10	$ 30,042.10	$ 30,042.10	$ 30,042.10	$ 30,042.10							$ 252,794.70
Change Order #5											$ (24,524.00)					$ 30,041.10	$ 30,041.10	$ 30,041.10				$ 65,602.30
Change Order #6												$ 27,500.00	$ 5,500.00									$ 27,500.00
Change Order #7														$ 43,460.00								$ 43,460.00
Change Order #8																						$ -
Change Order #9																	$ 16,486.00					$ 16,486.00
Change Order #10																			$ 14,294.75			$ 14,294.75
Total Berth Cost			$ 7,321,890.00	$ 652,855.00	$ 331,196.50	$ 345,113.50	$ 744,176.50	$ 150,885.75	$ 291,932.60	$ 485,992.85	$ 3,582,426.60	$ 171,798.60	$ 152,895.85	$ 130,000.54	$ 99,439.60	$ 173,868.10	$ 127,344.60	$ 69,195.60	$ 46,544.75			$ 7,531,469.94
			Cost Breakdown																			
			Labor ($)	$11,398.38	$36,325.28	$60,406.67	$77,072.81	$45,599.71	$3,957.20	$176,117.91	$116,184.11	$18,772.03	$23,086.36	$14,724.27	$19,527.81	$7,643.12	$17,936.08	$12,340.79	$12,358.49			
			Labor (man-hours)	337.39	591.18	943.67	1,285.88	744.80	38.05	3,038.95	2,039.60	361.35	409.70	905.23	328.00	130.00	354.00	196.30	199.00			
			Materials	$99,606.14	$81,605.79	$125,142.06	$304,263.53	$232,505.35	$0.00	$52,998.15	$2,039,879.10	$393,156.43	$191,426.25	$68,432.01	$8,883.82	$18,042.96	$80.97	$48,703.99	$2,274.16			
			Equipment	$3,046.88	$24,946.50	$17,106.61	$3,759.16	$0.00	$0.00	$83,031.33	$30,270.76	$3,520.00	$6,331.08	$519.74	$0.00	$0.00	$0.00					
			Other	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00			$0.00	$0.00	$0.00					

**Not submitted to AQMD.

J270				Progress Payment No.																	
Contract Cost Category Description	Contract Cost Category No.	Corresponding Bid Item No.	Cost Estimates (Submitted 11-2012)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16**	TOTAL
Mobilization and Demobilization	1	4, 5	$ 333,750.00	$ 100,000.00	$ 49,500.00	$ -	$ -	$ -	$ -							$ 27,000.00	$ 67,675.00	$ 4,500.00	$ 26,250.00	$ 275,425.00
Chain-Link Fence and Gates	2	3, 16, 17	$ 398,250.00	$ 212,000.00	$ 45,250.00	$ 3,000.00	$ 34,750.00	$ 3,000.00	$ 3,000.00	$ 3,000.00	$ 3,000.00	$ 3,000.00	$ 3,000.00	$ 17,250.00	$ 36,250.00	$ 19,950.00	$ 16,000.00			$ 382,450.00
Pipe Bollards	3	n/a	$ -	$ -	$ -	$ -	$ -	$ -	$ -											$ -
Pavement (including striping)	4	14, 15	$ 12,000.00	$ -	$ -	$ 1,034.00	$ 3,540.00	$ 1,531.50	$ -				$ 3,382.50	$ (4,841.00)		$ 1,404.50				$ 6,051.50
Relocation of Utilities	5	n/a	$ -	$ -	$ -	$ -	$ -	$ -	$ -											$ -
Transformers	6	25	$ 600,000.00	$ -	$ -	$ -	$ -	$ -	$ -		$ 592,500.00		$ 7,500.00							$ 600,000.00
Switchgear assembly(s)	7	29	$ 2,200,000.00	$ -	$ -	$ -	$ -	$ -	$ -		$ 2,182,500.00		$ 17,500.00							$ 2,200,000.00
Duct banks and raceways	8	33	$ 1,500,000.00	$ 131,220.00	$ 128,400.00	$ 283,560.00	$ 155,600.00	$ 55,580.00	$ 372,220.00	$ 203,480.00	$ 150,240.00	$ 8,460.00	$ 9,240.00		$ 2,000.00					$ 1,500,000.00
Conductors	9	37	$ 400,000.00	$ -	$ -	$ -	$ -	$ -	$ -		$ 342,900.00	$ 12,950.00	$ 11,250.00	$ 32,900.00						$ 400,000.00
SPO Receptacles	10	41	$ 150,000.00	$ -	$ -	$ -	$ 125,000.00	$ -	$ -		$ 12,500.00			$ 7,500.00			$ 5,000.00			$ 150,000.00
SPO Vaults	11	23	$ 550,000.00	$ -	$ -	$ -	$ 250,000.00	$ 25,500.00	$ 86,000.00	$ 52,500.00	$ 116,000.00	$ 20,000.00								$ 550,000.00
All other electrical work	12	45	$ 350,000.00	$ 70,000.00	$ -	$ -	$ 70,000.00	$ -	$ -									$ 5,000.00	$ 2,500.00	$ 147,500.00
Commissioning and testing	13	50	$ 300,000.00	$ -	$ -	$ -	$ -	$ -	$ -											$ -
Demolition	14	n/a	$ -	$ -	$ -	$ -	$ -	$ -	$ -											$ -
Soil, excavation, fill and waste handling	15	8, 9, 10, 11, 12, 13	$ 215,390.00	$ 3,280.00	$ 18,609.00	$ 18,232.00	$ 46,572.25	$ 21,296.75	$ 14,601.50	$ 20,793.25	$ 28,574.00	$ 11,789.00	$ 13,013.75	$ (8,754.00)	$ (21,200.00)	$ 29,014.00	$ (3,510.00)			$ 192,221.44
Other costs*	16	1, 2, 6, 7, 46, 47, 48	$ 262,500.00	$ 40,875.00	$ 6,437.50	$ 6,437.50	$ 6,437.50	$ 11,207.50	$ 18,937.50	$ 43,937.50	$ 6,437.50	$ 6,437.50	$ 6,437.50	$ 6,437.50	$ 6,437.50	$ 66,437.50	$ 13,937.50	$ 9,167.50	$ 3,500.00	$ 259,500.00
Change Order #2 (SCE grounding)						$ 2,606.75														$ 2,606.75
Change Order #3									$ 5,351.50											$ 5,351.50
Change Order #4									$ 72,542.10	$ 30,042.10	$ 30,042.10	$ 30,042.10	$ 30,042.10	$ 30,042.10	$ 30,042.10					$ 252,794.70
Change Order #5											$ (24,524.00)					$ 30,041.10	$ 30,041.10	$ 30,041.10		$ 65,602.30
Change Order #6												$ 27,500.00	$ 5,500.00							$ 27,500.00
Change Order #7														$ 43,460.00						$ 43,460.00
Change Order #8																				$ -
Change Order #9																		$ 16,486.00		$ 16,486.00
Change Order #10																			$ 14,294.75	$ 14,294.75
Total Berth Cost			$ 6,871,890.00	$ 557,875.00	$ 348,196.50	$ 312,283.50	$ 684,506.50	$ 118,115.75	$ 572,432.60	$ 353,752.85	$ 3,440,189.60	$ 114,878.60	$ 106,865.85	$ 124,000.54	$ 53,439.60	$ 173,848.10	$ 120,344.60	$ 69,810.60	$ 46,544.75	$ 7,106,064.94
			Cost Breakdown																	
			Labor ($)	$11,398.38	$36,325.28	$60,406.67	$102,361.41	$43,014.65	$25,058.54	$68,743.17	$85,972.71	$50,903.86	$6,748.35	$44,101.78	$14,925.86	$6,396.82	$14,364.62	$329.56	$15,412.81		
			Labor (man-hours)	337.39	591.18	943.67	1,685.38	714.20	1,343.05	1,160.06	1,463.85	799.13	135.75	730.34	260.45	108.00	283.40	7.00	175.50		
			Materials	$99,606.14	$81,605.79	$125,142.06	$266,111.02	$195,046.53	$24,001.90	$21,688.36	$1,398,023.38	$396,117.85	$219,922.50	$56,502.35	$10,497.05	$9,736.78	$67.47	$38,054.99	$2,274.16		
			Equipment	$3,046.88	$24,946.50	$17,106.61	$3,759.16	$0.00	$0.00	$24,812.52	$26,639.64	$22,290.59	$2,600.00	$441.45	$0.00	$0.00	$0.00				
			Other	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00			$0.00	$0.00	$0.00				

**Not submitted to AQMD.

		J243				J247				J266				J279			
Progress Payment No.	Period Ending	Paid		Retention		Paid		Retention		Paid		Retention		Paid		Retention	
		Amount	Check No.	Amount	Check No.	Amount	Check No.	Amount	Check No.	Amount	Check No.	Amount	Check No.	Amount	Check No.	Amount	Check No.
1	8/31/2012	$583,048.25	1010181	$30,686.75	1010182	$557,094.25	1010181	$29,320.75	1010182	$626,193.25	1010181	$32,641.75	1010182	$529,981.25	1010181	$27,893.75	1010182
2	9/30/2013	$209,310.17	1011927	$11,016.33	1011928	$159,625.17	1011927	$8,401.32	1011928	$334,658.68	1011927	$16,559.82	1011928	$235,786.68	1011927	$12,409.82	1011928
3	10/31/2012	$367,083.33	1017464	$19,320.17	1017465	$342,133.83	1017464	$18,059.07	1017465	$327,857.83	1017464	$17,255.68	1017465	$296,650.33	1017464	$15,613.18	1017465
4	11/30/2012	$684,580.92	1021977	$36,030.58	1021978	$725,677.92	1021977	$38,193.58	1021978	$706,967.48	1021977	$37,208.82	1021978	$650,281.18	1021977	$34,225.32	1021978
5	12/31/2012	$57,945.96	1024872	$3,049.79	1025171	$346,099.98	1024872	$18,215.79	1025171	$143,341.47	1024872	$7,544.28	1025171	$112,709.96	1024872	$5,905.79	1025171
6	1/31/2013	$247,012.45	1027782	$13,000.66	1027783	$171,857.95	1027782	$9,045.16	1027783	$277,354.97	1027782	$14,597.63	1027783	$544,019.97	1027782	$28,632.63	1027783
7	2/28/2013	$193,356.21	1032025	$10,176.64	1032275	$71,194.21	1032025	$4,178.65	1032275	$453,493.20	1032025	$24,299.64	1032275	$207,865.21	1032025	$17,687.64	1032275
8	3/31/2013	$521,403.55	1033020	$27,547.56	1033021	$268,223.05	1033020	$14,238.06	1033021	$3,401,009.12	1033020	$179,121.43	1033021	$1,265,861.21	1033020	$172,008.47	1033021
9	4/30/2013	$296,122.67	1040057	$14,795.93	1040058	$106,986.17	1040057	$4,762.43	1040058	$171,708.67	1040057	$8,589.93	1040058	$119,444.67	1040057	$5,733.93	1040058
10	5/31/2013	$239,661.31	1045607	$13,436.65	1045608	$273,272.31	1045607	$15,205.64	1045608	$129,426.26	1045607	$7,634.79	1045608	$85,887.66	1045607	$5,343.29	1045608
11	7/7/2013	$1,067,389.06	1050792	$56,200.38	1050960	$1,166,721.06	1050792	$61,428.38	1050960	$123,042.42	1050792	$6,560.02	1050960	$117,342.40	1050792	$6,280.01	1050960
12	8/9/2013	$668,564.71	1054167	$36,309.48	1054168	$714,409.71	1054167	$38,364.48	1054168	$65,157.21	1054167	$4,871.98	1054168	$21,452.21	1054167	$2,671.98	1054168
13	8/31/2013	$233,274.10	1060205	$10,292.40	1060206	$225,199.11	1060205	$9,867.41	1060206	$202,874.11	1060205	$8,692.40	1060206	$202,874.11	1060205	$8,692.41	1060206
14	9/31/2013	$144,669.32	1064295	$8,102.45	1064296	$142,769.32	1064295	$8,002.46	1064296	$111,700.83	1064295	$6,367.23	1064296	$113,600.83	1064295	$6,467.23	1064296
15	10/31/2013	$43,946.45	1069034	$2,974.48	1069035	$43,946.45	1069034	$2,974.48	1069035	$49,367.15	1069034	$3,259.78	1069035	$53,751.39	1069034	$3,490.53	1069035
16**	12/11/2013	$46,544.75		$2,327.24		$46,544.75		$2,327.24		$46,544.75		$2,327.24		$46,544.75		$2,327.24	
TOTAL		$5,597,913.21		$299,267.49		$5,357,155.27		$283,385.50		$7,146,708.70		$377,572.47		$6,723,592.91		$355,303.24	
GRAND TOTAL		$5,897,180.70				$5,640,540.72				$7,524,281.17				$7,078,896.15			

T132/134				Progress Payment No.													
Contract Cost Category Description	Contract Cost Category No.	Corresponding Bid Item No.	Cost Estimates (Submitted 11-2012)	1	2	3	4	5	6	7	8	9	10	11	12	TOTAL
Mobilization and Demobilization	1	1	$290,262.61	$ 145,131.30	$ -	$ -	$ -								$ 72,565.65	$ 217,696.95
Chain-Link Fence and Gates	2	8, 9, 10	$11,909.20	$ 1,087.09	$ 2,183.82	$ -	$ -			$ 2,079.93	$ 419.32			$ 3,690.05		$ 9,460.21
Pipe Bollards	3	11, 12, 13	$67,175.38	$ -	$ -	$ -	$ 17,781.68		$ 28,430.04					$ 12,684.97	$ 6,373.69	$ 65,270.38
Pavement (including striping)	4	14, 15, 16, 42	$37,178.77	$ -	$ 961.87	$ -	$ 59.38	$ 181.69				$ 419.33	419.32	$ 733.81		$ 2,775.40
Relocation of utilities	5	17	$6,709.15	$ -	$ -	$ -	$ -			$ 500.00				$ 8,418.29	$ 8,418.29	$ 17,336.58
Transformers	6	21	$709,593.23	$ -	$ -	$ -	$ -					$ 632,247.57			$ 77,345.66	$ 709,593.23
Switchgear assembly(s)	7	25	$2,105,417.86	$ -	$ -	$ -	$ -							$ 2,105,417.86		$ 2,105,417.86
Ductbanks and raceways	8	29	$765,573.51	$ -	$ -	$ 24,242.11	$ 12,856.36							$ 469,609.46	$ 258,865.58	$ 765,573.51
Conductors	9	33	$692,948.22	$ -	$ -	$ -	$ 73,622.29	$ 453,871.78						$ 14,127.01	$ 148,497.14	$ 690,118.22
SPO Receptacles	10	37	$453,919.50	$ -	$ -	$ -	$ 107,933.60							$ 235,120.03	$ 110,827.88	$ 453,881.51
SPO Vaults	11	n/a	$0	$ -	$ -	$ -	$ -									$ -
All other electrical work	12	41	$89,190.97	$ -	$ -	$ -	$ -								$ 80,903.47	$ 80,903.47
Commissioning and testing	13	45, 46	$37,831.79	$ -	$ -	$ -	$ -									$ -
Demolition	14	4	$8,408.06	$ -	$ -	$ -	$ -						$ 1,105.25	$ 4,417.50	$ 1,443.55	$ 6,966.30
Soil, excavation, fill and waste handling	15	2, 5, 6, 7	$67,641.20	$ -	$ -	$ 631.67	$ 2,672.02			$ 7,702.15	$ 3,052.14	$ 559.00	$ 1,397.50	$ 4,104.11	$ 4,005.66	$ 24,124.25
Other costs*	16	3, 43, 44	$19,219.67	$ 262.08	$ 1,048.30	$ 611.52	$ 988.94	$ 611.52	$ 611.52	$ 611.52	$ 262.08	$ 611.51	$ 349.42	$ 1,223.02	$ 4,203.98	$ 11,395.41
Change order #1									$ 54,000.00				$ 74,712.25	$ 149,424.50	$ 74,712.25	$ 352,849.00
Change order #2											$ (538.75)					$ (538.75)
Total Berth Cost			**$5,362,979.10**	**$ 146,480.47**	**$ 4,193.99**	**$ 25,485.30**	**$ 215,914.27**	**$ 454,664.99**	**$ 83,041.56**	**$ 10,893.60**	**$ 3,194.79**	**$ 633,837.41**	**$ 77,983.74**	**$ 3,008,970.61**	**$ 848,162.80**	**$ 5,512,823.53**
			Cost Breakdown													
			Labor ($)	$0.00	$0.00	$0.00	$0.00		$0.00	$0.00	$0.00			$284,182.74	$361,657.80	$645,840.54
			Labor (man-hours)	0.00	0.00	0.00	0.00		0.00	0.00	0.00			4,307.50	5,114.50	9,422
			Materials	$0.00	$0.00	$0.00	$111,012.00	$337,365.00	$0.00	$0.00	$0.00	$632,236.00	$632,236.00	$2,192,548.46	$99,012.00	$4,004,409.46
			Equipment	$0.00	$0.00	$0.00	$0.00		$0.00	$0.00	$0.00			$134,039.34	$40,860.00	$174,899.34
			Other	$0.00	$0.00	$0.00	$0.00		$0.00	$0.00	$0.00					

T136				Progress Payment No.													
Contract Cost Category Description	Contract Cost Category No.	Corresponding Bid Item No.	Cost Estimates (Submitted 11-2012)	1	2	3	4	5	6	7	8	9	10	11	12	TOTAL
Mobilization and Demobilization	1	1	$290,262.61	$ 145,131.30	$ -	$ -	$ -								$ 72,565.65	$ 217,696.95
Chain-Link Fence and Gates	2	8, 9, 10	$11,909.20	$ 1,087.08	$ 2,183.81	$ -	$ -			$ 2,079.93	$ 419.32				$ 5,501.79	$ 11,271.93
Pipe Bollards	3	11, 12, 13	$67,175.38	$ -	$ -	$ -	$ 17,781.68		$ 28,430.04				$ 3,186.85	$ 3,186.85	$ 5,346.24	$ 57,931.66
Pavement (including striping)	4	14, 15, 16, 42	$37,178.77	$ -	$ 961.87	$ -	$ 59.38	$ 181.69				$ 419.32	$ 419.32	$ 733.81		$ 2,775.39
Relocation of utilities	5	17	$6,709.15	$ -	$ -	$ -	$ -			$ 500.00						$ 500.00
Transformers	6	20	$709,593.23	$ -	$ -	$ -	$ -					$ 709,593.23				$ 709,593.23
Switchgear assembly(s)	7	24	$1,779,834.87	$ -	$ -	$ -	$ -					$ 1,779,834.87				$ 1,779,834.87
Ductbanks and raceways	8	28	$394,105.50	$ -	$ -	$ 22,252.90	$ 12,632.40					$ 60,033.12	$ 207,355.60	$ 59,825.60	$ 32,007.88	$ 394,107.50
Conductors	9	32	$471,591.80	$ -	$ -	$ -	$ 60,230.87	$ 312,140.78							$ 99,222.91	$ 471,594.56
SPO Receptacles	10	36	$226,959.75	$ -	$ -	$ -	$ 71,485.25								$ 155,474.51	$ 226,959.76
SPO Vaults	11	n/a	$0	$ -	$ -	$ -	$ -									$ -
All other electrical work	12	40	$79,665.13	$ -	$ -	$ -	$ -					$ 63,090.13			$ 8,287.50	$ 71,377.63
Commissioning and testing	13	45, 46	$37,831.79	$ -	$ -	$ -	$ -									$ -
Demolition	14	4	$8,408.06	$ -	$ -	$ -	$ -					$ 4,417.50	$ 1,425.00			$ 5,842.50
Soil, excavation, fill and waste handling	15	2, 5, 6, 7	$67,641.20	$ -	$ -	$ 631.67	$ 2,672.02			$ 7,702.15	$ 3,052.14	$ 1,927.04	$ 4,589.59	$ 61,315.98	$ 3,549.65	$ 85,440.24
Other costs*	16	3, 43, 44	$19,219.67	$ 262.08	$ 1,048.30	$ 611.52	$ 988.94	$ 611.52	$ 611.52	$ 611.52	$ 262.08	$ 611.53	$ 349.44	$ 1,223.02	$ 4,203.98	$ 11,395.45
Change order #1									$ 54,000.00			$ 78,107.00	$ 39,553.50	$ 307,582.50	$ 184,897.88	$ 665,140.88
Change order #2											$ (538.75)					$ (538.75)
Total Berth Cost			**$4,208,086.09**	**$ 146,480.46**	**$ 4,193.98**	**$ 23,496.09**	**$ 165,850.54**	**$ 312,933.99**	**$ 83,041.56**	**$ 10,893.60**	**$ 3,194.79**	**$ 2,699,033.74**	**$ 256,879.30**	**$ 433,867.76**	**$ 571,057.99**	**$ 4,710,923.80**
			Cost Breakdown													
			Labor ($)	$0.00	$0.00	$0.00	$0.00		$0.00	$0.00	$0.00	$55,296.00	$84,161.00	$61,236.00	$240,434.00	$441,127.00
			Labor (man-hours)	0.00	0.00	0.00	0.00		0.00	0.00	0.00	875.00	1,291.00	922.00	3,398.00	$6,486.00
			Materials	$0.00	$0.00	$0.00	$111,012.00	$337,365.00	$0.00	$0.00	$0.00	$980,643.00	$29,654.00			$1,458,674.00
			Equipment	$0.00	$0.00	$0.00	$0.00		$0.00	$0.00	$0.00	$63,990.00			$22,400.00	$86,390.00
			Other	$0.00	$0.00	$0.00	$0.00		$0.00	$0.00	$0.00					$0.00

T138				Progress Payment No.													
Contract Cost Category Description	Contract Cost Category No.	Corresponding Bid Item No.	Cost Estimates (Submitted 11-2012)	1	2	3	4	5	6	7	8	9	10	11	12	TOTAL
Mobilization and Demobilization	1	1	$290,262.61	$ 145,131.30	$ -	$ -	$ -								$ 72,565.65	$ 217,696.95
Chain-Link Fence and Gates	2	8, 9, 10	$11,909.20	$ 1,087.08	$ 2,183.81	$ -	$ -			$ 2,079.93	$ 419.32		$ 9,057.68			$ 14,827.82
Pipe Bollards	3	11, 12, 13	$67,175.38	$ -	$ -	$ -	$ 17,781.68		$ 28,430.04			$ 6,373.69	$ 10,376.28			$ 62,961.69
Pavement (including striping)	4	14, 15, 16, 42	$37,178.77	$ -	$ 961.88	$ -	$ 59.38	$ 181.69				$ 419.32	$ 419.32	$ 733.81		$ 2,775.40
Relocation of utilities	5	17	$6,709.15	$ -	$ -	$ -	$ -			$ 500.00		$ 6,000.00				$ 6,500.00
Transformers	6	19	$709,593.23	$ -	$ -	$ -	$ -		$ 630,787.23		$ 78,806.00					$ 709,593.23
Switchgear assembly(s)	7	23	$1,921,221.76	$ -	$ -	$ -	$ -				$ 1,921,221.76					$ 1,921,221.76
Ductbanks and raceways	8	27	$599,461.62	$ -	$ -	$ 54,000.00	$ 12,763.20		$ 16,341.92	$ 76,146.78	$ 264,709.72	$ 20,448.00	$ 136,800.00	$ 18,252.00		$ 599,461.62
Conductors	9	31	$518,338.89	$ -	$ -	$ -	$ 43,910.07	$ 332,611.54			$ 16,360.21	$ 48,863.61	$ 15,448.26	$ 61,145.19		$ 518,338.88
SPO Receptacles	10	35	$340,439.63	$ -	$ -	$ -	$ 71,485.25					$ 59,684.22	$ 209,271.16			$ 340,440.63
SPO Vaults	11	n/a	$0	$ -	$ -	$ -	$ -									$ -
All other electrical work	12	39	$81,156.80	$ -	$ -	$ -	$ -			$ 22,603.63		$ 41,978.17	$ 4,143.75	$ 8,287.50	$ 4,143.75	$ 81,156.80

Commissioning and testing	13	45, 46	$37,831.79	$ -	$ -	$ -	$ -									$ 25,331.79	$ 25,331.79
Demolition	14	4	$8,408.06	$ -	$ -	$ -	$ -			$ 6,413.55	$ 663.15	$ 663.15					$ 7,739.85
Soil, excavation, fill and waste handling	15	2, 5, 6, 7	$67,641.20	$ -	$ -	$ 631.67	$ 2,672.02			$ 9,982.21	$ 5,332.19	$ 559.00	$ 1,397.50			$ 3,549.65	$ 24,124.24
Other costs*	16	3, 43, 44	$19,219.67	$ 262.07	$ 1,048.31	$ 611.52	$ 988.94	$ 611.52	$ 611.52	$ 611.52	$ 262.08	$ 611.53	$ 349.44	$ 1,223.02	$ 4,203.98	$ 11,395.45
Change order #1									$ 54,000.00	$ 76,738.07	$ 229,568.21	$ 167,154.96	$ 117,932.76			$ 645,394.00
Change order #2											$ (538.75)					$ (538.75)
Total Berth Cost			**$4,716,547.74**	**$ 146,480.45**	**$ 4,194.00**	**$ 55,243.19**	**$ 149,660.54**	**$ 333,404.75**	**$ 730,170.71**	**$ 195,075.69**	**$ 2,516,803.89**	**$ 352,755.65**	**$ 505,196.15**	**$ 89,641.52**	**$ 109,794.82**	**$ 5,188,421.36**
			Cost Breakdown													
			Labor ($)	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$50,304.00	$0.00	$56,707.73	$72,835.00	$67,948.60	$16,565.00	$264,360.33
			Labor (man-hours)	0.00	0.00	0.00	0.00	0.00	0.00	780.00	0.00	844.50	1,132.00	968.50	83.00	$3,808.00
			Materials	$0.00	$0.00	$0.00	$98,312.00	$337,365.00	$0.00	$3,300.00	$1,560,128.00	$16,704.00	$16,352.17			$2,032,161.17
			Equipment	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$11,736.00	$0.00	$24,728.56	$5,859.12	$14,780.00	$2,060.00	$59,163.68
			Other	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00			$0.00

T140				Progress Payment No.												
Contract Cost Category Description	Contract Cost Category No.	Corresponding Bid Item No.	Cost Estimates (Submitted 11-2012)	1	2	3	4	5	6	7	8	9	10	11	12	TOTAL
Mobilization and Demobilization	1	1	$290,262.61	$ 145,131.30	$ -	$ -		$ -		$ 2,079.93	$ 8,962.79				$ 72,565.65	$ 217,696.95
Chain-Link Fence and Gates	2	8, 9, 10	$11,909.20	$ 1,087.08	$ 2,183.81	$ -		$ -								$ 14,313.61
Pipe Bollards	3	11, 12, 13	$67,175.38	$ -	$ -	$ -	$ 17,781.68	$ -	$ 28,430.04	$ 20,963.67						$ 67,175.39
Pavement (including striping)	4	14, 15, 16, 42	$37,178.77	$ -	$ 961.88	$ -	$ 59.38	$ 181.69		$ 27,172.49		$ 54,764.29	$ 419.32	$ 27,906.30	$ 27,172.49	$ 138,637.84
Relocation of utilities	5	17	$6,709.15	$ -	$ -	$ -				$ 500.00	$ 2,000.00					$ 2,500.00
Transformers	6	18	$709,593.23	$ -	$ -	$ -		$ 709,593.23								$ 709,593.23
Switchgear assembly(s)	7	22	$3,939,255.79	$ -	$ -	$ -		$ 3,939,255.79								$ 3,939,255.79
Ductbanks and raceways	8	26	$349,501.65	$ -	$ 27,978.60	$ 171,418.70	$ 71,690.70	$ 15,839.94	$ 14,400.00	$ 33,200.00	$ 7,636.36	$ 7,337.35				$ 349,501.65
Conductors	9	30	$413,138.96	$ -	$ -	$ -	$ 60,019.96	$ 269,851.81		$ 44,170.98				$ 39,096.22		$ 413,138.97
SPO Receptacles	10	34	$226,959.75	$ -	$ -	$ -	$ 71,485.25			$ 50,839.26	$ 33,150.00		$ 71,485.25			$ 226,959.76
SPO Vaults	11	n/a	$0	$ -	$ -	$ -										$ -
All other electrical work	12	38	$86,714.11	$ -	$ 10,520.87	$ 7,013.91	$ 63,125.21				$ (10,520.87)	$ 14,917.49		$ 1,657.50		$ 86,714.11
Commissioning and testing	13	45, 46	$37,831.79	$ -	$ -	$ -										$ -
Demolition	14	4	$8,408.06	$ -	$ -	$ -										$ -
Soil, excavation, fill and waste handling	15	2, 5, 6, 7	$67,641.20	$ -	$ 3,420.09	$ 1,087.68	$ 3,356.04			$ 7,702.15	$ 46,839.32	$ 559.00	$ 1,397.50		$ 3,549.65	$ 67,911.43
Other costs*	16	3, 43, 44	$19,219.67	$ 262.07	$ 4,193.21	$ 611.52	$ 988.94	$ 611.52	$ 611.52	$ 611.52	$ 262.08	$ 611.53	$ 349.44	$ 1,223.02	$ 4,203.98	$ 14,940.35
Change order #1									$ 322,607.18	$ 125,957.90	$ 48,051.03					$ 496,616.11
Change order #2											$ 37,469.88					$ 37,469.88
Total Berth Cost			**$6,271,499.30**	**$ 146,480.45**	**$ 49,258.46**	**$ 180,131.81**	**$ 288,507.16**	**$ 4,935,333.98**	**$ 366,048.74**	**$ 313,197.90**	**$ 173,850.59**	**$ 78,189.66**	**$ 73,651.51**	**$ 69,883.04**	**$ 107,491.77**	**$ 6,782,025.07**
			Cost Breakdown													
			Labor ($)	$0.00	$50,213.00	$83,884.00	$112,676.45	$9,223.00	$18,706.00	$81,661.70	$78,025.00	$1,525.00	$1,603.00	$102,950.80	$12,790.00	$553,257.95
			Labor (man-hours)	0.00	806.00	1315.00	1781.00	142.00	288.00	485775.25	1625.50	24.00	24.00	983.00	209.00	$492,972.75
			Materials	$0.00	$57,192.02	$234,135.00	$209,862.30	$3,283,875.00	$633,225.00	$9,724.00	$0.00				$15,519.42	$4,443,532.74
			Equipment	$0.00	$14,329.00	$12,861.00	$26,711.80	$2,087.00	$7,001.00	$20,809.32	$48,121.29	$1,365.00		$30,480.00	$11,430.00	$175,195.41
			Other	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00					$0.00

		T132/134				T136				T138				T140			
Progress Payment No.	Period Ending	Paid		Retention		Paid		Retention		Paid		Retention		Paid		Retention	
		Amount	Check No.	Amount	Check No.	Amount	Check No.	Amount	Check No.	Amount	Check No.	Amount	Check No.	Amount	Check No.	Amount	Check No.
1	8/31/2012	$139,156.45	1013550	$7,324.02	1013369	$139,156.44	1013550	$7,324.02	1013369	$139,156.43	1013550	$7,324.02	1013369	$139,156.43	1013550	$7,324.02	1013369
2	9/30/2012	$3,984.29	1017157	$209.70	1017158	$3,984.28	1017157	$209.70	1017158	$3,984.30	1017157	$209.70	1017158	$46,795.54	1017157	$2,462.92	1017158
3	10/31/2012	$24,211.30	1018355	$1,274.26	1018356	$22,321.28	1018355	$1,174.80	1018356	$52,481.02	1018355	$2,762.16	1018356	$171,125.20	1018355	$9,006.60	1018356
4	11/30/2012	$205,118.56	1025282	$10,795.70	1025283	$157,558.00	1025282	$8,292.53	1025283	$142,177.50	1025282	$7,483.03	1025283	$274,081.79	1025282	$14,425.36	1025283
5	12/31/2012	$431,931.73	1027736	$22,733.25	1027737	$297,287.29	1027736	$15,646.70	1027737	$316,734.52	1027736	$16,670.24	1027737	$4,688,567.28	1027736	$246,766.70	1027737
6	1/31/2013	$78,889.48	1032234	$4,152.08	1032235	$78,889.48	1032234	$4,152.08	1032235	$693,662.16	1032234	$36,508.54	1032235	$347,746.30	1032234	$18,302.44	1032235
7	2/28/2013	$10,348.91	1038592	$544.68	1038593	$10,348.90	1038592	$10,893.59	1038593	$185,321.91	1038592	$9,753.78	1038593	$297,538.00	1038592	$15,659.89	1038593
8	3/31/2013	$3,035.05	1042462	$159.74	1042463	$3,035.05	1042462	$159.74	1042463	$2,390,963.70	1042462	$125,840.19	1042463	$165,158.06	1042462	$8,692.53	1042463
9	4/30/2013	$602,145.54	1046397	$31,691.87	1046398	$2,564,082.05	1046397	$134,951.69	1046398	$335,117.86	1046397	$17,637.78	1046398	$74,280.17	1046397	$3,909.48	1046398
10	5/31/2013	$74,084.55	1052050	$3,899.19	1052051	$244,035.33	1052050	$12,843.96	1052051	$479,936.35	1052050	$25,259.81	1052051	$69,968.94	1052050	$3,682.57	1052051
11	6/30/2013	$2,858,522.08	1059654	$150,448.53	1059655	$412,174.36	1059654	$21,693.39	1059655	$85,159.44	1059654	$4,482.09	1059655	$66,388.90	1059654	$3,494.14	1059655
12	9/30/2013	$796,744.51	1069922	$42,408.14	1069923	$533,494.96	1069922	$28,552.90	1069923	$95,294.96	1069922	$5,489.74	1069923	$93,107.06	1069922	$5,374.59	1069923
TOTAL		$5,228,172.45		$275,641.16		$4,466,367.42		$245,895.10		$4,919,990.15		$259,421.08		$6,433,913.67		$339,101.24	
GRAND TOTAL		$5,503,813.61				$4,712,262.52				$5,179,411.23				$6,773,014.91			

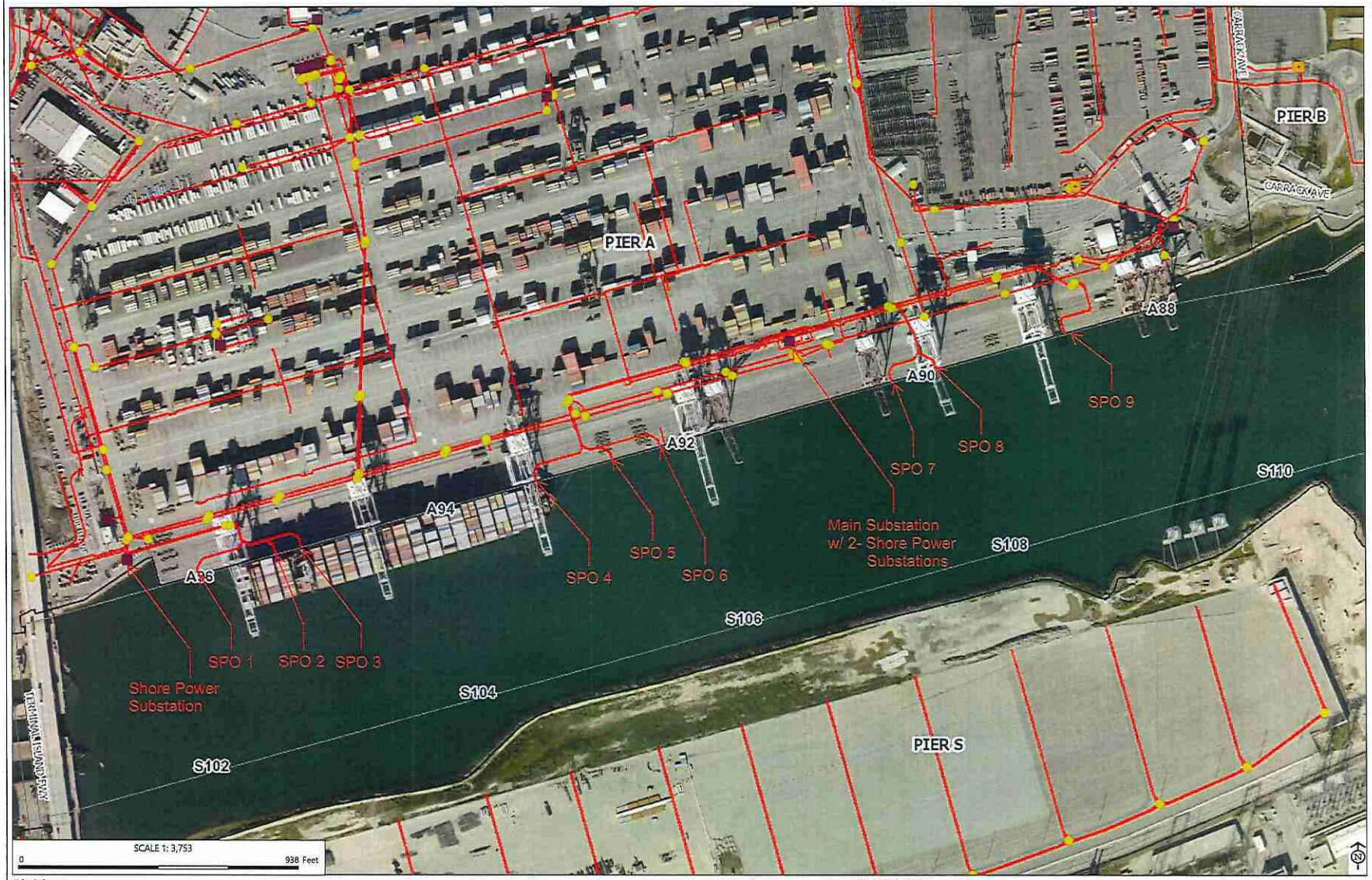
ATTACHMENT C
Maps of Container Terminal Shore Power Infrastructure

Duplicate - See Comment Letter 60 Port of LB

Port of Long Beach

Port ATLAS

Port of LONG BEACH
The Green Port



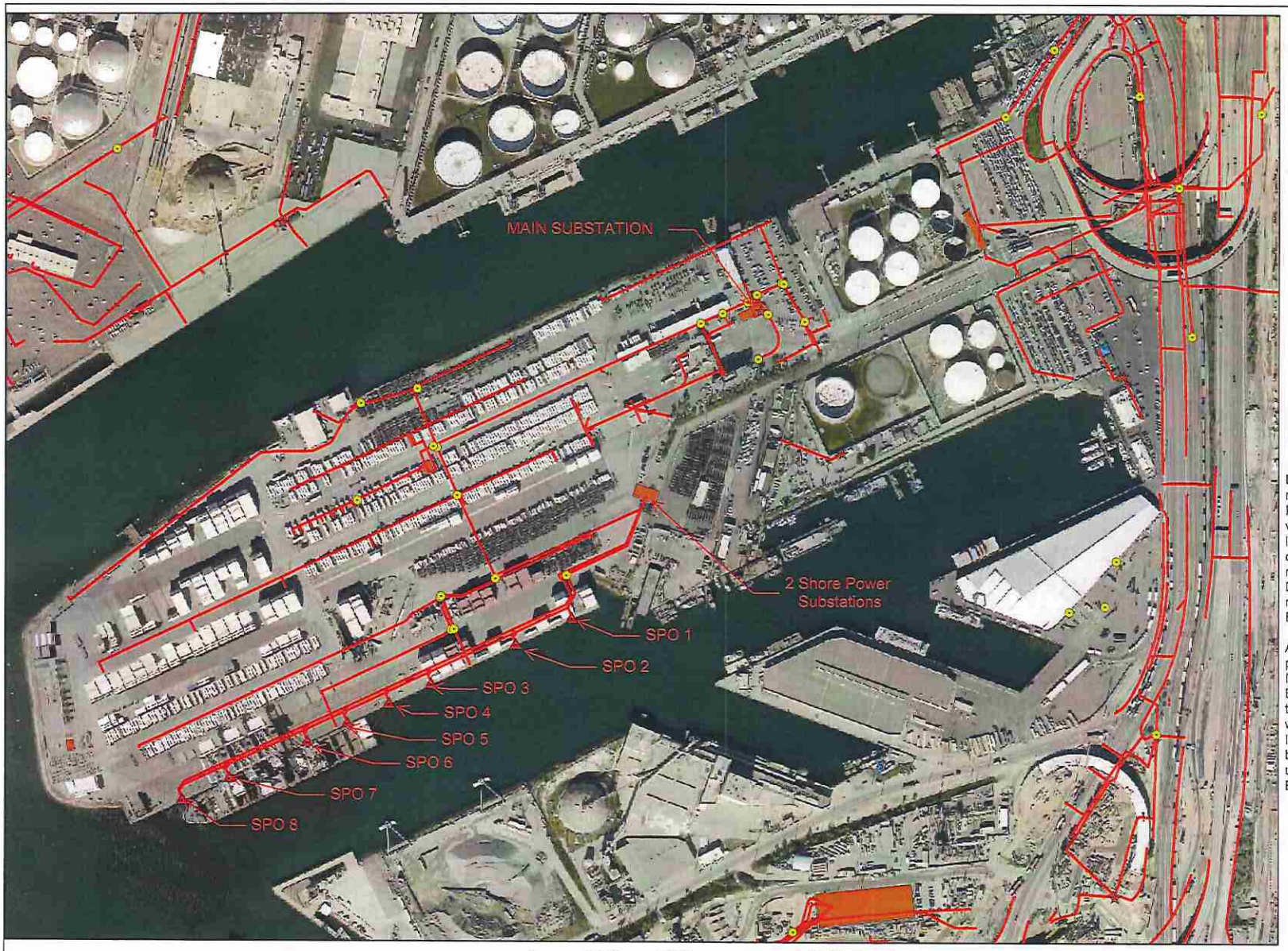
Legend

- Electric Junction
  - Maintenance Hole
  - Substation
  - Transformer
- Electric Meter
- Active Electric Line
- Abandoned Electric Line
- POLB Roads
- Railroad Track
- Pierhead Line
- Piers

Disclaimer:
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Author / Notes:

03/27/2019



PORT OF LONG BEACH
PIER C

Port of LONG BEACH
The Green Port

- Maintenance Hole
- Shore Power Outlet
- Transformer
- Active Electric Line
- Substation

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Aerial Photo: This is a proprietary dataset provided courtesy of the Los Angeles Region Imagery Acquisition Consortium (LAR-IAC), Eagle View Technologies, Inc. Use other than what is allowable under license or by written pression from Eagle View Technologies, Inc. will be considered unauthorized and may be punishable by law. Permission for external use may be given with written permission from Eagle View Technologies, Inc.

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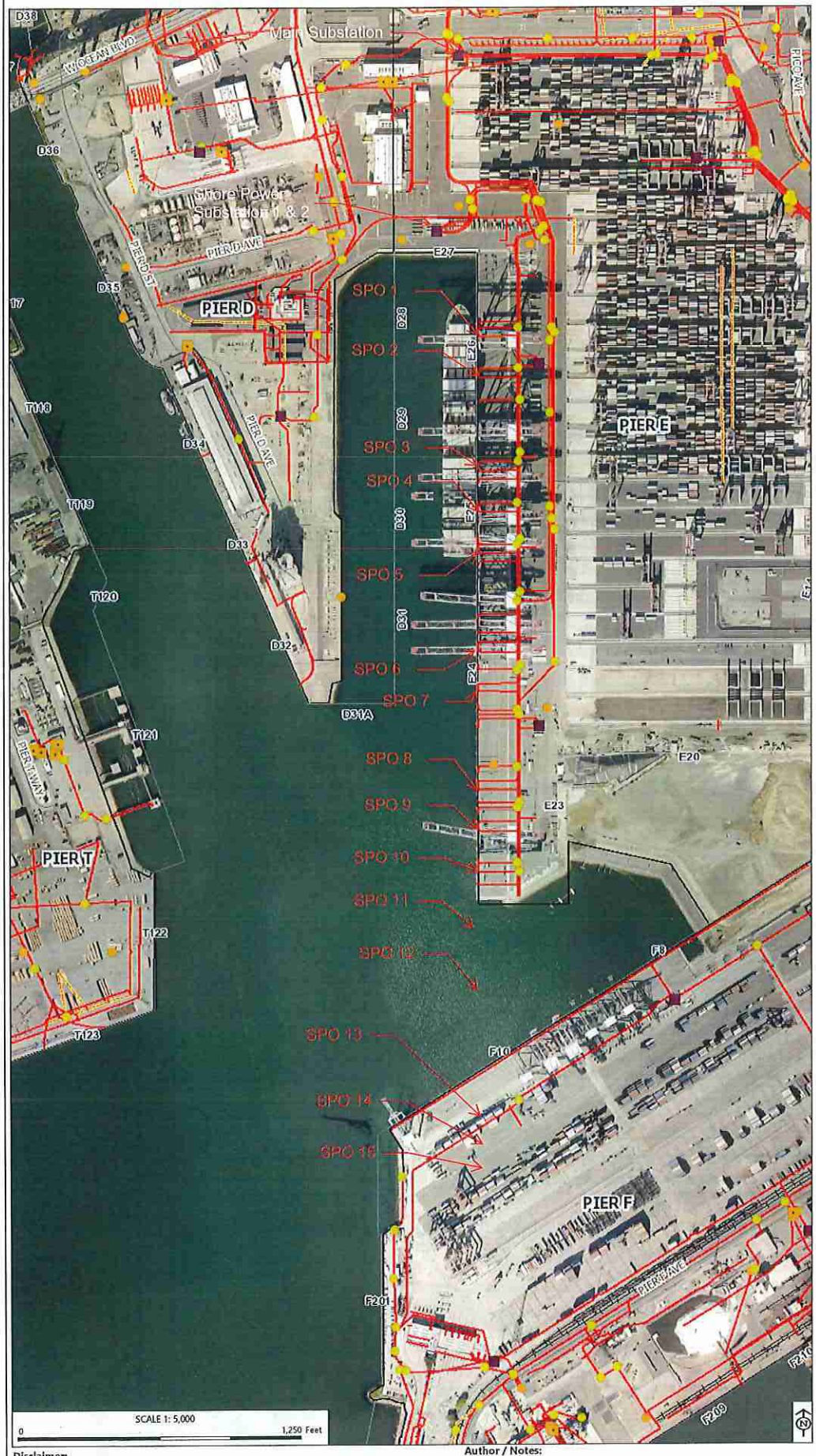
0 250 500 1,000 Feet

NDSR 19-1010 JLT 4/3/19 Aerial Photo: LARIAC March 2017 4-in

Port of Long Beach

Port ATLAS

Port of LONG BEACH
The Green Port



Legend

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Author / Notes:

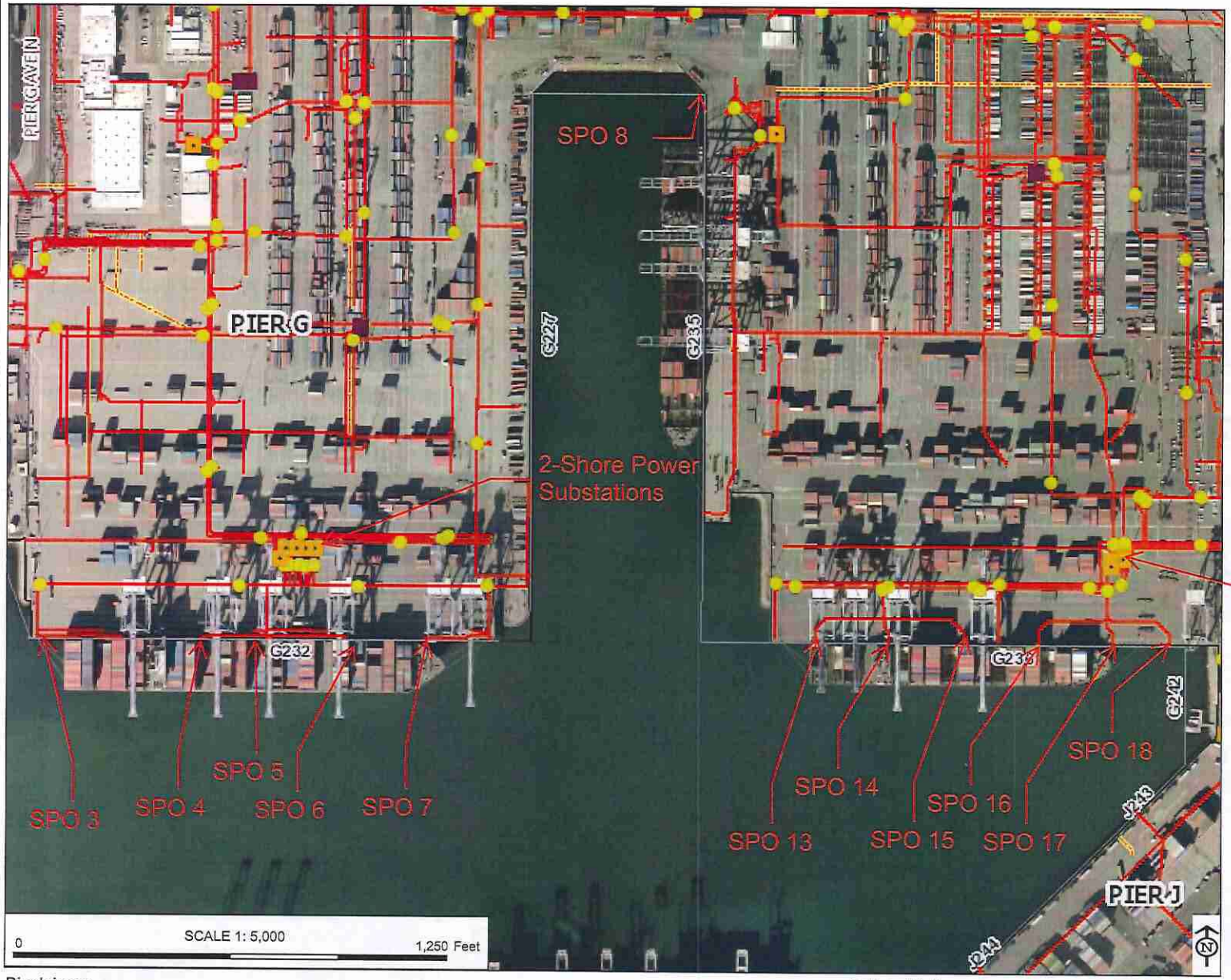
SPOs 11 thru 15 on Phase 3 not complete

04/04/2019

Port of Long Beach

Port ATLAS

Port of LONG BEACH
The Green Port



Legend

- Electric Junction
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- Piers

2-Shore Power Substations

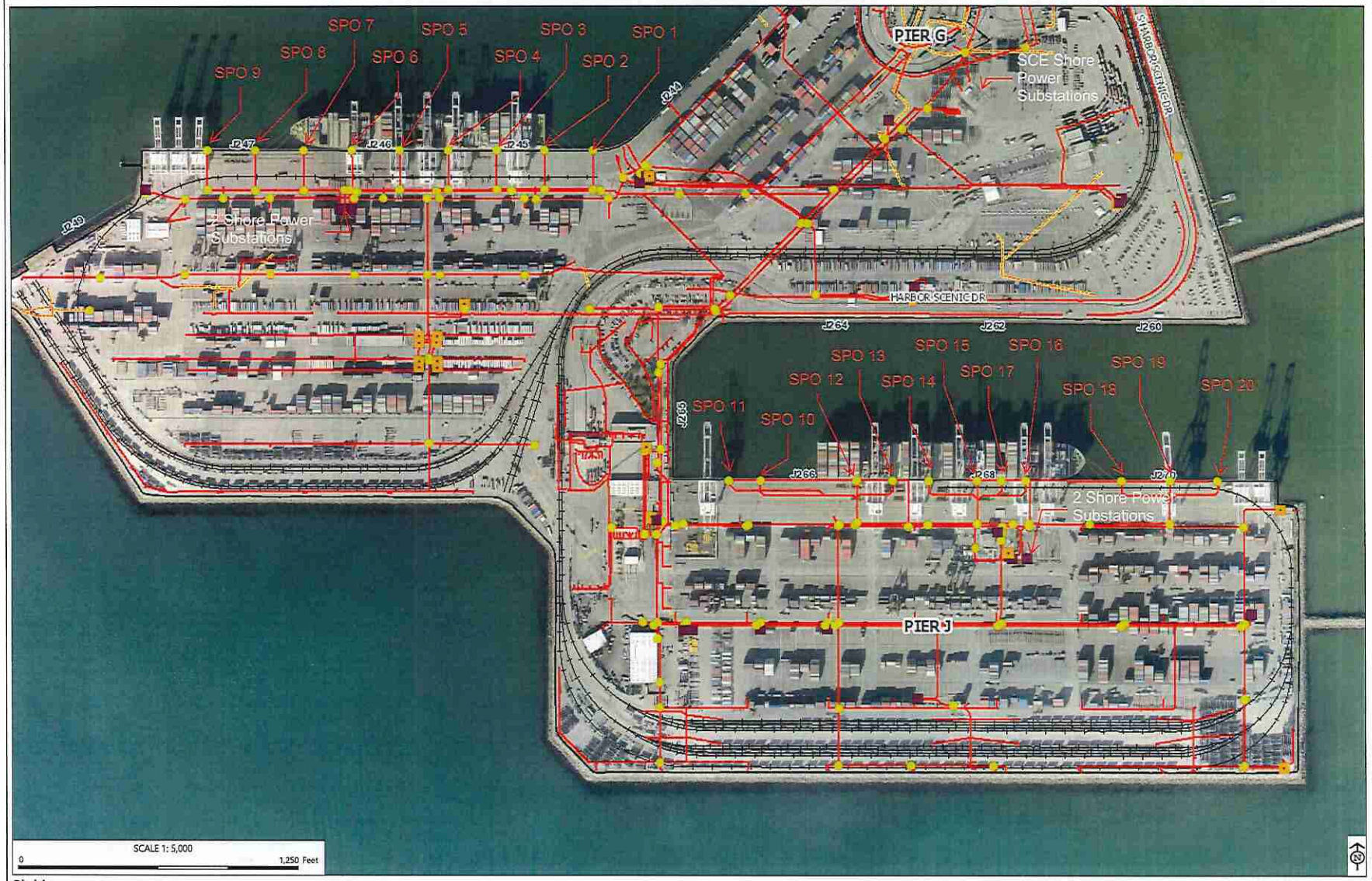
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Author / Notes:

04/09/2019

Port of Long Beach



Port ATLAS

Port of LONG BEACH
The Green Port

Legend

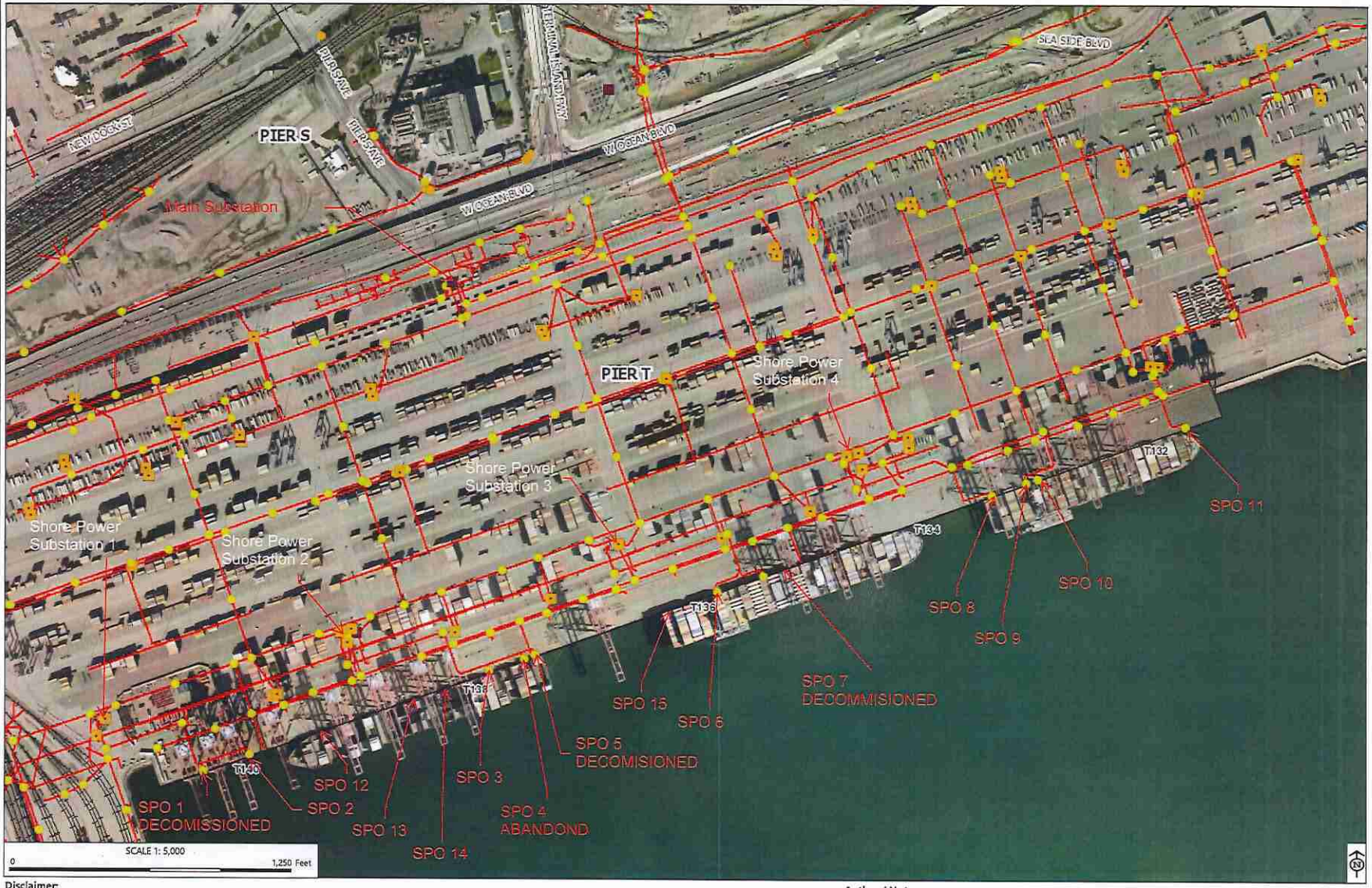
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Author / Notes:

04/09/2019

Port of Long Beach



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Author / Notes:

04/04/2019

ATTACHMENT D
Port of Long Beach Vessel Visits by Berth

Container Vessel Visits Subject to the New At-Berth and At Anchor Regulation

ITS		LBCT		Pacific Container Terminal		SSA Terminals Pier A		SSA Terminals Pier C		TTI	
Berth	Visits	Berth	Visits	Berth	Visits	Berth	Visits	Berth	Visits	Berth	Visits
G232	53	E24	34	J245 (includes reefer)	52	A92	43	C60	1	T132	1
G235	25	E26	49	J266	65	A94	104	C62	81	T134	124
G236	68	F8	19	J270	21	A96	78	Total Visits	82	T136	55
Total Visits	146	Total Visits	102	Total Visits	138	Total Visits	225			T138	12
										T140	43
										Total Visits	235

RoRo Vessel Visits Subject to the New At-Berth and At Anchor Regulation			
Toyota Logistics		**SSA-Crescent**	
Berth	Visits	Berth	Visits
B83	104	F204	3
Total Visits	**104**	F205	44
		F207	60
		Total Visits	**104**

Tanker Vessel Visits Subject to the New At-Berth and At Anchor Regulation					
Tesoro Pier B		**Tesoro Pier T**		**Chemoil**	
Berth	Visits	Berth	Visits	Berth	Visits
B77	6	T121	204	F209	65
B78	65	**Total Visits**	**204**	**Total Visits**	**65**
B84	4				
B84A	76				
B86	49				
Total Visits	**200**				

Comments on Revised Draft Regulatory Concept, April 10, 2019

April 10, 2019

Bonnie Soriano
California Air Resources Board
1001 I Street
Sacramento, California 95812

Subject: Comments on Revised Draft Regulatory Concept

Dear Ms. Soriano:

Thank you for the opportunity to provide comments on the updated regulatory concepts for the At-Berth Regulation Amendments. The industry coalition appreciates that in revising the regulatory concepts staff was attempting to address issues raised on the original regulatory concept, such as redundancy and control over unforeseen events. Unfortunately, as described below, the proposed concept does not fundamentally address these flaws. As one example, responsibility for matters beyond a carrier's control, such as weather, are not addressed but laid at the feet of terminal operators.

Industry Proposal

52.C.87

The industry coalition proposal submitted for CARB's consideration addresses all of the issues described below. The proposal submitted is consistent with the emissions reduction goals set by CARB staff proposal, streamlines compliance methodologies for currently regulated fleet, expands regulatory framework to include reporting requirements and evaluation benchmarks for currently unregulated vessels, and creates new compliance and reporting requirements for ports and marine terminal operators. In light of the issues raised below, we urge CARB staff to re-examine the industry proposal that avoids the problems discussed and meets the goals outlined by CARB staff.

Requirements in 2020

52.C.88

The industry coalition remains concerned that the current proposal does not address immediate implementation issues with the current regulation. As has been previously discussed with CARB staff, the existing At-Berth regulation has fundamental problems that makes compliance beginning in 2020 likely impossible. The maritime industry has been raising issues with the structure of the existing rule for several years and has requested amendments to address those concerns. CARB staff have partially addressed those concerns by issuing multiple advisories. But now that the opportunity exists to fully address issues with the existing rule and eliminate the use of the advisories, the draft proposal does not contain any provisions to address the failings of the existing rule in 2020. CARB's first priority should be to address the current failings of the existing rule before expanding the rule.

Infrastructure

We appreciate the effort undertaken by CARB staff to evaluate the necessary infrastructure to support the proposed regulatory concept. This analysis is a necessary step in understanding the impact of the proposed concept. Unfortunately, the analysis raises a number of concerns.

52.C .89

The analysis is inconsistent with the analysis prepared by the ports of Long Beach and Los Angeles. In a separate comment letter dated February 6, 2019, the two ports provide an analysis that demonstrates that an additional $200 million dollars of infrastructure would be necessary to under the original regulatory concept. Yet, the ports conclude, that investment would not ensure 100% compliance. While the updated regulatory concept does create a five percent allowance for terminal incident events, there is no demonstration that such an allowance would obviate the need for additional infrastructure as the CARB analysis essentially finds.

52.C. 90

The analysis was based on discussions with terminal operators, but it does not appear that the discussion was based on the detailed requirements of the revised regulatory concept. Discussions with terminal operators following the CARB workshops indicated that their response to discussions with CARB staff was based on their "we will make it work" culture that defines stevedoring. The specifics of the regulatory proposal have given several terminal operators pause about their ability to meet the requirements.

52.C.91

This is not surprising giving the outstanding issues already being experienced as described in CARB's latest enforcement report on the At-Berth Regulation (2017 Annual Enforcement Report, June 2018). The report identified 327 instances that Scenario 1 (Equipped vessel not able to receive power from shore) were used in 2015 and another 284 instances in 2016, the most recent year that CARB has published data. Yet, CARB's analysis for container terminals found additional vaults are needed at only one terminal and only one shared barge-based emission control. It is inconceivable that such little infrastructure would be necessary when existing infrastructure is already strained beyond existing needs.

Redundancy

52.C.92

When CARB staff released their original regulatory concept, the industry coalition raised concerns regarding the redundancy of infrastructure required by the regulatory concept. One of the primary concerns was that of infrastructure redundancy. The original At-Berth Regulation required the investment in shore power as means of compliance. The original rule only allowed alternative technologies if they were adopted early. As no alternative technologies were available within the constraints of the original rule, industry made an investment totaling billions of dollars in supporting shore power. It is important to note that this investment is ongoing.

There is no dedicated California vessel fleet. Vessels are regularly moved into and out of California service to meet the needs of vessel maintenance and changing trade flows. As a result, shore power

equipment must be retrofitted onto vessels entering California service. In addition, shoreside infrastructure requires ongoing investment in the form of costly maintenance.

As a result of these sunk and ongoing costs, a regulatory requirement that would force carriers and terminal operators to maintain new and additional equipment to remain in compliance is concerning. The original regulatory concept, in essence, required back up control equipment throughout California ports. In the long-term, this would likely necessitate the abandonment of shore power in favor of capture and control systems. While capture and control systems are less than preferable from both an economic and environmental perspective, offering less emissions control (and increased greenhouse gas emissions) for higher costs, the flexibility offered is likely the means of remaining in compliance while only supporting a single control technology pathway.

TIEs and Redundancy

52.C.93 The revised regulatory concept attempts to resolve the redundancy issue through the introduction of a concept termed "Terminal Incident Events" (TIEs). While TIEs would provide a five percent buffer in some situations, it does not eliminate the need for redundant equipment. It has not been demonstrated that a terminal can remain in compliance within the five percent margin provided by TIEs. The data available, such as CARB's most recent enforcement report and the analysis conducted by the ports of Long Beach and Los Angeles, would indicate that a five percent margin is an insufficient margin. It is quite possible that all TIEs would be used simply managing scheduling problems that arise from weather, prior port delays, and unscheduled vessels calls that would impact berth assignments and ability to reach a shore power outlet. As a result, if industry always wants to ensure compliance (which we expect is CARB's goal), industry will need to begin investing in alternative technologies.

52.C.94 As previously mentioned, supporting shore power requires ongoing investment, as a result of needed maintenance and vessel redeployments. If the amended At-Berth Regulation requires the investment in alternative technologies, the industry will likely gravitate over time to the technology that provides greater flexibility. While this is more expensive than shore power alone, it would be more cost-effective than supporting both pathways simultaneously, likely resulting in less reductions of criteria and toxic pollutants and an increase in greenhouse gas emissions. Simply put, a five percent margin cannot ensure the industry can remain in compliance with the proposed regulatory concept and would necessitate the investment of a redundant technology control pathway.

TIEs are an Inadequate Substitute for Vessel or Terminal Checklist Approaches

52.C.95 TIEs are an unworkable solution to the problem of inadequate infrastructure. The terminal operator typically has no control over the issues that impact berth availability. The terminal operator will plan vessel berth assignments around schedules provided by the ocean carrier. The vessel schedule can be impacted by issues outside the vessel and/or terminal's control:

- Vessel delayed arrival due to weather
- Vessel delayed arrival due to prior port delays

- Vessel early arrival due to quicker turnaround at prior ports
- Vessel departure delay due to the union dispatching insufficient labor
- Vessel arrival/departure delay due to tide
- Unscheduled vessel arrival (extra loaders)

None of these factors are within the control of the terminal operator in any fashion, yet the terminal operator would be liable in each of these circumstances for the number of chance occurrences that impact their facility in addition to the 5% TIE buffer. One of the fundamental problems of the existing At-Berth Regulation is that is holds ocean carriers responsible for issues outside their control. CARB's draft regulatory concept does not resolve this issue. The concept turns the issue on its head and holds terminal operators accountable for issues outside their control. Questions of enforceability plague the existing rule as a result of these issues. TIEs only shift this problem to terminal operators.

52.C.96 In addition, TIEs ignore the relationship that landlords/port authorities may have with terminals in ensuring a proper connection. In several ports, port staff are responsible for providing power, energizing the shore power connection, and maintaining infrastructure. TIEs ignore this fundamental relationship and place responsibility solely with the terminal operator with the expectation that can manage other, independent entities. As an example, if a port is responsible for maintaining shore power infrastructure and there is an equipment failure, it will be the port's responsibility to conduct repairs. The terminal operator has no ability to influence the speed of its public works contracting process or establish a schedule for repairs. Yet, the draft regulatory concept would hold the terminal operator responsible for this equipment failure. Should an equipment failure occur after a terminal has exhausted its annual TIE allocation, the terminal would be non-compliant as a result of actions by others – an untenable situation.

52.C.97 In a similar situation, CARB proposes to hold terminal operators accountable for the commissioning requirements established by port authorities. Terminal operators would not have any control if vessels, after their first visit, make changes to their electrical equipment that would trigger a port authorities' requirements for re-commissioning. Likewise, a port authority may modify shoreside equipment that necessitates re-commissioning. In these instances, CARB is proposing to hold terminal operators accountable for the actions of others.

52.C.98 Finally, TIEs constrain a terminal operator's ability to grow. Terminal operators compete vigorously for cargo. The decision of a single ocean carrier can result in the shift of dozens of vessel calls between terminals. The ability of terminal operator to capture business will be directly constrained by basing their number of TIEs to a prior year's cargo volume. This is particularly true when so many reasons that a terminal operator would use a TIE are for events outside their ability to control or influence.

Need for Flexibility

52.C.99 The revised draft regulatory concept still does not incorporate any meaningful flexibility for ocean carriers. Ocean carriers must regularly make changes to vessels serving California. The worldwide

container fleet is not retrofitted for shore power. A vessel substitution due to maintenance needs or changing trade flows would likely mean a replacement with a vessel that does not support shore power. An ocean carrier needs time to make the replacement vessel ready to connect to shore power. Unfortunately, without a massive shift away from electrification toward alternative technologies, alternative technologies are not a viable solution for the long-term and have a number of drawbacks. The alternative technology is substantially more expensive at its current level of utilization and is expected to become more expensive as the use of shore power increases and the number of alternative technology users supporting high fixed costs drop. The very large container and cruise vessels cannot use the current alternative technology due to the particular structure and constraints of those vessels, leaving those vessels without a viable alternative to shore power. In addition, the technology, whether barge-based or land-based increases greenhouse gas emissions in all cases. Finally, to facilitate peak events (such as extra loaders), there may be a need for a dozen such systems that sit idle most of the year – there is no way to capitalize such an investment with no prospect of return. Rather than pinning regulatory success on such technology, CARB should revise the proposal in a way that recognizes the dynamic nature of international trade and develop an approach consistent with the principles laid out in the industry proposal.

Responsibilities Under the Proposed Regulatory Concept

The coalition of maritime industries strongly disagrees with an approach that establishes an indirect source rule (ISR) for the At-Berth Regulation, making terminal operators responsible for the emissions of third-party vessel operators that call their facilities. CARB staff has stated that their intention was not to develop an ISR but was to establish requirements to facilitate additional infrastructure. The proposed regulatory concept does not do this. Instead, it makes terminal operators directly liable for emissions from vessels.

52.C.100

In making terminal operators liable for vessel emissions, the proposed regulatory concept makes terminal operators liable for issues outside their control, such as weather, delays at other ports, and schedule changes by ocean carriers. Infrastructure, by its nature, is limited. While a terminal operator can ensure that vessels are connected based on a pro forma schedule for a given set of vessels, schedule, and infrastructure, if any of those parameters change the terminal operator may no longer be able to complete a connection. If arriving vessels are delayed due to weather or delays at a prior port by even a couple of hours, the terminals infrastructure is immediately impacted. Similarly, if ocean carriers add a one-time vessel service to respond to changing trade flows, that will immediately impact a terminal operators infrastructure availability – something that the terminal operator was unable to plan for. Despite the fact that scheduling impacts have been raised as a primary reason why shore power connections are unable to be made (particularly at ports constrained by tight tide windows), the proposed regulatory concept ignores the issue and places responsibility on the terminal operator.

Conclusion

The draft concept commits the same error of the original At-Berth Regulations by holding parties responsible for issues outside their control. As a result of the dilemma that such responsibility poses,

the draft concept requires significant investment in redundant technology as the only means that carriers and terminal operators can ensure regulatory compliance at all times. Finally, the proposed concept provides no accommodation for the known variability in international trade that occurs regularly. With no means of accommodating the changing vessel fleet, ocean carriers are left to rely on alternatives that do not exist or where they do are unreliable in their availability. The industry proposal submitted to CARB addresses all of these concerns, achieves the emission reductions that CARB is seeking, and does not require the complexity of the proposed concept. We look forward to continuing to work with you on the development of the regulatory amendments.

Sincerely,

California Association of Port Authorities
Pacific Merchant Shipping Association
Cruise Lines International Association
Western States Petroleum Association

Industry Coalition Alternative Proposal for Amendments to At-Berth Regulations, February 15, 2019

February 15, 2019

Cynthia Marvin
California Air Resources Board
Delivered via email to Cynthia.marvin@arb.ca.gov

Re: Alternative Proposal for Amendments to At-Berth Regulations

Dear Ms. Marvin:

Thank you and all of the ARB staff for giving us the opportunity to develop an Alternative Proposal for moving forward with Amendments to the At-Berth Regulations for Oceangoing Vessels. We are pleased to present this Alternative Proposal to you today.

As you and your team are well aware the existing regulations on vessels at-berth within the container, cruise, and refrigerated sectors of the maritime industry have resulted in significant levels of emissions reductions well in excess of predictions, created a tremendous and globally unprecedented level of private and public investment in vessel fleets and on-shore cold-ironing infrastructure, and the rule is still being phased-in, with even stricter compliance on the horizon starting in 2020.

The Alternative Proposal builds on this strong foundation to increase compliance and expand the current rule into currently unregulated sectors. It consists of provisions meant for immediate action to address compliance issues for currently regulated fleets and outlines the next steps necessary to evaluate the basis upon which additional investments may or may not be justified in addressing the emissions of vessels while at berth.

The Alternative Proposal is a true compromise document that took two months of negotiation amongst all the parties to craft. It represents a result that is as close to consensus as possible about the best way to boost and improve compliance within the existing regulations and set a true foundation for a discussion on how, if, and when to further reduce emissions from vessels at-berth in the near future. As a true compromise document, none of our signatory organizations or their memberships agree with every aspect of the Proposal, but all of the signatory organizations commit their resources and attention to working with CARB to improve the current regulation for existing regulated fleets and facilitate the process for evaluating future rule expansions consistent with the principles described here.

We very truly look forward to immediately improving the current rule and working to achieve the most cost-effective and successful future emissions reductions from the waterfront as possible.

Sincerely,

California Association of Port Authorities
Pacific Merchant Shipping Association
World Shipping Council
Cruise Lines International Association
Western States Petroleum Association

52.C.101

2019 At-Berth Regulation - Alternative Proposal

Executive Summary

All signatory parties to this Alternative Proposal share the California Air Resources Board (CARB) goal of reducing health impacts related to waterborne-related goods movement emissions impacting local residents. We would like to thank CARB staff for the opportunity to develop the following Alternative Proposal as we are moving forward with Amendments to the At-Berth Regulations for Oceangoing Vessels and are pleased to present the following.

Existing at-berth regulations have resulted in significant emissions reductions well in excess of original agency projections. This success has resulted from the collaboration of many key public and private stakeholders, and has included an unprecedented level of worldwide investment in vessel fleets and shore-side power infrastructure. This Alternative Proposal establishes additional compliance procedures for the current Shore Power Rule as the last emission reduction target is reached in 2020, while offering a path forward toward potential increased emission reductions from existing and new vessel classes in the years to follow.

Highlights

- Requires that every shorepower-equipped vessel plug-in while at a berth which is able to provide shoreside power to that vessel;
- Is consistent with the emissions reductions goals set by CARB staff proposal;
- Improves and streamlines compliance methodologies for currently regulated fleet;
- Expands regulatory framework to include reporting requirements and evaluation benchmarks for currently unregulated vessels;
- Creates new compliance and reporting requirements for ports and marine terminal operators;
- Establishes a feasibility and cost-effectiveness framework for evaluating potential new shore power requirements and infrastructure needs;
- Reinvests non-compliance fees in new Port infrastructure or waterfront emissions reductions; and
- Establishes prioritization dialogue for investment of private and state Incentives dollars.

This Alternative Proposal builds on California's strong regulatory foundation for reducing vessel emissions while at berth. It outlines a program that will increase compliance and bring currently unregulated vessels into the regulatory framework.

All of the signatory parties commit to continuing this dialogue and to serious consideration of amendments to create and perfect an achievable rule and set of standards that meet the needs of industry, the state, and local public health interests.

Background – Current Regulatory Benefits and Industry Achievements

CARB currently administers the world's most comprehensive At Berth ocean-going vessel regulation. At the time of its adoption this rule was predicted to result in tremendous, unprecedented air quality benefits and also billions of dollars of new investments in vessel and port electrical infrastructure. Under the current At-Berth regulation, CARB staff estimated (in the original 2007 ISOR) that:

- "… the proposed regulation would reduce hoteling diesel PM and NOx emissions from container ships, passenger ships, and refrigerated cargo ships by 50 percent and 75 percent relative to levels expected to be emitted in 2014 and 2020, respectively." (pg. 14)

- "…approximately 1,100 tons of diesel PM and 61,700 tons of NOx will be removed from California's air between 2006 and 2020 due to the implementation." (pg. 15)

- "For the container-ship category, the regulatory period is 2009-2030 to account for ship turnover. Total emissions reductions to 2030 are 2,600 tons of diesel PM and 140,000 tons of NOx." (pg. 16, Table 4)

- "In addition, hoteling CO2 emissions are expected to be reduced by 122,000 to 242,000 metric tons in 2020." (pg. 14)

- "… total statewide costs for affected businesses and port authorities to comply with the proposed regulation to be approximately $1.8 billion, in 2006 dollars." (pg. 21)

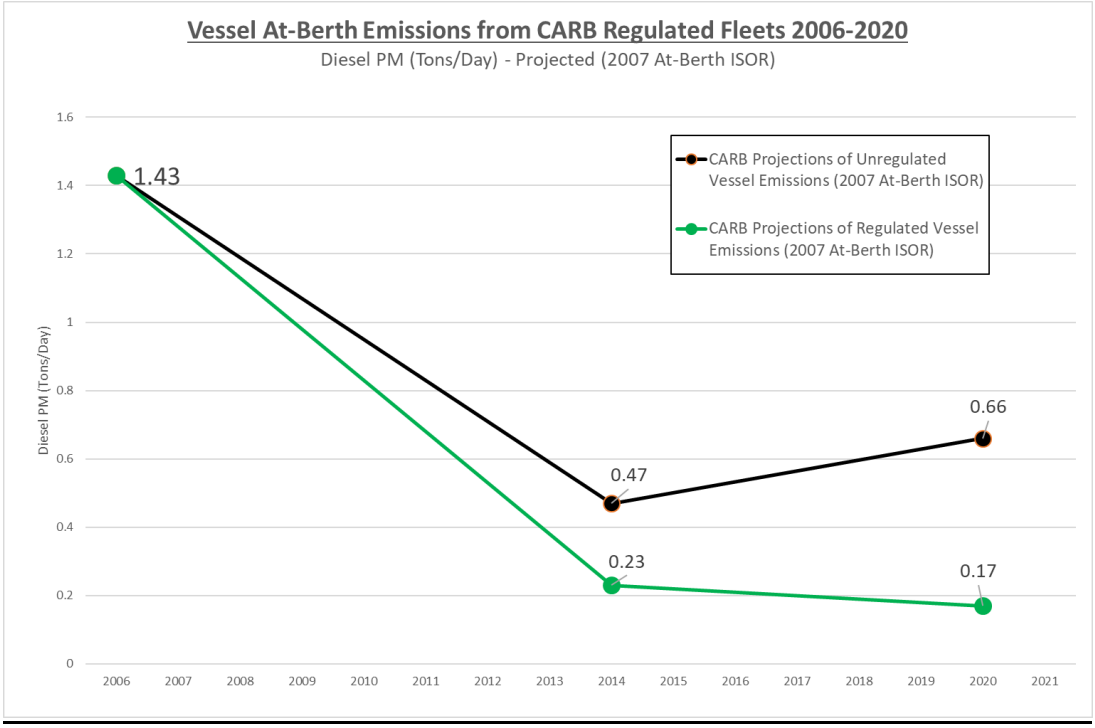
- "Annually, the costs are expected to vary from $30 million to $137 million. … the high end of the range represents a year when capital expenditures are being made for shoreside infrastructure and for retrofitting a considerable number of ships to meet the 2020 milestone." (pg. 21)

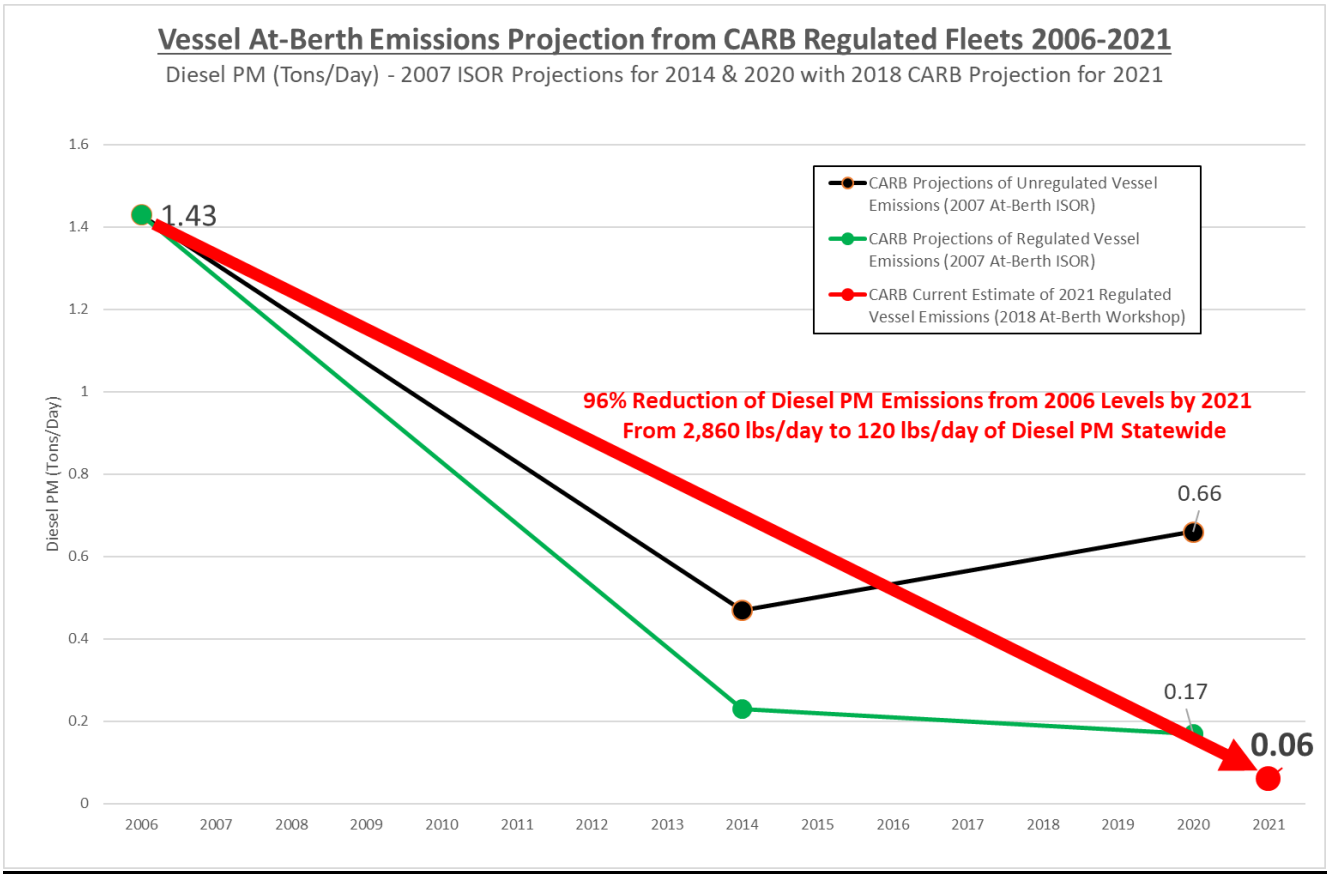
- "The total costs to a typical ship company complying with the proposed regulation, including capital and ongoing costs are estimated to be about $34 million. This cost would be distributed over the years 2009 to 2020 for passenger ship companies and reefer ship companies and to 2030 for container ship companies." (pg. 21)

- "Similarly, the total costs to a typical terminal operator complying with the proposed regulation, including capital and ongoing costs, are estimated to be about $11 million. … With 31 terminals and 35 vessel fleets affected by the proposed regulation, the costs to a typical business would be $26 million." (pp. 21-22)

- "The costs to be expended by the port authorities to add shore-power equipment to their facilities ranges from $4 million to $86 million. … Staff assumes that the landlord ports will work with their tenants, the terminal lessees, to provide the shoreside infrastructure necessary to meet the requirements of the proposed regulation. Furthermore, staff assumes that the landlord ports will eventually recover their capital costs through modifications to terminal leases, while the non-landlord ports will recover their capital costs through fees collected from the carriers." (pp. 22-23)

The results of the current rule and the resulting estimated $1.8 billion investment by the regulated components of the maritime industry have been impressive – with total Diesel PM projected by CARB staff to be reduced by 96% since 2006 in 2021. (see below charts based on CARB data, Attachment A)


Vessel At-Berth Emissions from CARB Regulated Fleets 2006-2020
Diesel PM (Tons/Day) - Projected (2007 At-Berth ISOR)
Diesel PM (Tons/Day)
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
1.43
0.47
0.23
0.66
0.17
CARB Projections of Unregulated Vessel Emissions (2007 At-Berth ISOR)
CARB Projections of Regulated Vessel Emissions (2007 At-Berth ISOR)


Vessel At-Berth Emissions Projection from CARB Regulated Fleets 2006-2021
Diesel PM (Tons/Day) - 2007 ISOR Projections for 2014 & 2020 with 2018 CARB Projection for 2021
Diesel PM (Tons/Day)
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
1.43
0.66
0.17
0.06
96% Reduction of Diesel PM Emissions from 2006 Levels by 2021
From 2,860 lbs/day to 120 lbs/day of Diesel PM Statewide
CARB Projections of Unregulated Vessel Emissions (2007 At-Berth ISOR)
CARB Projections of Regulated Vessel Emissions (2007 At-Berth ISOR)
CARB Current Estimate of 2021 Regulated Vessel Emissions (2018 At-Berth Workshop)

Alternative Proposal Overview

The Alternative Proposal establishes a path forward to increase compliance and continue to ensure further emission reductions from vessels while at-berth in California ports. The Proposal includes measures to ensure compliance and emissions reductions consistent with current CARB emissions goals, expand investments in port infrastructure, and increase vessel compliance.

CARB currently regulates Container, Passenger and Refrigerated vessel fleets and the ports they visit. CARB has also determined currently unregulated vessel fleets include Ro-Ro, Auto Carrier, Liquid Bulk and Tanker vessels and the ports they visit.

Improves the Currently Regulated Vessel Program

The following outcomes will be assured through a series of amendments to the existing rule:

- Improves and streamlines compliance methodologies for the currently regulated fleet in 2020.
- Creates new compliance and reporting requirements for ports and marine terminal operators.
- Requires that when a terminal is able to provide shorepower to a shore power-equipped vessel that the vessel must plug-in while at berth, subject to exceptions or exemptions.
- Reinvests non-compliance fees in new Port infrastructure or waterfront emissions reductions.
- Prioritizes cost-effective investment of private and CARB Incentives dollars.
- Establishes a consensus regulatory framework for the evaluation of future rule expansions.

With respect to currently Regulated Vessel Fleets and Ports, the Alternative Proposal would update and improve current vessel compliance mechanisms applicable immediately to the 2020 fleet requirements, establish new and expanded marine terminal and port compliance requirements, and create a framework for new investment in at-berth infrastructure.

With respect to currently Unregulated Vessel Fleets, these fleets would be included in the amendments as well. The Alternative Proposal would establish reporting compliance methodologies and evaluation benchmarks consistent with the current staff proposal for Bulk vessels for all vessel types and meet all of CARB's SIP requirements, the Climate Change Scoping Plan, and the AB 617 Blueprint.

Builds a Framework to Include Future Vessel Types and Fleets

During the November 2018 work sessions held with the Industry Coalition and its members, CARB indicated that to be viable, an Alternative Proposal should at least meet and achieve the following principles:

- Emissions reduction goals of the current CARB staff proposal must be met
- All parties to a successful at-berth connection must have substantive roles to play in the new regulatory framework for the currently Regulated Vessel Fleets: vessels, marine terminal operators, ports, and equipment providers.
- If a "check-list" approach is applied to currently Regulated Vessel Fleets, non-compliance must have consequences.
- Vessel Fleet rules should not include complicated credit or trading schemes.

Alternative Proposal – Substantive 2020 Effective Amendments
*All provisions **E**ffective Immediately upon Adoption at December 2019 CARB Board Meeting*

FOR CURRENTLY REGULATED VESSEL FLEETS AND ASSOCIATED TERMINALS and PORTS:

- CONNECTING EQUIPPED VESSELS – When a Shorepower-Equipped Berth is available and able to safely Connect a Shorepower-Equipped Vessel, the connection must be made.
  No time-based rules (including 3&5-hour rule). Commissioning is presumed to be a Connection. Use updated definitions for vessel connected, plugged, and able to work.

- PORTS and MARINE TERMINALS ARE REQUIRED TO PLAN & REPORT – all Ports and Marine Terminal Operators must comply with recordkeeping, reporting rules and submit Terminal Plans with subsequent updates beginning in 2021 for currently regulated fleets. Updates must include description and timeline of all infrastructure installations planned at specific-berths.

Accelerated Transition to New Requirements & Improve Compliance Over Current Rule

- Enforce Vessel Fleet Compliance against Vessel Compliance Checklist (to be developed)
  Vessel Fleet Compliance would be determined on an Annual Fleet-Average Basis by Port
  2020 – 80% compliance w/ checklist
  2031*– 85% compliance w/ checklist *(dependent on feasibility and rulemaking)
  Vessel Fleet Compliance reporting would occur on an Annual Basis
  Update and improve current reporting requirements and avoid usage of old technology or applications (i.e. approve uses of automated technologies).

- Enforce Marine Terminal compliance against Terminal Compliance Checklist (to be developed)
  Marine Terminal Compliance would be determined on an Annual Berth-Average Basis
  2022 – 80% compliance w/ checklist
  2031* – 90% compliance w/ checklist *(dependent on feasibility and rulemaking)
  Marine Terminal Compliance reporting would occur on an Annual Basis
  Marine Terminal 30-day Reports for non-connection, equipment, & electrical issues

- At-Berth Infrastructure Incentive Funding Applications by Ports remain eligible for GGRF/VW Incentives independent of Vessel or Terminal Checklist compliance status

- Conform and maintain existing exemptions and exceptions plus add new and clarifying exceptions for Vessel and Marine Terminal safety and force majeure situations

- Maintain existing regulatory thresholds for minimum number of calls for Regulated Fleets on a port by port basis (including treating LA/LB as one port for Fleet thresholds)

FOR ALL CURRENTLY UNREGULATED VESSEL FLEETS AND ASSOCIATED MARINE TERMINALS and PORTS:

- BULK CARGO, RO-RO & TANKER VESSEL FLEETS ARE REQUIRED TO REPORT – all vessels must report General Visit Information Annually beginning in 2021

- PORTS and MARINE TERMINALS ARE REQUIRED TO PLAN & REPORT – all Ports and Marine Terminal Operators serving currently unregulated fleets must comply with recordkeeping, reporting rules and submit Terminal Plans with subsequent updates beginning in 2024

FOR OPERATORS OF ALTERNATIVE EMISSIONS CONTROL STRATEGIES:

- Certification must demonstrate cost-effectiveness and Emissions Control greater than Vessel Fleet Average Basis standard

Alternative Proposal - Procedural Provisions to Guide Consideration of Post-2020 Amendments
Guidelines for Process to Run Concurrently with and Subsequent to Adoption of 2020 Rule Amendments

APPLICABLE TO ALL AT BERTH RULE EXPANSION AMENDMENTS FOR THE CURRENTLY REGULATED FLEET AND CURRENTLY UNREGULATED FLEET

- Conduct a feasibility study to identify cost effective emission control programs for all vessel categories based on reasonable implementation deadlines, safety concerns, and technological feasibility. This feasibility study should be conducted in cooperation with all industry stakeholders, be based on data which is made publicly available during study development, and include a detailed evaluation of all of the following:

    (i) the status and timing of rule implementation in light of port/terminal infrastructure planning and any future infrastructure development potentially necessary to provide at-berth emissions controls, with future infrastructure designation to include rigorous cost estimates of any necessary electrical infrastructure modifications or alternatives,
    (ii) the existing shore-side electrical infrastructure, including electrical sub-station and off-terminal electric utility infrastructure, and present availability of alternatives,
    (iii) the feasibility of alternative at-berth emission control technologies to capture emissions from ships that cannot plug in to shore power, including vessel types that can't use the alternatives in each vessel category and for different engine sizes, and including currently unregulated vessel fleets,
    (iv) the number and types of alternative control technologies that would be needed at each California port,
    (v) navigation, safety and harbor logistical considerations, especially for barge systems,
    (vi) cost effectiveness of various rule expansion scenarios and alternative programs based on a detailed estimate of the additional emission reductions to be gained with possible expansion of the rule, including an assessment of additional costs on a cost per ton of emissions reduced basis under all possible additional infrastructure scenarios,
    (vii) determine how the marginal cost of various potential port emission control programs compare to other potential efforts to reduce emissions from other sources at ports which could be more cost-effective investments for control programs.
    (viii) opportunity costs as at-berth regulations impose substantial infrastructure obligations on the industry, funds may need to be diverted from other important air quality programs, including zero- and/or near-zero emissions vehicles and equipment, to ensure compliance as soon as possible.

- Evaluate emission control programs for all key source categories that operate in and around ports in order to prioritize incentive funding from GGRF/VW and other sources of incentive funds and maximize total emission reduction per dollar, with the most long-term residual emissions benefits, and facilitating highest cost-effectiveness. For programs that operate throughout California, evaluate ports within regional context (versus other regional potential sources of prioritized health risk or criteria pollutant evaluation) instead of by comparing ports against each other.

SUBSEQUENT ACTION FOR CURRENTLY REGULATED VESSEL FLEETS, MARINE TERMINALS, and PORTS:

For Implementation After Current Rulemaking (2021 and beyond):

- Establish regular feasibility "check-in" steps as part of the rule, 2022, 2025, 2028, 2031, to assess whether the proposed implementation deadlines remain viable or can be accelerated through additional amendments to the rule.

- Any acceleration would require providing vessels with at least 18 months' notice in advance of a future rule effective date.

CONCURRENT AND SUBSEQUENT ACTIONS FOR CURRENTLY UNREGULATED VESSEL FLEETS, MARINE TERMINALS, and PORTS:

During Rulemaking (2019-2020):

- Immediately disclose the Bulk Vessel cost-effectiveness calculations which led to their exclusion from emissions reductions.

- Compare Bulk Vessel cost-effectiveness with other vessel cost-effectiveness calculations for Tankers and Ro-Ro's.

- Contrast DPM reductions from the Ro-Ro and Tanker fleets with other sources of emissions at and near Ports and Terminals.

- Conduct actual emissions profiles for all bulk, ro-ro, and tanker terminals, individually by actual operating Port facilities, not "Port Complex" entities.

- Evaluate all bulk, ro-ro, and tanker terminals, individually for shore-based alternative emissions controls, and water-based alternative emissions controls.

After Rulemaking (2021 and beyond):

- Establish program staff calendar and deliverable to the Board for future discussion of whether or not these vessel fleets are good subjects for statewide rulemaking or if their emissions are best off-set through incentives, MOUs, or alternative emission reduction strategies. Discussion required in context of SIP, AB 617, and Scoping Plans.

- Establish 2025, 2028 and 2031 as target dates for full reviews of Bulk, Ro-Ro, and Tanker Reporting Data and Terminal infrastructure plans and application of new evaluation of Cost-Effectiveness Data and Emissions.

PRIORITIZATION OF AWARDING PORT (AT BERTH OR ALTERNATIVE) INCENTIVES AND USE OF NON-COMPLIANCE FEES:

During Current Rulemaking and After Rulemaking (2019 and beyond)

- Prioritize Port projects and emissions reductions alternatives for receipt of GHG Reduction Fund and VW Settlement Fund proceeds

- Take a multi-pronged approach towards incentives for new At-Berth or alternative emissions reductions programs at Ports which is reflective of need for multiple strategies and approaches, and which acknowledges need for demonstrations to help establish cost-effectiveness and feasibility goals

- Utilize non-compliance fee revenues to build pooled funding which can be reinvested into shorepower infrastructure or other port-related air quality programs in accordance with prioritization based on cost-effectiveness

Attachment A

Data References

2007 ISOR, pg. 6-7:

3. EMISSIONS INVENTORY

Hotelling emissions are associated with the use of diesel-fueled auxiliary engines on ocean-going ships to power the vessels' electrical systems while the ships are docked. These emissions are a function of how often the ship visits a California port, how long the ship is at berth, the emissions rate of the engines, and the typical operating load of the auxiliary engines while the ship is at berth.

ARB staff estimates that in 2006, the statewide hotelling emissions from approximately 2000 ocean-going vessels was 1.8 tons per day (TPD) of diesel PM emissions, and 21.1 TPD of NOx emissions. Table I presents hotelling emissions for the six major categories of ocean-going vessels that visit California ports—container ships, passenger ships, reefer ships, vessel carriers, bulk ships, and tankers. As can be seen in this table, hotelling emissions from the three affected ship categories, container ships, passenger ships, and reefer ships, represent over 80 percent of total statewide hotelling emissions.

Table 1: Estimated 2006 Hotelling Emissions by Ship Category

Ship Category	2006 Emissions, Tons/Day	
	NOx	PM
Container	13.8	1.1
Passenger	2.8	0.2
Reefers	0.9	0.1
Tanker	2.0	0.2
Bulk/General	1.0	0.1
Vehicle Carriers	0.6	0.1
Totals	21.1	1.8

Table 2: Estimated 2006 Hotelling Emissions by Port (Tons per Day)

Port	NOx	PM
Los Angeles/Long Beach	14.3	1.2
Oakland	2.6	0.2
San Diego	1.1	0.1
Hueneme	0.7	0.1
San Francisco	0.5	0.1
Other Ports	1.2	0.2
Total	21.1	1.8

As can be seen in this table, most of the shipping activities and hotelling emissions occur at the largest ports in California: Los Angeles and Long Beach followed by Oakland. The six ports affected by the proposed regulation account for over 90 percent of total hotelling emissions at California ports.

Staff developed growth factors for each ship category to project future hotelling emissions. In general, the growth in vessel hotelling emissions is directly proportional to the growth in vessel visits, ship size, berthing times, and, in the case of container ships, the number of refrigerated containers aboard.

Hotelling emissions from ocean-going ships are predicted to increase from 2006. Container ship and passenger ship emissions are expected to double by 2020. Reefer ship emissions are expected to decline at the Ports of Long Beach and Los Angeles, slightly increase at the Port of Hueneme, and triple at the Port of San Diego by 2020.

Table 3 presents projected 2014 and 2020 emission estimates for container ships, passenger ships, and reefer ships. In December 2005, the Board adopted an auxiliary engine fuel regulation that would limit the sulfur content of fuel used with auxiliary engines starting in 2007. At the time this staff report was published, the regulation had been challenged in federal district court and is undergoing appeal at the Ninth Circuit Court of Appeals. The future emission projections were based on the assumption that the auxiliary engine regulation would ultimately be upheld and the auxiliary engines would be operating on low-sulfur fuel.

2007 ISOR, Appendix B, pg. B-19:

III. EMISSION ESTIMATES

Using the revised methodology we can estimate emissions associated with container, cruise, and reefer vessels operating at ports subject to the proposed Shore Power Regulation. Table III-1 provides auxiliary engine hotelling emissions estimates by vessel type; we estimate covered emissions sources emit about 17 tons/day NOx and 1.5 tons/day PM in 2006. Assuming existing controls (without the benefit of the proposed regulation) we estimate NOx emissions will grow in 2020 to approximately 37 tons/day, and in 2020 PM emissions will grow to approximately 0.6 tons/day. As the data suggest, ARB's auxiliary engine regulation that was adopted in 2005 will generate significant reductions in future years.

Table III-1 Auxiliary Engine Hotelling Emissions by Vessel Type without Shore Power Regulation

Emissions - 2006 (tons/day)				
Vessel Type	**NO_x**	**PM_{10}**	**ROG**	**SO_x**
Container	13.8	1.12	0.32	8.1
Cruise	2.5	0.24	0.06	1.7
Reefer	0.9	0.07	0.02	0.5
Total	**17.1**	**1.43**	**0.40**	**10.33**
Emissions - 2014 (tons/day)				
Vessel Type	**NO_x**	**PM_{10}**	**ROG**	**SO_x**
Container	21.5	0.38	0.52	0.57
Cruise	3.6	0.07	0.09	0.09
Reefer	1.0	0.02	0.03	0.03
Total	**26.1**	**0.47**	**0.63**	**0.69**
Emissions - 2020 (tons/day)				
Vessel Type	**NO_x**	**PM_{10}**	**ROG**	**SO_x**
Container	30.8	0.55	0.75	0.82
Cruise	5.2	0.09	0.12	0.13
Reefer	1.3	0.02	0.03	0.04
Total	**37.3**	**0.66**	**0.91**	**0.99**

2007 ISOR, pg. 15:

Figure 1: Projected Diesel PM Emissions with and without the Proposed Regulation

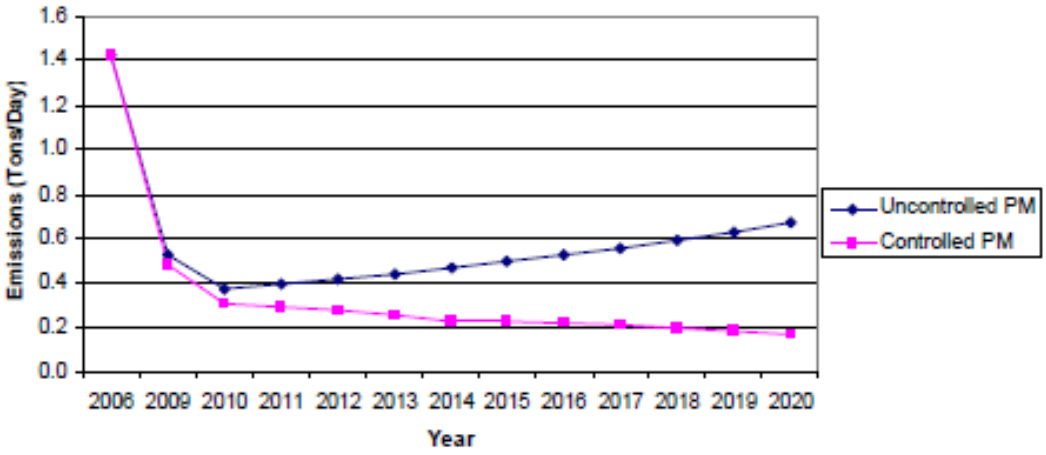
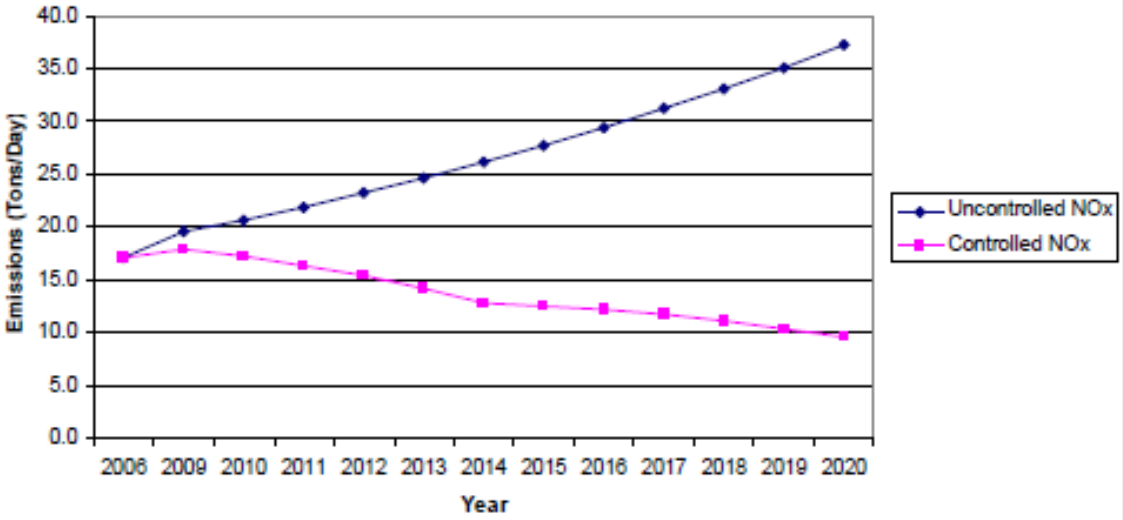


Figure 2: Projected NOx Emissions with and without the Proposed Regulation



CARB, ""CARB Draft At Berth Emissions Estimates (from Aux Engines and Boilers) under Existing Regulation and Draft Regulatory Concept (11/8/2018)" ("2018 Emissions Estimates")

2018 Emissions Estimates, DPM Inventory A:1-AE:23

2016 At-Berth Existing Rule Diesel PM (DPM) Emissions (Tons/Year)
Auxiliary Engine Emissions DPM (Tons/Year)

Air Basin	San Francisco Bay Area Air Basin						South Coast Air Basin		South Central Coast Air Basin	Sacramento Valley Air Basin	San Diego Air Basin	San Joaquin County Air Basin	North Coast Air Basin	
Ships	Carquinez MTC	Rodeo MTC	Oakland	Redwood City	Richmond MTC	San Francisco	Long Beach	Los Angeles	Hueneme	Sacramento	San Diego	Stockton MTC	Eureka	Total (TPY)
Container/Reefer	0.0	0.0	4.9	0.0	0.0	0.1	5.7	7.0	0.7	0.0	0.1	0.0	0.0	18.5
Tanker	2.7	1.1	0.0	0.0	3.6	0.1	4.1	1.8	0.1	0.0	0.5	0.5	0.0	14.5
Cruise	0.0	0.0	0.0	0.0	0.0	1.9	1.8	0.8	0.0	0.0	0.8	0.0	0.0	5.2
Roro	0.6	0.0	0.0	0.0	0.5	0.0	0.7	0.6	0.9	0.0	1.5	0.0	0.0	5.0
Bulk/General	0.3	0.0	0.1	0.1	0.2	0.0	0.6	0.7	0.1	0.4	0.1	1.0	0.0	3.7
Total	3.6	1.1	5.0	0.1	4.3	2.1	12.9	10.9	1.8	0.4	3.0	1.5	0.0	46.8

2021 At-Berth Existing Rule DPM Emissions (Tons/Year)
Auxiliary Engine Emissions DPM (Tons/Year)

Air Basin	San Francisco Bay Area Air Basin						South Coast Air Basin		South Central Coast Air Basin	Sacramento Valley Air Basin	San Diego Air Basin	San Joaquin County Air Basin	North Coast Air Basin	
Ships	Carquinez MTC	Rodeo MTC	Oakland	Redwood City	Richmond MTC	San Francisco	Long Beach	Los Angeles	Hueneme	Sacramento	San Diego	Stockton MTC	Eureka	Total (TPY)
Container/Reefer	0.0	0.0	4.0	0.0	0.0	0.2	5.9	6.1	0.2	0.0	0.1	0.0	0.0	16.5
Tanker	2.6	1.1	0.0	0.0	3.5	0.1	4.4	2.0	0.1	0.0	0.6	0.5	0.0	14.9
Cruise	0.0	0.0	0.0	0.0	0.0	2.0	1.6	0.7	0.0	0.0	0.9	0.0	0.0	5.2
Roro	0.7	0.0	0.1	0.0	0.6	0.0	0.9	0.8	1.0	0.0	1.7	0.0	0.0	5.9
Bulk/General	0.4	0.0	0.1	0.1	0.2	0.0	0.8	0.9	0.1	0.5	0.2	1.2	0.0	4.3
Total	3.7	1.1	4.1	0.1	4.3	2.3	13.7	10.5	1.4	0.5	3.5	1.7	0.0	46.9

2021 At-Berth Draft Regulatory Concepts DPM Emissions (Tons/Year)
Auxiliary Engine Emissions DPM (Tons/Year)

Air Basin	San Francisco Bay Area Air Basin						South Coast Air Basin		South Central Coast Air Basin	Sacramento Valley Air Basin	San Diego Air Basin	San Joaquin County Air Basin	North Coast Air Basin	
Ships	Carquinez MTC	Rodeo MTC	Oakland	Redwood City	Richmond MTC	San Francisco	Long Beach	Los Angeles	Hueneme	Sacramento	San Diego	Stockton MTC	Eureka	Total (TPY)
Container/R	0.0	0.0	1.6	0.0	0.0	0.2	1.7	2.1	0.1	0.0	0.0	0.0	0.0	5.6
Tanker	2.6	1.1	0.0	0.0	3.5	0.1	4.4	2.0	0.1	0.0	0.6	0.5	0.0	14.9
Cruise	0.0	0.0	0.0	0.0	0.0	0.6	0.8	0.4	0.0	0.0	0.3	0.0	0.0	2.1
Roro	0.7	0.0	0.1	0.0	0.6	0.0	0.9	0.8	1.0	0.0	1.7	0.0	0.0	5.9
Bulk/Genera	0.4	0.0	0.1	0.1	0.2	0.0	0.8	0.9	0.1	0.5	0.2	1.2	0.0	4.3
Total	3.7	1.1	1.8	0.1	4.3	0.9	8.6	6.2	1.3	0.5	2.8	1.7	0.0	32.9

Attachment B

Policy & Procedural Context for Alternative Proposal

In addition to the existing Regulations, CARB is operating under or has adopted multiple policy positions with respect to the consideration of updates to the scope, breadth, and applicability of the At-Berth Rules. These include all of the following*:*

Executive Order B-32-15, Sustainable Freight Action Plan, Action G-3 (pg. C-53)(adopted 2016):

3. At-Berth Regulation Amendments
Overview: The goal of this proposed measure is to further reduce emissions from ships. ARB staff would develop and propose amendments to the current At-Berth Regulation and look for additional reductions from additional vessel fleets or types.
…
Proposed Actions: ARB would evaluate how the current At-Berth Regulation can be amended to achieve further emissions reductions by including smaller fleets and/or additional vessel types (including roll-on/roll-off vehicle carriers, bulk cargo carriers, and tankers). In addition, there are two companies with portable emissions capture and control systems that have successfully demonstrated performance and may now be used for compliance with the current Regulation on certain container vessels. If one or both systems prove to be feasible and cost-effective on additional vessel types, the technology could help support an ARB staff proposal to expand the scope of the Regulation to include additional vessel types and/or smaller fleets. ARB staff anticipate bringing this measure to the Board in 2017.

Estimated Cost: ARB will estimate costs from this action during the measure development process for the Proposed 2016 State Strategy for the State Implementation Plan. See http://www.arb.ca.gov/planning/sip/sip.htm.

Benefits: This action is anticipated to provide criteria pollutant and greenhouse gas emissions reduction benefits. ARB will quantify emissions reductions from this action during the measure development process for the Mobile Source Strategy and Proposed 2016 State Strategy for the State Implementation Plan. See http://www.arb.ca.gov/planning/sip/2016sip/2016mobsrc.htm and http://www.arb.ca.gov/planning/sip/sip.htm.

2016 State Implementation Plan (Resolution 17-7, Attachment A, "Proposed New SIP Measures and Schedule"), Mobile Source Strategy (pg. 84), (adopted 2017)

Measure Title: At-Berth Regulation Amendments
Measure Overview: The goal of this measure concept is to further reduce emissions from ships at berth and to advance the commercialization of near-zero and zero emission technologies. ARB staff would develop and propose amendments to the current At-Berth Regulation to include other vessel fleets and types.
…
Description of Measure and Commitment: In December 2007, ARB approved the Airborne Toxic Control Measure for Auxiliary Diesel Engines Operated on Ocean-Going Vessels At-Berth in a California Port Regulation (Regulation). The Regulation was designed to reduce emissions from diesel auxiliary engines on container ships, passenger ships, and refrigerated cargo ships while at berth at California's major seaports. The Regulation is also limited to fleets of 25 or more vessels (five or more for passenger ships).

ARB would investigate whether the Regulation can be amended to include smaller fleets and/or additional vessel types (including roll-on/roll-off vehicle carriers, bulk cargo carriers, and tankers). In addition, there are two companies working on portable systems. One company has successfully demonstrated that its system can provide durable performance and may now be used for compliance with the Regulation on specified vessel types. If one or

both systems become commercially available and are cost-effective, the technology could help support an ARB staff proposal to expand the scope of the Regulation to include additional vessel types and/or smaller fleets. ARB staff needs to investigate the feasibility and cost-effectiveness of expanding shore-power or alternative At-Berth technologies to additional vessel fleets and types not currently covered by the existing Regulation.

Climate Change Scoping Plan Update (pp. 73-74, 78-80, Appendix H) (adopted 2017)

Transportation Sustainability

California's population is projected to grow to 50 million people by 2050. How and where the State grows will have important implications for all sectors of the economy, especially the transportation sector. …

Transportation also enables the movement of freight such as food, building materials, and other consumable products, as well as waste and recyclables. The California freight system includes myriad equipment and facilities, and is the most extensive, complex, and interconnected system in the country, with approximately 1.5 billion tons of freight valued at $2.8 trillion shipped in 2015 to, through, and within California. Freight dependent industries accounted for over $740 billion of California's GDP and over 5 million California jobs in 2014.

…

Efforts to Reduce Greenhouse Gases

The measures below include some required and new potential measures to help achieve the State's 2030 target and to support the high-level objectives for the transportation sector. Some measures may be designed to directly address GHG reductions, while others may result in GHG reductions as a co-benefit. …

Ongoing and Proposed Measures – Sustainable Freight

• Implement the California Sustainable Freight Action Plan:

• 25 percent improvement of freight system efficiency by 2030.

• Deployment of over 100,000 freight vehicles and equipment capable of zero emission operation, and maximize near-zero emission freight vehicles and equipment powered by renewable energy by 2030.

…

[Table H3-2. Vehicle Technology and Fuel Description]

2016 Mobile Source Strategy

The Mobile Source Strategy identifies actions to be undertaken to simultaneously meet air quality standards, achieve GHG emission reduction targets, decrease toxics health risk, and reduce petroleum consumption from transportation emissions by 2031. More information on the Mobile Source Strategy can be found at: https://www.arb.ca.gov/planning/sip/2016sip/2016mobsrc.htm

The California Sustainable Freight Action Plan

The California Sustainable Freight Action Plan (Action Plan) is a multi-State agency effort to improve freight system efficiency by 25 percent by 2030, and to deploy over 100,000 freight vehicles and equipment capable of zero emission operation, and maximize near-zero emission freight vehicles and equipment powered by renewable energy by 2030.

The Action Plan Includes recommendations on: • A long-term 2050 Vision and Guiding Principles for California's future freight transport system. • Targets for 2030 to guide the State toward meeting the Vision. • Opportunities to leverage State freight transport system investments. • Actions to initiate over the next five years to make progress towards the Targets and the Vision. • Pilot projects to achieve on-the-ground progress in the near-term. • Additional concepts for further exploration and development, if viable. More information on can be found at: http://www.dot.ca.gov/casustainablefreight/

AB 617 Community Air Protection Blueprint, Appendix D (pp. D-3-4, D-6, D-8-10) (adopted 2018)

II. STATEWIDE EMISSION REDUCTION STRATEGIES

Identifying specific strategies for reducing criteria air pollutants and toxic air contaminants in communities with high cumulative exposure burdens is critical for implementing strong statewide actions to ensure new emissions reductions. The strategies outlined in this section reflect actions that CARB and air districts are already taking to deliver new reductions in communities. This includes new strategies from existing air quality and climate plans, early action incentive funding appropriated by the Legislature, and additional community-focused actions (e.g., new regulatory measures, targeted enforcement activities, other new tools and resources).

FOUNDATIONAL STRATEGIES IN CARB AIR QUALITY AND CLIMATE PLANS
CARB's Governing Board has adopted several comprehensive air quality and climate plans in recent years, including the State Strategy for the State Implementation Plan, the California Sustainable Freight Action Plan, California's 2017 Climate Change Scoping Plan, and the Short-Lived Climate Pollutants Reduction Strategy. Each of these plans includes a suite of emissions reduction strategies that will address many of the sources that are concentrated within heavily impacted communities like cars, trucks, freight sources, and other equipment. Together they provide a foundation for additional emissions reductions needed to deliver healthful air in communities with high cumulative exposure burdens.

Table D-1, Table D-2, and Table D-3 provide lists of new CARB strategies associated with these plans. CARB staff have already begun developing regulations, policies, and incentive programs to implement these strategies. This is an ongoing process that will begin achieving emissions reductions in the near-term and providing benefits that support community-level actions, with a focus on zero emission technologies where the technologies are now feasible. New regulations cover the following range of sources:

- For communities heavily impacted by freight sources –

o Expanded standards for clean operation for ships while they are in port.

…

[Table D-1 "State Strategy for the State Implementation Plan Measures and Schedule (*Approved 2017*)"]
At-Berth Regulation Amendments

…

[Table D-2 Summary of California's 2017 Climate Change Scoping Plan Update Measures (*Approved 2017*)]
Mobile Source Strategy (Cleaner Technology and Fuels [CTF] Scenario)* …
California Sustainable Freight Action Plan* …
*These measures and policies are referred to as "known commitments."

Addendum to the adoption of Resolution 17-7

Furthermore, in addition to the existing Regulations and multiple policy positions regarding potential At-Berth Rule amendments, there was additional procedural, non-policy direction given to the staff by the Board in an Addendum to the adoption of Resolution 17-7, which was the motion to approve the state SIP in March 2017.

This additional direction in the Addendum was that "within 18 months of this date, ARB staff shall develop At-Berth regulation amendments that achieve up to 100% compliance by 2030 for LA Ports and Ports that are in or adjacent to areas in the top 10% of those defined as most impacted by CES."

This is not an adoption of a policy or amendment of a plan, including the SIP, but just a direction to staff to develop and work on the preparation of a proposal for the Board for future consideration. The Alternative Proposal is consistent with this direction and seeks to work with staff to place a set of amendments before the Board which will be an increase in compliance beyond 80%.

Port of Los Angeles and Port of Long Beach Comments on Proposed Draft Regulatory Language, “Control Measure for Ocean-Going Vessels Operating At Berth and At Anchor”, February 6, 2019

SAN PEDRO BAY PORTS

CLEAN AIR ACTION PLAN

February 6, 2019

Duplicate - See Comment Letter 60 Port of LB

Bonnie Soriano
Chief, Freight Activity Branch
California Air Resources Board
1001 "I" Street
Sacramento, CA 95814

SUBJECT: PORT OF LOS ANGELES AND PORT OF LONG BEACH COMMENTS ON PROPOSED DRAFT REGULATORY LANGUAGE, "CONTROL MEASURE FOR OCEAN-GOING VESSELS OPERATING AT BERTH AND AT ANCHOR"

Dear Ms. Soriano:

The Port of Long Beach and Port of Los Angeles (Ports) appreciate this opportunity to provide comments on the California Air Resources Board (CARB) proposed draft regulatory language, "Control Measure for Ocean-Going Vessels Operating At Berth and At Anchor."

We value the partnership we have built with CARB and credit this positive relationship in large part to helping us achieve very significant emissions reductions at the Ports and throughout the freight industry over the last decade. Likewise, we appreciate CARB's willingness to continue to work with us to find solutions for overcoming the various challenges to meet our common emissions goals.

As described in the 2017 Clean Air Action Plan (CAAP) Update, the Ports' support increased efforts to capture at-berth emissions from ships and to obtain more emissions reductions from non-regulated vessels, and we are committed to working with CARB to achieve these goals.

The purpose of this comment letter is to assist CARB in the development of a feasible at-berth regulation that maximizes public health benefits, and also to communicate the challenges associated with implementing the draft regulatory language as currently proposed.

Port of LONG BEACH
The Green Port
Port of Long Beach | Environmental Planning
4801 Airport Plaza Drive | Long Beach, CA 90815
562.283.7100

THE PORT OF LOS ANGELES
Port of Los Angeles | Environmental Management
425 S. Palos Verdes Street | San Pedro, CA 90731
310.732.3675

The following summarizes comments of the Ports regarding proposed components of the draft regulation:

- **A Requirement to Control 100% of Visits Is Not Realistic** – Requiring 100% of vessel visits to use at-berth controls will require redundant systems to ensure coverage at all times, leading to skyrocketing costs for Ports, terminal operators, and ship owners with little additional emissions benefit. We urge reconsideration of such an absolute goal, even in light of your proposed use of exceptions, including terminal safety and emergency events, equipment failure, and physical and spatial constraints.

- **The Proposed Implementation Timelines Are Too Aggressive** – Of particular concern to the Ports, and our respective engineering staffs, is the implementation timeline for the proposed at-berth regulation. Expansion of shore power infrastructure, either through additional shore power outlets (SPOs) or via cable reel management systems, to meet the updated regulation requirement of 100% compliance for container, refrigerated cargo (reefer vessels) and cruise ships by 2021 will be a near impossible task for the Ports or the terminal operators to achieve due to the requisite planning and construction process for capital construction projects. The Port of Long Beach has estimated both the cost and timeline required to maximize compliance with the proposed draft regulation in the attached document, "Potential Strategies and Costs to Address the At-Berth Regulation" (Attachment A). The potential completion date for infrastructure required at the Port of Long Beach to accommodate the proposed regulations for container terminals is December 2025 at the earliest, depending on the extent of infrastructure required. Port of Los Angeles Engineering staff estimates the timelines and costs would be similar.

  Further, given the lack of proven and available shore power or alternative options for at-berth controls that can be utilized by Tankers and Auto/Ro-Ros, it is highly unlikely that technically feasible, cost-effective technologies will be available for implementation by 2025. Additional time is needed to allow for the necessary capital improvements and/or technology advancements that will be required.

  The Ports also believe that adequate time should be built into the schedule for submittal of terminal operator and Port plans, well in advance of the compliance deadline, in order to provide ample opportunity to adjust their plan given CARB feedback. It would also be helpful to see more details on what the required elements of such plans would be in the regulation.

- **A Technology Feasibility Assessment Process Is Needed** – As you know, the CAAP relies on a process for preparing regular feasibility assessments to assess the state of technology development and its readiness to be deployed in the marketplace to support efforts to achieve air quality benefits consistent with our CAAP goals. Given the reliance of the proposed regulatory amendment on emerging technologies, we believe a similar process would be appropriate and helpful for understanding the state of the technologies that would be needed to meet the requirements of the proposed regulatory language. This feasibility assessment should include an evaluation of:

  (i) The state of technology for both shore power and alternative emission control devices and deployment readiness;
  (ii) the requisite timeline for design, build, testing, and deployment of shore power and alternative control technologies for each California port and identification of any associated constraints such as wharf space;
  (iii) safety and navigation of harbor waters space due to applications of new technologies for unregulated vessel types;
  (iv) number and types of alternative control technologies, which would be needed at each California port;
  (iv) and the availability of incentives to encourage early demonstration of such technologies.

  Attachment A provides very useful information about the many technical challenges associated with the compliance options available today. These include immaturity of shore power for the non-container fleet, the safety concerns associated with using shore power and alternative emission control technologies to control emissions from tankers, and the navigability, space, and wharf integrity challenges associated with alternative emission control technologies. It is our finding that alternative compliance options may increase greenhouse gases, and cable reel management systems, which are needed for instances where ships do not line up with their requisite shore power outlet, are not in the shore power standard today (IEC/IEEE-80005), posing safety risks to ships and terminal equipment.

  In order to accelerate the development and deployment of shore power and alternative control options, including infrastructure, for non-container terminals and vessels, the Ports would like to see CARB prioritize funding in their investment plan, as they did for the currently regulated fleet through Proposition 1B in 2006. This funding would assist with economic feasibility and ensure this regulation is not an unfunded state mandate.

- **A Cost Effectiveness Assessment Is Needed** – An increase in at-berth control levels for currently regulated fleets and the addition of at-berth control requirements for other vessel categories will result in considerable costs to ports, terminals, and shipping lines. The Ports of Long Beach and Los Angeles have already spent more than $400M in infrastructure to meet the current shore power rule. Both Ports estimate that it would take at least another $100M per port to bring their container terminal infrastructure to a level to meet the 100% requirement proposed by the at-berth rule. Additional costs, which have not yet been defined, will be associated with implementing at-berth controls for Tankers and Auto/Ro-Ros. In addition, millions more dollars would be needed to outfit unregulated ships for shore power.

  While we fully support the goal of increased control of ocean-going ship emissions, we recommend a study be undertaken to determine how the marginal cost of bringing container ship emission controls from 80% to 100% under the proposed rule compares with other potential efforts to reduce emissions from ocean-going ships, including transiting or maneuvering movements. We also wonder whether emissions reductions from other sources at ports could be identified as more cost-effective investments for control programs, such as incentive programs to retrofit or replace harbor craft engines as an example. Further, we encourage a discussion among stakeholders to determine the sequencing of emission control programs for all of the key source categories that operate in and around ports, in order to identify where money should be spent first to move forward with cleaning the air regionally and throughout California.

- **Compliance Comes First** - The proposed At-Berth Regulatory language imposes a substantial infrastructure obligation on the Ports and their tenants. As a result, should the regulation be adopted as is, the Ports and their tenants will need to align their priorities and resources to ensure compliance with the regulation is achieved. As a result, the Ports may need to divert funds from other CAAP commitments, including zero-emissions terminal equipment and near-zero and zero-emissions trucks. We urge a discussion among key stakeholders to consider the trade-offs of investing in one program versus another, based on overall local, regional and state air quality needs.

- **The Best Practices Checklist Is a Concept Worth Pursuing** – The Ports acknowledge that a major goal of this rule-making is to assign roles and responsibilities so that CARB may apportion compliance enforcement if multiple parties are at fault when a vessel fails to connect to shore power. Previously, CARB had suggested development of a "best

practices checklist" which the vessel owner, the terminal operator, and the Ports would follow to maximize compliance. The Ports support exploration of this concept.

The Ports thank CARB staff for the consideration of our comments. The Ports agree that more can be done to increase at-berth emission reductions over the next decade in parallel to our efforts to advance zero-emissions terminal equipment and trucks; it is a matter of finding the balance among all of these CAAP commitments by establishing realistic timeframes and implementation objectives with approved and verified technologies.

We look forward to meeting with the CARB in the future to further discuss the proposed amendments to the At-Berth Regulation. Please feel free to contact us with any questions or concerns regarding this letter.

Sincerely,

CHRISTOPHER CANNON
Director of Environmental Management

Port of Los Angeles

HEATHER TOMLEY
Acting Managing Director of Environmental Affairs and Planning
Port of Long Beach

CC: CARB – Cynthia Marvin (Cynthia.Marvin@arb.ca.gov)
Angela Csondes (Angela.Csondes@arb.ca.gov)
Nicole Light (Nicole.Light@arb.ca.gov)
Kaylin Huang (Kaylin.Huang@arb.ca.gov)

Duplicate - See Comment Letter 60 Port of LB

Potential Strategies and Costs to Address the At-Berth Regulation

Background

In August 2018 the California Air Resources Board (CARB) released draft regulatory concepts and the associated preliminary cost analysis for the Control Measure for Ocean Going Vessels At Berth and At Anchor Regulation (At-Berth Regulation). If adopted, CARB would require control of emissions from container and refrigerated cargo vessels for 100% of visits to the Port of Long Beach beginning in 2021. Roll-on roll-off (RoRo) vessels will need to reduce auxiliary engine emissions for 100% of visits beginning January 1, 2025. Tanker vessels must control auxiliary engine emissions through an interim CARB approved technology beginning January 1, 2025. All vessel visits for tankers must control auxiliary engine emissions through a CARB approved emission control beginning January 1, 2031. In addition to the auxiliary engine reduction requirements for all tankers, tanker vessels with steam driven product pumps are required to reduce their tanker auxiliary boiler emissions.

About This Assessment

In response to the proposed regulatory amendments, the Port of Long Beach (Port) has conducted a preliminary analysis of the infrastructure needed at each container terminal, the assumptions and caveats related to each method proposed to maximize compliance, the time required to design and install the necessary infrastructure, and the costs for each solution. The Port also estimated the hours of control required and operational costs for both container and non-container vessels visits to meet the proposed regulatory language requirements should alternative compliance strategies such as barge and land-based emission control technologies be utilized. This document outlines the Port's findings, which includes content from a third party analysis and in-house expertise.

Assumptions

In assessing the potential options for complying with the proposed regulation, the Port made several assumptions. First, the Port assumed that ships would meet the following requirements:

- All ships calling the Port will have shore power equipment available on both sides of the vessel.
- All shipside shore power equipment meets the IEC/IEEE 80005-01 standard, including "sufficient cable length to reach the shore side supply point (considering the tide loading conditions, etc.) plus 10 meters."
- Vessels calling the Port are equipped with 60 Hertz (Hz) operation.[1]

Ships not meeting these requirements may not be able to plug into shore power; however, this is outside of the Port's control.

Additionally, the Port assumed that all potential strategies must comply with the IEC/IEEE 80005-01 shore power standard and the National Electrical Code at least by the time the

[1] To provide infrastructure for 50 Hz ships would require complete duplication of the 60 Hz shore power infrastructure, including installation of transformers, substations, and SPOs. This solution is cost and operationally prohibitive. It is estimated only 1-2% of vessels which call the Port are equipped with 50 Hz operation.

regulation takes effect, that is, by January 1, 2020. Only strategies that have been proven and certified by these standards agencies have been deemed fit for deployment.

Potential Shore Power Compliance Strategies for Container Vessels

The Port evaluated three potential strategies for maximizing shore power usage.

- Installation of additional shore power outlets (SPOs)
- Cable-reel management system – currently under development and assumed to be approved and certified by 2021
- A combination of the above

Although other potential strategies exist, including cable chains with SPOs mounted on the face of the wharf and moveable transformers, these technologies are unproven and cost prohibitive.

Shore Power Outlet (SPOs) Installations

Installing additional shore power outlets is the only strategy that fully complies with IEC/IEEE 80005-1 and National Electrical Code, and it is the only strategy that is proven and ready for execution today. The Port already has installed 78 SPOs at all of its container terminals. At some terminals, these SPOs are spaced approximately every 200 feet. At other terminals, the SPOs are spaced at varying intervals according to berthing analyses performed several years ago based on the strings of vessels information provided by the terminal operators and shipping lines.

Per the IEC/IEEE 80005-1 code, ships at berth must provide enough cable to reach the SPO plus 10 meters. Given this requirement, the Port would need to install SPOs every 64 feet at container terminals in order to ensure that every compliant ship can meet an SPO.

Unfortunately, this solution is implausible. Each SPO vault measures roughly 12 feet across and requires significant cuts into the wharf's edge. Additionally, the placement of SPO vaults has limitations, such as the presence of mooring anchors and fender systems or vaults for water lines. Thus, installing SPOs every 64 feet would compromise the structural integrity of the wharf and pose significant operational and safety impacts. In other words, there is a physical limit to the number of new SPOs the Port can install.

As stated earlier, additional SPOs do not solve connectivity issues for ships with inadequate cable length, cables on the opposite side of the vessel, or 50 Hz ships. Further, upstream electrical constraints may impede connection. One transformer serves multiple SPOs; only one ship can connect to that transformer at any given time. Thus, while additional SPOs may appear to provide more opportunities for ships to connect, as long as those SPOs are tied to a single transformer, the connectivity is limited by the upstream equipment. Each new SPO requires additional equipment at the substation. Each substation can only accept a limited amount of additional equipment at which point another substation need be installed. The space requirements along the wharf and inside the terminal along with the costs make this option unfeasible.

In summary, even with additional SPOs, there are likely to be instances in which a ship cannot connect.

Cable Reel Management Systems

A potential strategy to maximize shore power compliance at container terminals is a cable reel management system. Cable reel management systems provide additional cable length between the SPO and ship-side connection point. In theory, these systems should be able to close the gap between a ship and an SPO that is out of reach. The Port and its operators have purchased a few 100' cable management systems. These systems were limited to 100' in length due to space constraints; however, these systems have not yet been successfully deployed due to limitations of the technology and conflicts with current code.

First, 100' of cable is not long enough to facilitate ship connections 100% of the time. In order to achieve 100% compliance, cable reels of up to 600' would be required.

Second, the cable reel system is not a proven, approved technology in the shore power standard (IEC/IEEE 80005-1). The system also does not comply with the National Electrical Code, which does not allow for exposed high-voltage cables. This lack of certification raises issues about safety and labor's willingness to employ the system. It is unclear when the cable reel management system will be adopted under the shore power standard. If this system has not been adopted by January 1, 2020, the Port will be unable to use this strategy.

Third, if the cable reel management system is approved, some terminals may not have sufficient space between the cranes and guard timber to accommodate the cable reel system. This will necessitate wharf upgrades and cable-containment strategies. Custom cable extensions may need to be fabricated for a ship that does not line up with an existing SPO, which could require additional cable extensions at each berth.

Lastly, cable reel management systems may interfere with shore power communications systems, and thus, some ships may not be able to connect.

The Port analyzed the cost and timeframe for deploying cable reel management systems. Additional costs will be incurred by the tenant each time the cable reel system is deployed, removed and stored and are not included in the table below.

Costs and anticipated timeline per pier for cable reel systems are summarized in Table 3 below.

Table 3. Deployment of Cable Reel Management Systems

	Cost	Expected Completion Date
Pier A	$3,000,000	May 2021
Pier C	$2,000,000	May 2021
Pier E	$3,000,000	May 2021
Pier G	$3,000,000	May 2021
Pier J	$4,000,000	May 2021
Pier T	$4,000,000	July 2021
All Container Terminals	$19,000,000	July 2021

*This table estimates a start date for design as January 1, 2020 when the regulation would go into effect.
**Assume $1 million per each 200 linear foot Cable Reel Management System and 1 per berth were used for the estimates which includes equipment, additional mobile platform for the existing wharf, and soft costs.

In summary, absent changes to the National Electrical Code and IEC/IEEE 80005-1 standard, cable reel management systems are not a solution port-wide, and even with these changes, require significant infrastructure improvements and may not be a solution for every terminal

SPOs and Cable Reel Management Systems

The Port analyzed a combination of new SPOs and cable reel management systems. This option utilizes additional SPOs to ensure a maximum of 200 feet between SPO installations and one 100-foot, cable reel management system at each berth to provide the needed extension from the shipside shore power equipment to the designated terminal SPOs.

A major challenge with this option is that it still would require the installation of an additional 67 SPOs. This strategy does not eliminate the challenges detailed above under the subsection "Shore Power Outlet (SPOs) Installations" nor subsection "Cable Reel Management Systems." Therefore, issues such as a limited upstream transformation and lack of standardization for cable reel management systems will also interfere with successful deployment of this strategy. Therefore at this time this option is not feasible.

Costs and anticipated timeline per pier for SPOs every 200 feet, combined with one 100-foot cable reel system at each berth are summarized in Table 4 below.

Table 4. Deployment of SPOs approximately every 200 feet, combined with one 100-foot cable reel system

Deployment of SPO every 200 feet and one cable reel per berth	**Cost**	**Expected Completion Date**
Pier A	$15,750,000	Dec. 2025
Pier C	$10,500,000	Dec. 2025
Pier E	$13,450,000	Dec. 2025
Pier G	$17,050,000	Dec. 2025
Pier J	$13,800,000	Dec. 2025
Pier T	$23,300,000	Dec. 2025
All Container Terminals	$93,850,000	Dec. 2025

*This table estimates a start date for design as January 1, 2020 when the regulation would go into effect.
** Costs include construction cost and soft cost to plan, design, and construct additional SPOs at each terminal. Pier G includes a new transformer to provide the power to one berth.

Additional Strategies

The Port also evaluated additional strategies not related to landside infrastructure that could improve shore power compliance. These strategies are likely to be undertaken by the terminal operators and shipping lines, not the Port itself.

- Worker training
- Alternative compliance systems for ships not capable of connecting to the landside infrastructure

Worker Training

The Port believes training of workers responsible for plugging and unplugging ships will improve shore power compliance. Assuming a ship can make a physical connection, with the requisite training, workers would be more likely to successfully troubleshoot connection problems as they occur, and provide the needed adjustment of the circuit breaker settings and other components involved in connection.

With or without training, Port terminals are going to continue to face situations where shore power connection is simply not possible, even after implementation of any of the pathways described above.

Alternative Compliance

Terminal operators may opt to invest in emission capture and control devices, rather than investing in additional shore power.

Container Terminals

It is estimated the container terminals will require an additional 15,000 hours of emissions control time.

Annual operating costs alone could be $23.2 million[2] dollars per year.

Non-Container Terminals

It is estimated the non-container terminals will require an additional 42,000 hours of emission control time.

Annual operational costs alone could be $39.4 million dollars per year.

The terminal operators may decide to design and construct their own emissions capture and control system to ensure the system is always available, and there will be significant upfront costs on the order of $5,000,000-$10,000,000.

Limitations of Alternative Control Systems

Alternative control systems face two key challenges for deployment in the timeframe proposed by CARB:

- Lack of available units
- Lack of wharf space for barge-based system berthing

Lack of Available Units

As of today, only two barge-based systems have been certified and a land-based system has yet to be tested. Many more systems would be required to help meet the 100% compliance deadline of 2021 for the regulated fleet and 2025 for the unregulated fleet. There are currently no production

[2] Operating costs used in this document only include the hourly labor cost to operate the emission capture and control systems. The Port assumed $1,000 per hour for barge-based systems, and $1,100 per hour for land-based systems, which is consistent with CARB assumptions. Any increases in these costs over time are not accounted for, nor are any capital or other operational/maintenance costs.

facilities manufacturing these systems. It is doubtful such systems can be certified, cost effective, and commercially available in such a short amount of time.

Lack of Wharf Space

One significant barrier to deploying barge-based systems is the lack of berth space for units that are not in use. The Port of Long Beach only has 2,000 linear feet of wharf space – equivalent to two berths – that are open and could be available for barge-based systems:

- D52, which is used for temporary berthing. 600' linear feet.
- T124, which is really designed for OGVs and thus would require fender installations and wharf modifications to accommodate barges. 1,400 linear feet.

All other space is leased out, which means the Port will be limited in its storage capacity for emissions capture and control systems.

Summary of Findings

The Port cannot identify a single method to ensure 100% shore power, but has established internal consensus that a mix of methods may be required to maximize shore power compliance for container vessels.

The most promising way to maximize compliance at a container terminal is for the Port to install additional SPOs with additional support from cable reel management systems.

Table 5. Comparison of Three Strategies to Maximize At-Berth Compliance

Strategy	Cost for all Container Terminals	Timeline (Design, Bid and Award, Construction)	State of Technology	Remaining Challenges
Additional SPOs Every 64 Feet	----------	----------	Established/Proven	• Wharf Integrity • Operation and safety • Physically impossible to install at 64'
Cable Reel Management System	Approx. $20 million	2 Years	Unproven	• No Standard • Electrical Code Issues • Requires additional mobile platform to the existing wharves • Moderate Cost
SPOs + 1 Cable Reel System	Approx. 94 million	5 Years	Unproven	• Timeline • High Cost • No Standard • Electrical Code Issues • Requires additional mobile platform to the existing wharves

In all of these scenarios, the Port is apt to spend millions of dollars on infrastructure beyond the roughly $200 million already spent on shore power. Additionally, the timeframe for completing these projects is likely to go well past January 1, 2021.

It is unclear what strategy non-container terminal operators will choose for regulatory compliance. Given shore power is an unproved technology for the proposed non-container vessel categories and the stringent timeline proposed, the Port assumed in this assessment that ships and terminals would opt for alternative compliance through emission capture and control systems. Should the non-container industry choose this strategy, it is clear industry will bear millions of dollars in operating costs per year.

Path Forward

The Port will need to produce a more detailed berthing analysis prior to entering the formal design process upon adoption of the proposed At-Berth Regulation. This analysis will directly inform decision-makers, including terminal operators and Port staff, and the design of each container terminal shore power compliance plan. In addition, the Port should continue to work with IEC/IEEE on the effort to update the current shore power regulation for container ships to ensure the cable reel management systems are safe, and standardized pieces of equipment

Comments on Preliminary At-Berth Cost Analyses Presented at "Workgroup Meetings to Discuss Costs of Proposed Amendments to the Ocean-Going Vessel At-Berth Regulation", September 14, 2018

PMSA
PACIFIC MERCHANT SHIPPING ASSOCIATION

September 14, 2018

Angela Csondes
California Air Resources Board
P.O. Box 2815
Sacramento, CA 95812

Submitted via e-mail to angela.csondes@arb.ca.gov

Subject: **Comments on Preliminary At-Berth Cost Analyses Presented at "Workgroup Meetings to Discuss Costs of Proposed Amendments to the Ocean-Going Vessel At-Berth Regulation"**

Dear Ms. Csondes:

The Pacific Merchant Shipping Association (PMSA) appreciates the opportunity to submit comments on the preliminary cost analysis presented by California Air Resources Board (CARB) staff during the August 15 and 16, 2018 "Workgroup Meetings to Discuss Costs of Proposed Amendments to the Ocean-Going Vessel At-Berth Regulation." However, PMSA remains concerned that the preliminary cost data contains a number of inconsistencies that substantively reduce the data's value as the basis for regulatory decision making, raise fundamental questions with respect to accuracy, and are presented in the context of numerous outstanding unknowns with respect to the proposed rule.

Vessel Modification Costs Are Underestimated

PMSA appreciates the effort that CARB staff undertook to collect data on the cost of complying with the At-Berth Regulation. Indeed, PMSA has endeavored, and is continuing in its efforts, to provide CARB with the most data possible in response to the Vessel Cost Surveys circulated amongst vessel owners and operators and we incorporate our correspondence to that end by reference.

52.C.102 With respect to the limited vessel cost data that you included in the initial report, there is a surprising and significant variability in the responses from ocean carriers on the cost of shore power retrofits and new builds. For example, the cost of retrofits among 14 containership responders ranges from a low of approximately $250,000 to a high of approximately $1,750,000. This range is surprisingly large and reflects a number of unreasonably low estimates. During previous meetings with CARB staff and PMSA and its members, initial discussions indicated that costs were upwards of $1 million per vessel; and, we know from discussions with ocean carriers and ports, that cable reels represent the most expensive portion of these installation costs, at between $300,000 and $600,000. Yet, half the responses indicate the cost of retrofit at $500,000 or less. PMSA believes that actual costs are still relatively in line with the original estimate used for the current regulation, where "In the cost-effectiveness analysis, staff

used $1,500,000 as the cost to add shore-power equipment to each vessel, which is ¾ of highest reported cost." (ISOR, Appendix E, page E-2).

52.C.103 The variability in the responses from bulk and Ro-Ro vessel operators is also substantial. The high value response for Ro-Ro vessels is five times the value of the low value. The high value response for bulk vessels is over four times the value of the low response. The most likely reason for these significant variances appears that there may have been issues in interpreting the questionnaire among the responders. These unbelievably low costs will skew any analysis in which they are used. CARB staff should exclude any costs below $600,000 from their analysis.

Application of Vessel Costs to Affected Fleets to Find Total Container Vessel Costs Raise Questions

52.C.104 It is fundamentally unclear how CARB came to the conclusion that only 20 additional container vessels are necessary to be addressed in order to comply with an expanded At-Berth Rule statewide. This number is surprisingly small and likely unrealistic. It was disclosed during the meeting that one of the assumptions that CARB staff have made to arrive at this number was that 94% of all container vessels calling California will have already been retrofitted by 2021. There is no discussion of this assumption in the cost workgroup background, there was no data cited to support this assumption, nor were there any questions posed in the vessel surveys which would lend credence one way or the other to such an assumption.

52.C.105 CARB estimates that only 10 additional container and reefer vessels are required to be retrofitted in order to reach the 100% compliance figure and 10 additional ships would use Capture & Control technology. How these assumptions are made are unclear, but moreover the baseline assumption that only 20 ships are going to be responsible for 248 additional visits is also not likely to be realistic. On average, those 20 vessels would then each need to have just over 12 visits a year. The only way that would be possible would be if they were in a high frequency service calling both San Pedro Bay and Oakland. However, those are the vessels that are most likely to be already outfitted for shore power in order to meet current regulatory requirements, especially after the implementation of the 2020 standards. It is far more likely that the vessels that have not been retrofitted for shore power are infrequent visitors to California ports. CARB staff needs to provide the basis for the estimate of how only 20 additional vessels would provide 248 port calls and, most likely, revise the number of vessels significantly upwards using assumptions for infrequent visitors.

52.C.106 The estimate of the number of additional vessel retrofits also appears to assume that the fleet serving California ports is static. As PMSA and its members have discussed with CARB staff, the fleet is not static and redeployments occur as a normal part of vessel operations. As a result, for any one vessel currently calling California, multiple vessels will need to be retrofitted as maintenance needs and changing trade volumes require existing shore power-capable vessels are rotated out of California service and different non-shore power capable vessels are rotated into California service.

52.C.107 In addition, because CARB's staff concept at this point is to eliminate fleet-based compliance and its related applicability thresholds, and to substitute a 100% compliance standard across all container vessels operating statewide, CARB must demonstrate what new costs are associated with the capture of

smaller container fleets, if any. Under the present concept of total statewide costs presented by staff at only 20 total vessels, it is unrealistic to conclude that there are any smaller fleets which are currently not participating that might be included in this cost basis.

52.C.108 No matter which numbers are utilized, CARB staff should demonstrate how the annualized costs for compliance with a 100% rule, as outlined in staff's proposed concepts, would only reach $7.5 million per year at Full Implementation for the entire container and refrigerated vessel fleets. For a rule with outsized capital and operational costs, which CARB initially pegged at approximately $1.8 billion through 2020 for all vessels and terminals impacted, this is an unrealistically low expectation of annualized costs (see related comments below). The carrying costs on existing capital alone will dwarf this number, not including the costs of additional retrofits and new-builds.

Port and Marine Terminal Infrastructure Is Unrealistically Low

52.C.109 One of the more troubling aspects of CARB's preliminary cost analysis is the complete dearth of estimates of the well-known, significant additional infrastructure necessary to support 100% shore power use by containerships and refrigerated vessels statewide. According to the preliminary cost estimates, the only additional infrastructure necessary across the entire State to accomplish this goal is the improvement of one, single berth. This is just simply not a credible conclusion. CARB's own enforcement report for 2016 indicates that ocean carriers had to make use of Advisory Scenario 1 ("Equipped vessel not able to receive power from shore") 327 times in 2015 and 284 times in 2016. During numerous meetings over the past year, PMSA and its members repeatedly discussed the insufficient infrastructure at berth as the primary hurdle to increasing the use of shore power for containerships.

52.C.110 One of the primary reasons for this is the rigidity inherent in shore power. As has been demonstrated at terminals to CARB staff, shore power cables must be dropped perpendicular from the vessel to the vault containing the shore power outlet. As a result, if there is a misalignment between the vessel and the berth – as there has been hundreds of times – it is not possible to make the shore power connection. CARB staff needs to work with PMSA, its members, and ports (the owners of this infrastructure) to evaluate how many additional shore power outlets are needed per berth. Short of turning the entire wharf face into a continuous connection point, which appears to be both technically and financially infeasible, it will not be possible to match every berthing position to a connection point.

52.C.111 Added infrastructure will improve the opportunity to connect substantially. The question of how to invest in additional infrastructure and its associated cost will be dependent on the allowance that the regulation will grant for the inevitable berth/vault mismatch. While connections may be feasible the vast majority of time, that fraction of time they are not, even if it is only in a tiny percentage of cases, poses unacceptable regulatory jeopardy for marine terminal operators. In addition, the only way to assess the needed infrastructure cost is to understand what level of regulatory certainty CARB expects from this regulation. In the absence of such an allowance for the rigidity shore power connections impose, it will be impossible to properly assess costs.

Penalty of Doubling Costs on Carriers, Ports, and Terminals Already Invested in Shorepower "Gold Standard" Solutions

52.C.112 A regulatory proposal providing no accommodation for those vessels and terminals which have already invested in the infrastructure necessary to comply with the "gold standard" of shore power would continue to maintain the perverse incentive of keeping a vessel at anchorage in the event of any uncertainty. As CARB is well aware, this results in far greater emissions than would have been avoided – a situation we have seen occur many times under the existing regulation. In addition, such a regulatory concept would necessarily incentivize vessels and marine terminals to move away from shore power and to rely on emission capture systems since, in concept, such systems provide the necessary flexibility to accommodate the provisions of the regulatory concept without the fixed overhead expense.

This would also be counter-productive to the ultimate goals of the regulation, since as CARB has acknowledged, such a move would actually decrease overall Air Quality benefits, mute emission reductions, and increase greenhouse gas (GHG) emissions, but it's the logical outcome of a rule which imposes significant cost impacts on terminals, ports and ocean carriers and then penalizes them for making investments in shore power. The penalty is obvious, these carriers, ports and terminals will be required to pay for TWO solutions to remain compliant instead of just ONE solution. This penalty is not accounted for and is an unreported Cost outcome in the present preliminary cost estimates.
In requiring a standby system, the regulatory proposal imposes new costs for vessel operators and terminals operators that have already invested billions of dollars under the current regulatory framework. Again, the cost analysis does not consider the additional costs that every vessel and terminal operator will experience under the proposed regulatory concept.

An illustration of this problem is clear when examining the Port of Oakland. The Port of Oakland leases container terminal facilities only (no bulk/tanker terminals). In addition, the percentage of vessels using shore power is dramatically increasing. If, as expected and CARB staff intends, all future vessels use shore power, vessels at terminals would still need to have a standby solution in the event of equipment failure or inability to make a shore power connection. Yet, what viable business could exist serving exception cases? Further, it is not unforeseeable that there could be an equipment failure at multiple berths simultaneously; for example, at the point where electricity for the shore power system enters the terminal. In such a scenario, every berth will need an alternative control technology at a port where there would be zero demand for such technology otherwise. Terminal and vessel operators would be pushed to maintain multiple systems to avoid regulatory jeopardy.

State-wide Analysis Is A Flawed Cost Methodology for A Rule With Localized Impacts

52.C.113 In assembling its preliminary cost analysis, CARB staff has aggregated data state-wide despite the fact that each port has very different physical and operational constraints and emissions profiles. These variances are even more critical to assess if the basis for the promulgation of this rule is focused on the need for community impact mitigation or local air basin criteria pollutant compliance purposes. As a result, the costs and benefits of implementing the measure will vary wildly between ports. Without analyses on a port-by-port measure, it will be impossible to weigh the value expanding the rule to each port. Smaller ports more likely need significant infrastructure improvements that this rule would require, but such ports also have much smaller emissions profiles. To the degree that smaller ports

must rely on alternative technologies for compliance under the regulatory proposal, it is likely that nearly all of the GHG emission increases associated with the use of alternative technologies takes place at these smaller ports. Without a port-by-port analysis, it is impossible to understand the cost versus benefits of an expanded rule, both in terms of monetary and potential GHG impact, and make an informed decision.

Alternative Technology Costs Have Not Been Demonstrated With Evidence

The preliminary cost analysis includes a cost of $1,000 per hour for the use of barge-based emission capture systems. The bases for these costs are anecdotal at best and there is significant evidence that they do not represent the true cost for such systems. There is no accommodation for the capital costs of these systems or the associated costs of affiliated infrastructure.

52.C.114

In addition, given the limited marketplace that currently exists and the small number of suppliers that should ever be expected to enter into such a relatively small customer venue, the monopsony factors associated with these costs cannot be underestimated, as there will inevitably be market pressure to drive up costs and reduce customer service.

For instance, there have already been instances when, due to modest vessel schedule changes, a barge-based system has had to leave one vessel it was servicing to provide service to another vessel. If the rule requires that barge-based systems be present for the entire length of the vessel visit, there will need to be more barge-based systems. More systems will require a lower utilization rate per barge and, in turn, will necessitate a higher hourly cost. There have been other instances of ocean carriers competing to schedule the same barge-based system. Yet, such demand has not been sufficient to result in the construction of additional systems. For all these reasons, the cost of $1,000 per hour most likely grossly underestimates the true future cost. CARB staff should conduct a bottom-up approach, estimating the cost to construct and operate such a barge, at a profit, and amortize those costs over the life of the equipment. Such an approach can be based on documented data, rather than anecdotal information.

CARB's cost analysis of these systems should also note whether or not the existing costs reflect actual market pricing or are more reflective of extensive government subsidies for the provisioning of such systems. Industry is unaware of the full extent to which the current system infrastructure and operations are more truly reflective of real-world market conditions or of subsidies. Industry is also unaware of whether there have been any independent evaluations of the quality of services that have been or could be provided by alternative technology systems, or of the financial durability and capitalization strength of such system providers, absent such subsidies. Such an evaluation by a party independent of public agencies, such as CARB or local air districts which are administering the subsidies in question, would be worthwhile evaluations of the true costs of these types of systems.

52.C.115

Preliminary Cost Estimates Must Be Reconciled With The Regulatory Cost Context of the Existing Rule

52.C.116

Under the current At-Berth regulation, the regulated container, cruise, and refrigerated vessel fleets must reach emissions reductions of at least 80% by 2020. To achieve this 80% reduction, CARB

estimated the total cost of compliance to be approximately $1.8 billion to cover the 2014-2020 phase in period.

Compare this scope and scale with the preliminary cost estimate for this amendment: to reach the additional 20% of vessel emissions reductions from these same fleets by 2021, CARB's staff analysis shows a cost of approximately $11.3 million in one year.

This is simply and fundamentally not a credible conclusion.

Even if one were to annualize an average annual cost of the $1.8 billion over the full 6-year phase-in of the current rule's phase-in of participation of vessel fleets at 50% compliance in 2014, then 70% compliance in 2017, and then 80% compliance in 2020 at $300 million per year, it is only one year later that achieving the last 20% compliance benchmark has annualized costs of only $10 million in 2021 under this analysis.

The preliminary cost estimates demonstrate no credible basis or evidence for the belief that the cost for the achievement of the final 20% would be so radically different (order of magnitude smaller!) as to be almost negligible. In the past 10 years none of the many factors of cost that could be the reason for a reduction, including the following, have become appreciably cheaper: equipment costs, equipment technology, port real estate, electrical supply, labor.

Additionally, because the existing rule is pervasive at 80%, the vessels and related port and terminal infrastructure left to retrofit and equip for the final 20% are those for whom it was the most costly to comply in the first place. In other words, the reasonably prudent person at this point must assume that the cheapest vessels for compliance have been addressed first and that the more expensive vessels have been avoided. This would point towards higher average and marginal costs of compliance per unit, not lower.

This is consistent with economic realities known to CARB, other regulators, and regulated entities as the law of diminishing returns. That the marginal and average costs (and resulting cost-effectiveness) for having achieved the first set of first, broad, and significant emissions reductions are almost always much lower that the marginal and average costs for achieving the final, smaller, and potentially less than significant emissions reductions, is so well known as to be a truism.

The staff analysis here presents a theory which (is prima facie and by orders of magnitude) the precise opposite. Without a comprehensive and well-documented explanation as to why this should be the case there is simply no logical basis upon which the public should assume that these costs for the final 20% of compliance should have total costs and average costs which are some 95% lower for the industry than the achievement of the first 80%.

Data and Follow-Up Requests

PMSA requests that CARB provide the underlying spreadsheets that were used generate the tables presented as part of the preliminary cost analysis. Without understanding how the cost analysis was constructed, it will be impossible later to evaluate the cost-benefit analysis.

PMSA also respectfully requests that CARB staff work collaboratively to review and revise the equipment costs that will serve as the basis of the both the economic analysis and cost-benefit analysis through a series of collaborative workshops during this informal rulemaking phase with stakeholders.

Thank you for consideration of these comments. PMSA is available to discuss these comments in more detail with staff at any time.

Sincerely,

Thomas Jelenić
Vice President

PMSA Comments on CARB Proposed At-Berth Regulation Amendment Workshop, October 9, 2017

PMSA
PACIFIC MERCHANT SHIPPING ASSOCIATION

October 9, 2017

Angela Csondes
California Air Resources Board
1001 'I' Street
Sacramento, California 95812

Submitted Electronically to angela.csondes@arb.ca.gov

Comments on CARB Proposed At-Berth Regulation Amendment Workshop

Dear Ms. Csondes:

On behalf of the Pacific Merchant Shipping Association (PMSA) and its members, PMSA would like to thank the California Air Resources Board (CARB) staff for considering PMSA's comments on the proposed At-Berth regulatory amendment concepts. While PMSA continues to have significant concerns regarding the approach CARB is taking on this regulatory amendment process, PMSA does sincerely appreciate that there continues to be a constructive relationship that will allow the maritime industry to inform this rulemaking process.

Policy Basis for Rulemaking

During CARB's recent regulatory workshop on the proposed amendments, staff made clear that their goal was to propose a rule that would require every vessel on every visit to control emissions at-berth. This is a new approach on the part of CARB staff that is not consistent with the provisions proposed as part of the State Implementation Plan (SIP) in the Mobile Source Strategy recently adopted by the CARB Board or in the state's positions as adopted in the Governor's Sustainable Freight Action Plan.

Sustainable Freight Action Plan

52.C.117

The 2016 Sustainable Freight Action Plan included a provision that directed CARB to "develop and propose amendments to the At-Berth Regulation to include other vessel fleets and types." Nowhere in the proposed action does CARB identify an every vessel/every visit regulatory approach. Nor was an across the board sweeping change such as this even contemplated during the creation of the Plan, which goes on to state that "if the systems prove to be feasible and cost-effective on additional vessel types, the technology could help support an ARB staff proposal to expand the scope of the At Berth Regulation to include other vessel types and/or smaller fleets." These technologies have not been demonstrated to be "feasible and cost-effective." In fact, CARB is currently funding a further demonstration project of this technology. If staff is proposing to move forward with an every vessel/every visit regulatory concept despite the current immature state of technology, prior to commercial availability, and without cost-effectiveness criteria, then such a proposal would be inconsistent with the Governor's specific provisions for At-Berth Regulation amendments as outlined in the Sustainable Freight Action Plan. PMSA requests that the draft amendments be consistent with the description of action included in the Sustainable Freight Action Plan.

SIP Mobile Source Strategy

In March 2017, the CARB Board adopted the Mobile Source Strategy for inclusion in the State Implementation Plan (SIP), which lays out the State's enforceable commitments to reduce emissions. That document reiterates the same statements made in the Sustainable Freight Action Plan regarding amendments to the At-Berth Regulation. The Mobile Source Strategy goes on to say for determining the emissions benefit of the proposal that "the amendments were limited to the ports that are currently offering shore power and implementation was assumed to start in 2022 at 10 percent fleet compliance and to increase to 50 percent fleet compliance by 2032." Nowhere does the Mobile Source Strategy propose or model an every vessel/every visit approach, and such a proposal was never discussed or ever suggested in the preparation of the SIP. PMSA would respectfully request that the draft amendments be consistent with the SIP Mobile Source Strategy.

March Board Resolution Addendum Direction to Staff

52.C.118 Also in March, the CARB Board adopted a last-minute amendment to an addendum to a Resolution that was neither created by CARB staff nor circulated to the public prior to its adoption. These addendum additions have since been clarified by CARB to be mere direction to staff (see 9/6/17 Discussion Paper), that they are not amendments to the adopted SIP Mobile Source Strategy or substantive revisions of any other documents, including the Sustainable Freight Action Plan, and that staff will investigate options in future public processes. PMSA agrees with this interpretation of the March Board amendment and addendum actions.

Specifically to this regulatory process, the last-minute addendum amendment directs staff to "develop At-Berth regulation amendments that achieve up to 100% compliance by 2030 for LA Ports and Ports that are in or adjacent to areas in the top 10% of those defined as most impacted by [CalEnviroScreen]." Relying on the wording of the resolution, which did not amend the SIP Mobile Source Strategy, would lead one to the conclusion that the Board direction to staff is to ensure that the regulatory amendments ensure 100% compliance with the proposed At-Berth Strategy contained in the Mobile Source Strategy ONLY at the Ports of LA and Long Beach, and in certain other CalEnviroScreen jurisdictions, NOT for every vessel at every port. Moreover, if one were to interpret "compliance" as meaning "ensure that every vessel on every visit is subject to the rule," this would either be an amendment to the direction required by the SIP Mobile Source Strategy, or it would be a concept which is inconsistent with the SIP Mobile Source Strategy. PMSA requests that the CARB staff apply an interpretation of the last-minute amendments to the uncirculated addendum to the March Board Meeting Resolutions as "direction to staff" as described in the 9/6/17 Discussion Paper. To do otherwise would be inconsistent with the requirements adopted in the SIP Mobile Source Strategy, and that would be an impermissible revision of the SIP, and precisely what the Board specifically clarified in the 9/6/17 Discussion Paper did not occur in March.

52.C.119 To the extent that any portion of the proposed amendments represent significant deviations from the adopted Sustainable Freight Action Plan policy or requirements outlined in the SIP Mobile Source

Strategy, staff needs to explain how they came to the current proposal, what is the air quality need for such an expanded approach (even in places in attainment of federal air quality standards or where reductions would border on the trivial), and what is the basis from deviating from adopting policy that has been subject to the public process.

52.C.120 In addition, CARB staff has not identified any criteria that will inform their development of the limits of the rule. The current approach seems to be "if we can do it, we will". The every vessel/every visit approach is no longer tied to the emission reductions sought as part of mobile source strategy, local air quality needs, technical feasibility, cost-effectiveness, or economic feasibility. Before proceeding CARB should identify the criteria that will determine the scope of the rule; conversely, it should not develop the most restrictive rule imaginable and then identify the criteria post-hoc.

Proposed Amendment Structure

The attachment provides a list of components that PMSA believes can serve as the structure for the At-Berth amendments. The proposed concepts build on those presented at the workshop and add flexibility elements that PMSA believes are necessary to meet the realities of the maritime industry.

52.C.121 CARB is proposing what is being called a "single, flexible compliance pathway". Unfortunately, there is nothing flexible about an every vessel/every visit standard for At-Berth controls. As has been demonstrated over the past several years under the current At-Berth Regulation, different ocean carriers have different operational needs. Some ocean carriers may be able to operate under an "every vessel/every visit" structure, assuming that the appropriate exemptions exist and accommodation is made for inevitable vessel redeployments necessary to meet the needs of changing trade flows. Other carriers, because of more diverse operational needs, may need a fleet average approach.

52.C.122 In order to handle these differences, PMSA believes that a different structure is necessary. In addition, an alternative compliance pathway for ocean carriers that would allow the flexibility of a fleet average approach should also be included. In the attachment, PMSA provides two options that build on the ideas presented by CARB staff, but also address questions of how to handle low call vessels and ports. An alternative compliance pathway is also presented that would provide some fleets the necessary flexibility they require and a mechanism to encourage the deployment of cleaner Tier 2 and Tier 3 vessels, alternatively-fueled vessels, early compliance, or more efficient vessels.

52.C.123 The differences between liner and non-liner vessel services are too fundamentally different to accommodate under a single rule or compliance pathway as proposed by CARB. Many non-liner vessels will only call a California port once ever and others so infrequently as to almost never call. To make such vessels comply with California-specific requirements for a single visit or an exceptionally rare visit does not make economic sense, environmental sense, or regulatory sense. There are also practical considerations, if a vessel is allowed an exemption for a commissioning visit, how would that be handled for vessels that call California once ever or that don't make a return voyage for years at a time? The only way that the same regulatory approach could apply to liner and non-liner services equally, would be to apply similar thresholds to both groups of vessels. In the options that PMSA proposes, a threshold would establish which fleet or vessel is subject to the rule.

52.C.124 The "every vessel/every visit" approach also creates problems with regard to the phase-in proposed by CARB staff. As CARB staff acknowledged, how do you implement an incremental phase-in over multiple years for a single vessel visit? The likely answer is that you cannot and that subjecting a vessel engaged in international trade that will visit California only once or rarely to California-specific rules will likely result in cargo diversion that will have its own environmental impacts, as CARB has seen from PMSA's Greenhouse Gas Route Comparison Tool. Another option hinted at by CARB staff is making the terminal operator select which vessels must comply during a phase-in period, but terminal operators have no basis to make such decisions. Further, in some cases the terminal operator may only provide stevedoring services at a public berth and may not have a contractual relationship with the vessel, and in others such a requirement could prove legally problematic. The only way a phase-in period can be successfully accomplished is from an ocean carrier perspective. As recommended in the attachment, a threshold for being subject to the rule will also allow the implementation of a phase-in period.

52.C.125 Finally, as we have seen during the implementation of the existing rule, the unforeseen realities of the maritime industry and waterfront cargo operations have made implementation of the rule difficult. CARB staff has tried to respond to these realities through the use of an "Advisory" on multiple occasions. CARB staff should determine if a mechanism for administrative adjustments to the rule could be incorporated in an effort to "future proof" the rule should new issues arise.

Determining Compliance

52.C.126 PMSA agrees with CARB staff that the checklist approach to determining compliance of an individual visit may be the best approach. Starting with the shared responsibility approach discussed below and in our August 4, 2017 comment letter, a short checklist of best practices necessary to ensure timely connection to shorepower could ensure that all parties work together to for successful implementation of the regulation.

As previously mentioned, ocean shipping is simply too complex for one size fits all and requires an approach with more flexibility than "every visit". Under an alternative pathway that allows fleet averaging, PMSA recommends that CARB measure compliance in the same manner that it uses to calculate emission reductions achieved from the regulation: total time controlled divided by berthing time. Such an approach is both simple and straightforward and consistent with CARB's emissions inventory methodology.

Shared Responsibility

52.C.127 PMSA has many reservations about the implementation of a "shared responsibility" approach. As we previously commented, not all carriers, stevedores, terminals, and port authorities have the same operating and business models, but all public Port authorities are ultimately responsible for all landside infrastructure and Port operations. If this rule expands applicability to every vessel/every visit at all California ports and harbors, it is important to reiterate that CARB is essentially capturing every conceivable commercial waterfront berthing arrangement and business transaction possible, including many at facilities do not have private marine terminal operators. And, even at most facilities where marine terminal operators are tenants of the public port authority, they cannot control any modification or expansion of the shoreside infrastructure that may be necessary to comply, as these are public works infrastructure projects requiring the port authority's direct involvement.

As CARB's presentation acknowledged, many responsibilities may be modified as a result of a contract. The proposed regulation cannot imagine every contractual permutation and should recognize that these requirements lie with the port authority, or more broadly the facility owner (which would also encompass private facilities), unless contracted to a third party. PMSA refers CARB staff to our comment letter of August 4, 2017 (attached) for our proposal on the breakdown of responsibilities.

If a shared responsibility approach is implemented despite these concerns, it must contain two clear components. First, the ocean carrier and the terminal operator should not be held responsible for matters outside their direct control. Second, if a vessel is unable to connect as a result of issues outside the ocean carrier's control, then that visit should still count as a compliant visit in any compliance calculation under the regulation. To not do so, would be to hold the ocean carrier responsible for the actions of others. The regulation should also consider some sort of *Force Majeure* provision. As CARB knows, there can be industry-wide events, such as the labor slowdown of 2014/2015. In such instances, the regulation should be able to provide broad relief to parties experiencing compliance difficulties that are the result of the event.

Alternative Technology

52.C.128 The workshop presentation continues to point to alternative technologies as necessary to the expansion of the rule. In order for alternative technologies to be a viable solution, CARB must address two issues. If such technology is to be a replacement for shorepower under the future regulatory approach, CARB must define the emission reduction parameters that the technology must meet to be considered a replacement. Will current technology meet the requirements of the future rule? If not, what level of emission reduction will be necessary for the technology to be considered viable?

The second issue that CARB must address is feasibility and cost-effectiveness. As stated earlier, CARB has acknowledged in the Sustainable Freight document and Mobile Source Strategy that these technologies are not currently up to par for meeting future regulatory needs, stating that expansion of the rule is dependent on "if the systems prove to be feasible and cost-effective". How will CARB determine whether the technology has become feasible and cost-effective? Finally, PMSA refers CARB staff to our comment letter of August 4, 2017 (attached) for our concerns regarding alterative technology.

Regulatory Criteria

52.C.129 Given its importance to the final structure of the expanded rule, PMSA reiterates the need for CARB to identify the criteria that will inform their development of the rule. Without criteria, the current deviation from adopted CARB policy is arbitrary. The approach is no longer tied to the emission reductions sought as part of mobile source strategy, local air quality needs, technical feasibility, cost-effectiveness, or economic feasibility. CARB staff must identify what criteria will be used to determine the scope of the rule. Criteria must not be developed after the fact to fit the rule sought by CARB staff.

GHG Leakage and Impacts of Diversion Must Be Analyzed

52.C.130 An analysis commissioned by PMSA and conducted by Starcrest Consulting Group demonstrates that emissions of greenhouse gasses (GHG) increase as certain cargo is diverted from West Coast ports. The

GHG increases are dependent on a number of factors including port of origin, port of destination, inland destination and container vessel sizes moving the cargo. As a result, policy proposals to reduce GHGs could have an opposite effect than intended when shippers and cargo owners, in response to increased costs due to regulation, divert cargo from higher-cost West Coast ports to lower-cost East Coast and Gulf Coast ports. The analysis found that GHG emissions may average up to 22 percent higher, when cargo originating from Asia bypasses California ports in favor of ports on the East Coast and Gulf Coast (see attached infographic, a copy of the report has been previously transmitted and is also available on PMSA's website). CARB must analyze the potential impacts of cargo diversion from California. A poorly crafted regulation could result in the loss of business and increase in GHG emissions, while a well-crafted regulation will retain cargo at California ports while reducing emissions.

Conclusion

Again, PMSA and its members wish to thank CARB staff as they continue to work with the maritime industry on these issues. The complexity of the issues will require further significant discussions. PMSA will meet with CARB at any time to discuss these issues at length. If you have any questions, please contact me (562) 432-4043.

Sincerely,

Thomas Jelenić
Vice President

Attachments: PMSA Regulatory Proposal
Greenhouse Gas Route Comparison Tool Infographic
PMSA Response to CARB At-Berth Regulatory Concepts, August 4, 2017

cc: Cynthia Marvin, California Air Resources Board
Elizabeth Yura, California Air Resources Board
Jonathan Foster, California Air Resources Board
Nicole Light, California Air Resources Board

52.C.131

Regulatory Proposal

The concepts below build off the concepts presented by CARB staff at the regulatory workshop. CARB staff presented an "every vessel/every visit" approach. Given the infrequency of some vessel visits, PMSA does not believe an "every vessel/every visit" approach is feasible nor justified. Instead, PMSA proposes a modified approach for fleets (Option 1) or vessels (Option 2) that make sufficient calls to be subject to the regulation. Even such a modified approach cannot meet all of the diverse needs of today's maritime industry, so PMSA also proposes that the regulation contain an alternative pathway that would allow fleet averaging while maintaining a high rate of compliance.

Primary Pathway Option 1: Simplified Fleet Approach

This approach would set a threshold for a fleet to be subject to the rule and set necessary exemptions to allow flexibility.

- Applicable to fleets with "X" or more vessel calls per year to a California port
- Every visit by subject fleet must be controlled (except for exemptions)
- Exemptions would be applicable in certain, limited circumstances. Though not exhaustive, examples include vessel commissioning, vessel redeployment, equipment failure, other unexpected event, and vessels calling California no more than once per year
- Retain the requirement that if a vessel is capable of connecting and it is at a berth capable of connecting, then the vessel must connect
- Redefined berthing time
    - "Berthing Time" (or Visit) means the period that begins when clearance to work the vessel is granted by Customs and Border Protection (CBP), or other governmental agency, and the gangway is down and safety nets secured. Berthing Time (or Visit) ends when the departure Pilot assumes navigational assistance.
- Compliance based on the principle that neither ocean carriers nor terminal operators would be held responsible for actions outside their direct control and determined by checklist of best practices
- Failure to connect that is not the fault of the ocean carrier would be considered a compliant visit for any compliance calculation under the rule
- Eliminate 3 hour/5 hour rules
- Maintain exemption for natural gas-fueled auxiliary engines

Primary Pathway Option 2: Individual Vessel-based Approach

This approach would set a threshold for an individual vessel to be subject to the rule and set necessary exemptions to allow flexibility.

- Require a vessel to be controlled on its X^{th} visit to a California port, but no sooner than 12 months after the first visit.

- Exemptions would be applicable in certain circumstances. Though not exhaustive, examples include vessel commissioning, vessel redeployment, equipment failure, other unexpected event, and vessels calling California no more than once per year

- Retain the requirement that if a vessel is capable of connecting, it must connect

- Redefine Berthing Time
    - "Berthing Time" (or Visit) means the period that begins when clearance to work the vessel is granted by Customs and Border Protection (CBP), or other governmental agency, and the gangway is down and safety nets secured. Berthing Time (or Visit) ends when the departure Pilot assumes navigational assistance.

- Compliance based on the principle that neither ocean carriers nor terminal operators would be held responsible for actions outside their direct control and determined by checklist of best practices

- Failure to connect that is not the fault of the ocean carrier would be considered a compliant visit for any compliance calculation under the rule

- Eliminate 3 hour/5 hour rules

- Maintain exemption for natural gas-fueled auxiliary engines

Alternative Pathway: Fleet-Averaging Approach

This approach would set a threshold for a fleet to be controlled but would allow exemptions to improve flexibility.

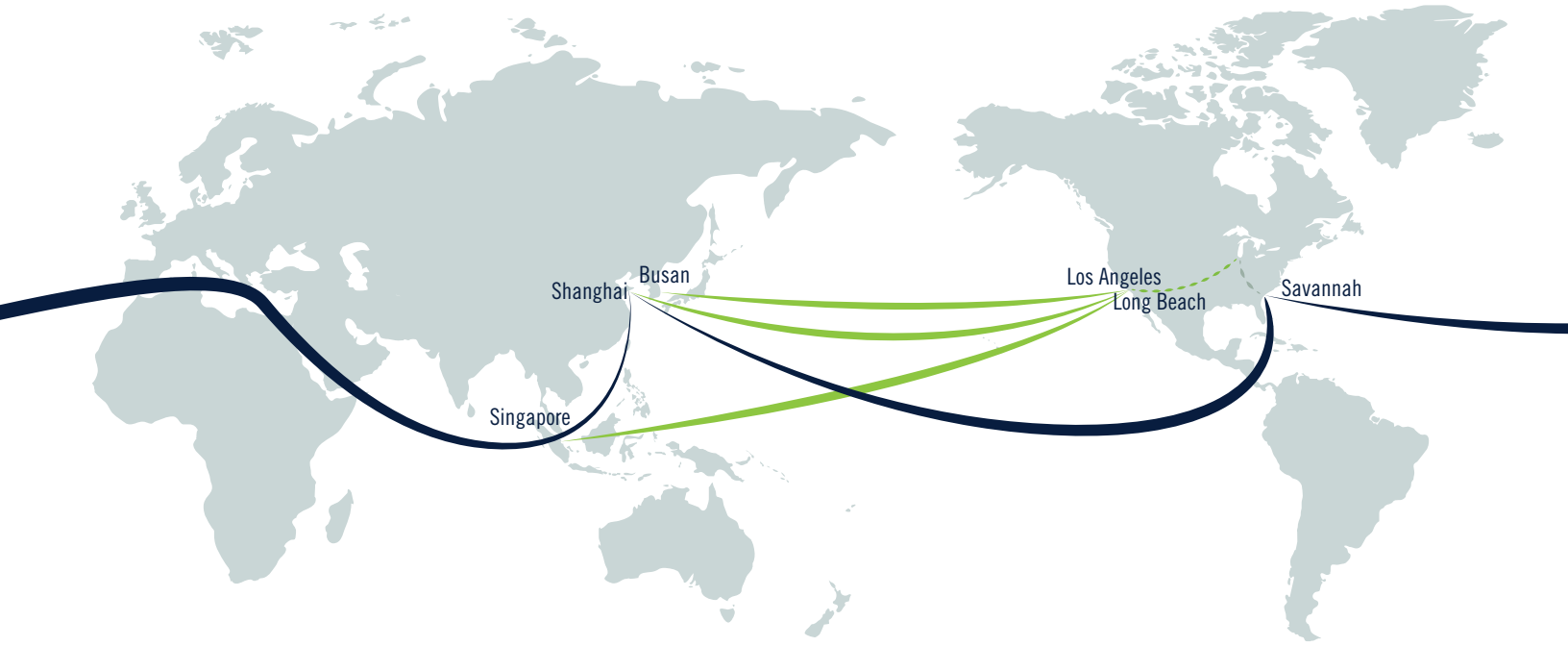
- Allow to fleets with vessels subject to the rule select this compliance option
- Fleet must meet a total time controlled goal of XX%
- Exemptions for commissioning, equipment failure, other unexpected event
- Redefined Berthing Time
    - "Berthing Time" (or Visit) means the period that begins when clearance to work the vessel is granted by Customs and Border Protection (CBP), or other governmental agency, and the gangway is down and safety nets secured. Berthing Time (or Visit) ends when the departure Pilot assumes navigational assistance.
- Compliance based on the principle that neither ocean carriers nor terminal operators would be held responsible for actions outside their direct control and determined by checklist of best practices and meet time-controlled goal as determined by 'total time controlled for all vessels' divided by 'total visit time for all vessels'
- Failure to connect that is not the fault of the ocean carrier would be considered a compliant visit for any compliance calculation under the rule
- Credits to the calculation can be obtained by bringing in Tier 2 or cleaner vessels, alternatively-fueled vessels, more efficient vessels or operations, or early compliance.
- Eliminate 3 hour/5 hour rules
- Maintain exemption for natural gas-fueled auxiliary engines

PMSA
PACIFIC MERCHANT SHIPPING ASSOCIATION

A GLOBAL PERSPECTIVE

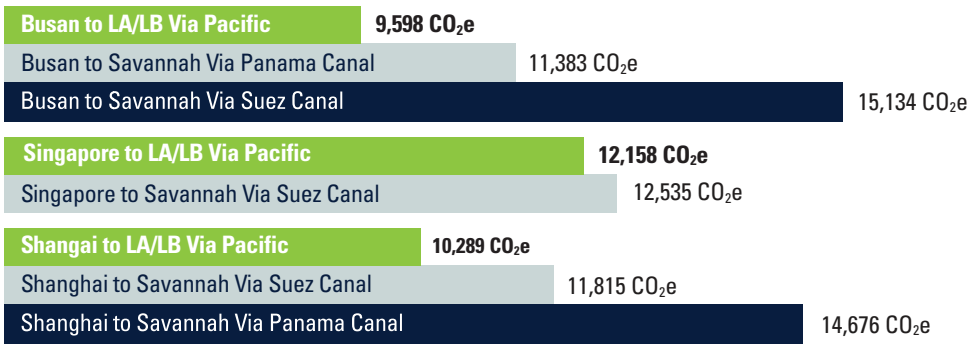
PROPOSED CALIFORNIA POLICIES MAY INCREASE GREENHOUSE GAS EMISSIONS DUE TO CARGO DIVERSION

Ships are the most environmentally-friendly means of moving cargo as they have the smallest greenhouse gas footprint of any transportation mode. California is a destination for cargo thanks to its proximity to Asia. On average, greenhouse gas emissions are **22% higher when shippers bypass a California port** for East Coast or Gulf Coast ports. If California policy proposals do not consider the global impacts of their rules, efforts to reduce GHG emissions in California may have the unintended effect of diverting cargo to other ports.



22%

BYPASSING WEST COAST PORTS IN FAVOR OF EAST AND GULF COAST PORTS WOULD INCREASE EMISSIONS BY 22% ON AVERAGE



As calculated from the Starcrest Greenhouse Gas Route Comparison Tool. The emissions presented in this comparison are estimates of emissions that would result from the diversion of 10,000 TEUs across a string of 8,000-TEU vessels for illustrative purposes.

1 California ports are the most direct route to inland U.S. destinations. Using California ports delivers jobs and prosperity to our communities. It also results in the lowest carbon footprint. **Moving cargo through an East Coast port to Chicago instead of a California port could increase emissions 86%.**

2 Policies that make California ports uncompetitive will drive cargo to other gateways and increase greenhouse gas emissions. **Cargo that moves through a Gulf Coast port instead of a California port on its way to Memphis could increase greenhouse gas emissions by 47%.**

3 California ports have not experienced growth in the past decade and have lost market share to East Coast and Gulf Coast ports. **If California ports had maintained their previous market share from 2006, more than FIVE HUNDRED THOUSAND metric tons of GHG emissions would be avoided annually.**

PMSA Comments on CARB Proposed At-Berth Regulation Amendment Concepts, August 4, 2017

PMSA
PACIFIC MERCHANT SHIPPING ASSOCIATION

August 4, 2017

Angela Csondes
California Air Resources Board
1001 'I' Street
Sacramento, California 95812

Submitted Electronically to angela.csondes@arb.ca.gov

Comments on CARB Proposed At-Berth Regulation Amendment Concepts

Dear Ms. Csondes:

On behalf of PMSA and its members, I would like to thank California Air Resources Board (CARB) staff for considering comments on the proposed regulatory amendment concepts. This rule and others CARB is considering will directly impact the competitiveness of California's maritime industry. As you know, the cargo growth in California has stagnated for the past decade; while CARB's projections called for doubling of cargo volumes at our Ports by 2020, we have actually been losing market share, experiencing no growth while ports around the country have grown strongly. As a result, PMSA puts forward the following thoughts on the proposed regulatory framework in the hope that CARB arrives at a rule that is flexible, predictable, and fair, in order to support the state's environmental goals in a manner which also supports the renewed economic competitiveness of California's maritime industry.

52.C.132

The At-Berth Regulation is complex and unlike any other regulation promulgated by CARB, and, in that it directly regulates the highly varied logistics activity of internationally-flagged ocean-going vessels, is also unique worldwide and unlike any other regulation promulgated by any other public agencies. As such, while we understand that CARB staff has direction to return to their Board with regulatory concepts in just over one year, PMSA asks that CARB staff place the substantive requirements of rule development, and the supporting analysis, above meeting an arbitrary fixed schedule for rule finalization. This rule and others CARB is considering will directly impact the competitiveness of California's maritime industry. PMSA is committed to continuing our current positive working relationship with CARB staff to ensure that this rulemaking process is done as thoroughly and thoughtfully as possible and with the most efficient and cost-effective results.

52.C.133

Proposed Amendment Structure

We are pleased to see that CARB staff is proposing to eliminate the 3-hour rule. The 3-hour rule created substantial compliance problems due to its lack of accommodation for many factors outside the ocean carrier or terminal operator's control. In its place, CARB is proposing to measure compliance on an individual vessel basis. In concept, the proposal provides an opportunity to simplify compliance and reporting. However, staff has also proposed an, as yet undefined, emission reduction threshold for each visit. PMSA is concerned that, depending on how it is structured, such a threshold would duplicate the problems of the existing 3-hour rule through the creation of a variable connection window requirement. This threshold, which would vary by vessel by visit, would be far harder to administer. If the threshold

52.C.134

were based on emission reductions from a hypothetical baseline, every vessel would have a unique maximum connection/disconnection period allowed based upon the hypothetical baseline, auxiliary engine size/load, and forecast berthing time. This would make planning and compliance a nightmare for the regulated community, as well as for CARB.

52.C.135 If such a proposal moves forward, it should be with fleet-wide averaging, not on a single vessel visit. The challenge of determining compliance on a real-time basis would be extremely challenging on a per-vessel visit. Such an approach would also make compliance for short vessel calls nearly impossible. Alternatively, a vessel visit approach could be successful if it were based on a checklist of best practices to determine compliance. In such a way, every vessel would be treated equally. This approach would also provide a clear methodology to avoid the arbitrary penalties that everyone agrees are unworkable under the current 3-hour rule. PMSA would also propose that in the interest of simplicity, that a fleet-averaging approach be based on the time connected to control technology based on a regulatory (e.g., 80% in 2020). Such an approach would be easy to measure and maximize emission reductions.

Visit Definition

52.C.136 PMSA appreciates that CARB staff is revisiting the definition of berthing time. In order to address the many issues that have been discussed, PMSA proposes the following definition:

> "Berthing Time" (or Visit) means the period that begins when clearance to work the vessel is granted by Customs and Border Protection (CBP), or other governmental agency, and the gangway is down and safety nets secured. Berthing Time (or Visit) ends when the departure Pilot assumes navigational assistance.

Updated Baseline

52.C.137 CARB staff has proposed updating the hypothetical baseline from Tier 0 to Tier 1. PMSA opposes this approach. Changing the baseline ignores the reductions that industry has achieved. In addition, measuring from a hypothetical baseline rather than a simpler metric such as emissions reduced or hours connected needlessly complicates reporting. Finally, because the At-Berth regulation is an operational control measure, it should not set different operational controls for different vessels. It will complicate compliance and create confusion.

Exemptions & Exemption Fees

52.C.138 PMSA supports the idea of providing exemptions from controlling emissions in some cases. For instance, both commissioning and re-commissioning of vessels is required by the international standard and often enforced by port authorities. The regulation should provide a clear exemption for these and other mandated activities. In general, fees should not be assessed for actions that ocean carriers do not have discretion over. Exemptions should also address other issues outside the ocean carrier's control, including failure by the utility to provide power or failure by the port to maintain port-wide electrical infrastructure.

52.C.139 One consequence of moving to an every visit approach from a fleet averaging approach is that there is no opportunity to address vessel redeployments and drydocking without penalty. The dynamic nature of the maritime industry means that vessels will be rotated into and out of California service due to changes in trade flows or the need to drydock a vessel. Bringing a replacement vessel into California service will necessitate retrofitting the vessel. As such, CARB should provide an exemption for the initial visit of a vessel rotated into California service.

52.C.140 In other cases, exemption fees in the proposed regulatory concept provide flexibility in the constantly changing maritime industry. Equipment failures are a reality. In addition, such fees provide an opportunity to more quickly level the regulatory playing field between those that are unable or unwilling to comply and the vast majority of ocean carriers that are in compliance.

52.C.141 Initial exemption fees should be moderated to reflect the dynamic nature of the industry and the necessary fleet changes and changes in world-wide trade flows. CARB should consider a structure for "exemption fees" that reflect the ability to mitigate the inability to connect to shoreside power. As discussed later, alternative technologies, like bonnet systems, are not available in all ports and a very limited number of such systems are in existence. The "exemption fee" could reflect whether an alternative technology system was available for use or not in determining fee amount (i.e., a higher fee when such a system is available and compatible but not used versus a lower fee when a compatitable system is not available).

52.C.142 If CARB retains a "fleet average" approach as PMSA recommends, CARB should explore the use of the "fee exemption" as means of addressing the same connections issues by allowing the use of the fee to remove the applicable visit from the fleet average calculation.

Shared Responsibility

52.C.143 PMSA and its members agree that there can be shared responsibility for compliance under the At-Berth Regulation. However, that shared responsibility must reflect the history of the rule, the role of port authorities, and decision by CARB to initially bifurcate the compliance pathway resulting in the industry overwhelming selecting electrification as the compliance option. This will be especially important as CARB extends this rule beyond the discrete applications of container ships, cruise ships, and refrigerated ships. Not all carriers, stevedores, terminals, and port authorities have the same operating and business models, but all public Port authorities are ultimately responsible for all landside infrastructure and Port operations. To the extent that this regulation intends to create new landside liabilities and responsibilities, it should not seek to further limit, isolate, or pick winners and losers between particular landside operating models.

These amendments must also be mindful of the fact that the largest and most glaring obstacle to compliance at present is not a lack of preparation by ocean carriers, or operating restrictions by terminals and stevedores, but it is the inadequate infrastructure necessary to meet compliance with the existing rule. Under the current rule, this will become acute in 2020, much and once fleets are required to meet an every vessel/every visit standard, as proposed in the new regulatory concept, the infrastructure deficiency will be an unavoidable barrier to compliance.

Before trying to write a rule to address the many variable market dynamics of the ever-changing maritime industry, CARB should identify the fundamental responsibilities of infrastructure. Shoreside electrical infrastructure is public infrastructure constructed and owned by the port authority and either operated directly by the port authority, or a public utility, or a marine terminal subject to a lease, or some combination of these and other relationships, contracts and agreements.

As this rule is intended to be expansive to all commercial vessels at all California ports and harbors, it is critical to note that many facilities do not have private marine terminal operators. And, even at most facilities where marine terminal operators are tenants of the public port authority, they cannot control any modification or expansion of the shoreside infrastructure that may be necessary to comply, as these are public works infrastructure projects requiring the port authority's direct involvement. As such, while Port authorities may choose to enter into contracts with stevedoring and marine terminal operators, these will vary from port to port and terminal to terminal. Therefore, if CARB intends a provision of this Rule to apply to landside infrastructure and operations, it should be designated as the responsibility of a port authority. However, PMSA would also note that nothing in this proposed Rule should impose new and distinct requirements on ports that would prohibit them from agreeing to manage the infrastructure or conduct their operations through a third party, either by lease or contract.

Below is the maritime industry's proposed framework for responsibility under the amended rule. As current infrastructure is inadequate to meet future regulatory needs, it is important that these responsibilities be set out clearly.

52.C.144

Ocean Carrier

- Maintain with the Port Authority (or its third party private terminal operator) an up-to-date *pro forma* vessel schedule, which would include vessel arrival time, vessel size, method and point of connection
- Provide a vessel capable of connecting to shoreside power or, for vessels not fitted to receive shoreside power, the Ocean Carrier shall arrange for the use of a CARB-certified alternative technology
- Advise the Port Authority (or its third party private terminal operator) of the operating requirements and specifications of the equipment on its vessels that will receive electrical power transmitted from shoreside facilities to the vessels.
- Equipment provided by Carrier shall be capable of protecting itself against damage in the event of a malfunction of the Port Authority's equipment.

Port Authority

- Provide sufficient shoreside infrastructure capable of providing electrical power compatible with International Electrotechnical Commission ("IEC") standard 80005-1
- In the absence of sufficient shoreside infrastructure, Port Authority shall provide sufficient equipment to extend connection points (e.g., cable management systems) or provide CARB-certified alternative technology
- Provide, as necessary and in conjunction with any third party private terminal operator if applicable, any qualified personnel required to complete the shoreside power connection

- Maintain shoreside electrical equipment as necessary and in conjunction with any 3rd party private terminal operator if applicable
- Confirm availability of berth or necessary equipment to connect Ocean Carrier's vessels based on *pro forma* schedule at the time of receipt of the *pro forma* schedule

52.C.145 As you know, PMSA has raised many times the issue of inadequate infrastructure causing most instances when a vessel is unable to connect. The infrastructure, designed and constructed by the port authorities, is rigid and based for a fleet that has substantially changed. Without substantially more infrastructure or tools that make the existing infrastructure more flexible, like cable management systems, the rule will need to provide allowance for prior port delays, weather delays, or other factors that are outside the control of the Ocean Carrier or Marine Terminal Operator and result in inaccessible shorepower connections.

52.C.146 As every port and every marine terminal within a port is unique, the infrastructure issues will need to be resolved case-by-case. If a port authority is unable or unwilling to install additional infrastructure, other solutions may be possible to implement, such as cable management systems that extend the reach of the shoreside power receptacle. To that end, CARB, in conjunction with the ports and maritime industry, should assess the need for additional infrastructure at California ports to address the ability of Ocean Carriers to meet future compliance levels. Such an assessment would also inform whether the shift to 100% compliance by 2022 is achievable.

Other Vessel Categories & Ports

52.C.147 PMSA is deeply concerned by the proposed expansion of the At-Berth Regulation to other vessel categories. The proposed amendments would also expand the regulation to currently unregulated vessel types. The impact to non-liner services, especially in small ports, will potentially be devastating. In the absence of the scheduled service that is the mainstay containerships, other vessel types can visit any port that provides the most cost-effective service, and the commodities they often carry are extremely price sensitive. In comparison, the hoteling emissions from non-liner ships are relatively small, in line with their much smaller auxiliary engines.

Despite being verified by CARB, the existing technologies are not mature. Making other vessel categories captive to start-up companies will create regulatory and business uncertainty in California. Along with potential economic impacts (discussed further below), price sensitive break bulk, dry bulk, and ro-ro vessels could stop calling California ports. The bulk commodities in particular have very small profit margins and very competitive global markets. California's agricultural industry would be heavily impacted. In addition, most ports in California do not have the financial wherewithal to provide the necessary shoreside infrastructure in relation to the level of maritime business that they service.

Alternative Technologies

52.C.148 The creation of a single compliance pathway will ease the way for the use of alternative technologies. However, the bifurcated pathway of the original rule drove ocean carriers to invest hundreds of millions of dollars to accommodate successful electrification of their vessels – an outcome that was intended and supported by CARB. The availability of alternatives under the regulation should not be used as a reason for port authorities to avoid the construction of additional shoreside infrastructure or to create a

stranded asset problem or to put those carriers who have invested the money to comply with the existing rule at a further competitive disadvantage in the marketplace.

The use of alternative technologies should be viewed as a way to accommodate vessel redeployment or vessels not already outfitted for shoreside electrification equipment. The first goal of the regulation should be to ensure that port authorities have provided sufficient infrastructure in their ports. Failure to provide sufficient shoreside infrastructure should not result in the ocean carriers facing non-compliance and ocean carriers that have elected to retrofit their vessels for shorepower should not be obligated to shoulder additional costs for alternative control technologies. Additionally, alternative technologies also have the potential to exacerbate berth congestion/misalignment issues that terminals and vessels contend with. Some thought will need to be given for conflicts that could arise from using different technologies at the same facility.

Of course, for some of the smaller ports with infrequent vessel calls, alternative technology paths may be the only viable option for compliance. These situations must be directly and fully analyzed and unnecessary costs must be avoided.

Alternative Compliance

52.C.149 One of the limitations of the existing rule is its lack of flexibility and ability to only reduce emissions at berth. An alternative compliance pathway would have the potential to expand the possible scope of emission reductions. The goal of an alternative compliance plan would be to increase flexibility by allowing vessel operators to enter into a voluntary agreement with CARB to reduce emissions using methods beyond those envisioned by the At-Berth Regulation.

For example, ocean-going vessels are responsible for emissions while transiting to ports, anchoring while waiting for a berth, and at berth. Transiting emissions represent a significant opportunity to reduce emissions as compared to other modes of vessel emissions. As a result, it may be possible to reduce emissions significantly from transiting to offset some portion of the required at berth emission reductions, and achieve these results in a much more cost-effective manner. Additionally, a plan that allowed for a voluntary agreement of reductions between ocean carriers could incentivize the reduction of some near-community emissions (and risk reduction) to provide offsetting reductions for other sources further from communities.

Such an alternative compliance pathway should consider the vessel's engine tier, improved vessel efficiency (e.g., as achieved through larger vessels), cleaner than required fuels, engines with lower verified emissions factors, improved cargo operations (e.g., as demonstrated through reduced berth time) and reduced vessel speeds. Surplus reductions achieved through a voluntary compliance pathway could be tracked and used in a mechanism similar to the existing rule's Fleet Emission Credit. An alternative compliance pathway has the potential to incentivize the use of higher tier vessels, the deployment of scrubber systems, and induce operational changes that could have substantial impacts on air quality.

Economic Analysis & Cost effectiveness

52.C.150 PMSA believes that it is important that CARB conduct a thorough economic analysis and evaluation of cost-effectiveness of the proposed rule. The escalation in costs for the proposal will be significant and in excess of the criteria to make this a regulation of significant economic impact to the state. For those already regulated under the rule, adequate infrastructure does not exist to support shorepower for every vessel/every visit. Tens of millions of dollars will need to be spent to add infrastructure, cable management systems, or alternative control technologies.

52.C.151 Cargo has been diverted from west coast ports for the past decade as evidenced by declining market share and strong growth of east coast and gulf coast ports (see attached chart). This is especially important because CARB's economic projections of future container growth at the time of the adoption of the current At-Berth Regulation were exceptionally aggressive, and relied on assumptions that cargo through California's container ports would double by 2020. Our industry is woefully underperforming when compared to these economic forecasts which were used to underpin the existing program's cost-effectiveness and cost-benefit analyses. Revising such rosy scenarios to reflect current conditions in the new economic analysis is crucial for an accurate representation of the regulation's true costs.

52.C.152 As part of CARB's cost-effectiveness and economic analysis, CARB should also analyze the environmental impacts of diversion. Cargo moved through east coast and gulf coast ports will have a higher greenhouse gas footprint than cargo moved through west coast ports. It is important that any regulation does not reduce California greenhouse gas emissions by increasing them elsewhere. Any proposal resulting in cargo diversion would cause California to lose twice: economically and environmentally. Diversion is even more likely for non-containerships.

For all of these reasons, PMSA hopes that CARB will start the first working group meeting on the economic implications that CARB staff previously proposed as soon as possible. PMSA and its members plan to be active members in that working group and any others that CARB convenes on this regulation.

52.C.153 "Every Vessel" Standard and "Up To 100%" Goals and Aspirations

PMSA understands that the CARB Board has given "direction to staff" to seek "up to 100%" emissions reductions as a result of revised At-Berth Regulations. This is an ambitious goal, but one that gives the CARB staff sufficient discretion to explain what level of an aggressive compliance standard of less than 100% is most realistic and achievable. We believe that this does not require CARB to propose an "Every Vessel" standard, and that as a matter of practicality, CARB staff should avoid starting a discussion on setting the new at-berth regulatory discussion with an "Every Vessel" standard. We would recommend that instead of establishing this standard out of the gate, that the final goal for these proposals should initially be listed as "up to 100%" exactly as contemplated by the Board's direction to staff. This will give CARB staff, industry, ports, and the public the opportunity to talk about what the most realistic regulatory standards should actually be during the rule development process. Nothing in the real world is 100% effective or implementable and even if that is a worthy aspirational goal, it is not a realistic regulatory standard, making this a difficult specific starting point for the informal rulemaking. This would be true for a regulatory proposal that impacted a non-economically dynamic, entirely local industry that was controlled by domestic interests. For an industry that will require substantive capital improvements to mobile assets, subject to coordination of multiple layers of tremendously expensive

infrastructure across multiple infrastructure providers, it would still be unrealistic to project levels of 100% emission reductions. Even if 100% compliance is achieved, 100% emissions reductions will not be in any real world application of a rule. We would highly encourage that CARB staff avoid the initial informal rulemaking documents set the wrong expectation and tie your hands to a level of emissions reduction which will not be realistically achievable.

Conclusion

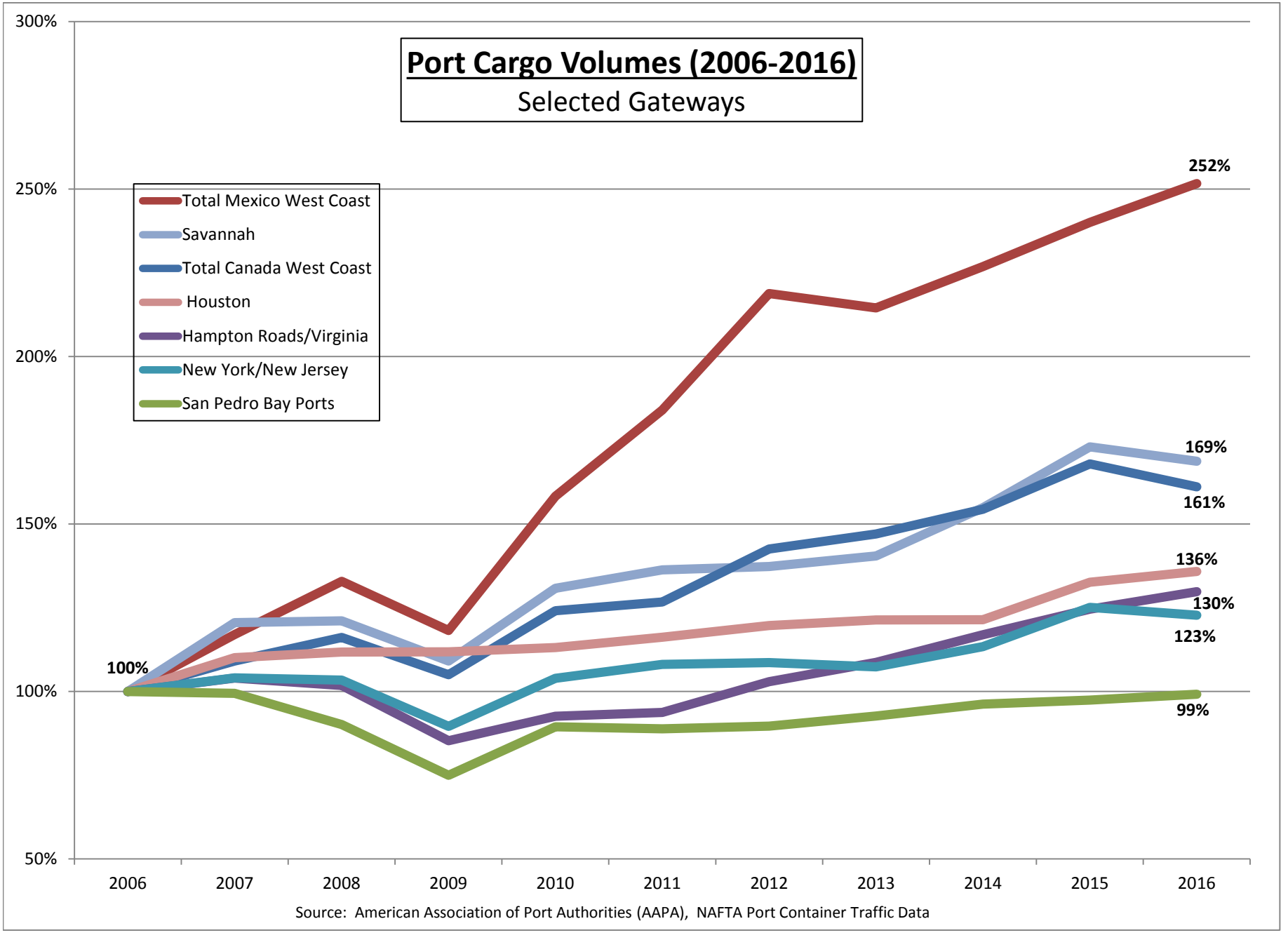
Again, PMSA and its members wish to thank CARB staff for taking the time to discuss these issues. The complexity of the issues will require further significant discussions. PMSA will meet with CARB at any time to discuss these issues at length. If you have any questions, please contact me (562) 432-4043.

Sincerely,

Thomas Jelenić
Vice President

Attachment

cc: Cynthia Marvin, California Air Resources Board
Elizabeth Yura, California Air Resources Board
Jonathan Foster, California Air Resources Board
Nicole Light, California Air Resources Board


Port Cargo Volumes (2006-2016)
Selected Gateways
Total Mexico West Coast
Savannah
Total Canada West Coast
Houston
Hampton Roads/Virginia
New York/New Jersey
San Pedro Bay Ports
300%
250%
200%
150%
100%
50%
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
100%
252%
169%
161%
136%
130%
123%
99%
Source: American Association of Port Authorities (AAPA), NAFTA Port Container Traffic Data

Attachment D:
Alternative Proposal for
Amendments to At-Berth Regulations
February 15, 2019

February 15, 2019

52.C.154

Cynthia Marvin
California Air Resources Board
Delivered via email to Cynthia.marvin@arb.ca.gov

Re: Alternative Proposal for Amendments to At-Berth Regulations

Dear Ms. Marvin:

Thank you and all of the ARB staff for giving us the opportunity to develop an Alternative Proposal for moving forward with Amendments to the At-Berth Regulations for Oceangoing Vessels. We are pleased to present this Alternative Proposal to you today.

As you and your team are well aware the existing regulations on vessels at-berth within the container, cruise, and refrigerated sectors of the maritime industry have resulted in significant levels of emissions reductions well in excess of predictions, created a tremendous and globally unprecedented level of private and public investment in vessel fleets and on-shore cold-ironing infrastructure, and the rule is still being phased-in, with even stricter compliance on the horizon starting in 2020.

The Alternative Proposal builds on this strong foundation to increase compliance and expand the current rule into currently unregulated sectors. It consists of provisions meant for immediate action to address compliance issues for currently regulated fleets and outlines the next steps necessary to evaluate the basis upon which additional investments may or may not be justified in addressing the emissions of vessels while at berth.

The Alternative Proposal is a true compromise document that took two months of negotiation amongst all the parties to craft. It represents a result that is as close to consensus as possible about the best way to boost and improve compliance within the existing regulations and set a true foundation for a discussion on how, if, and when to further reduce emissions from vessels at-berth in the near future. As a true compromise document, none of our signatory organizations or their memberships agree with every aspect of the Proposal, but all of the signatory organizations commit their resources and attention to working with CARB to improve the current regulation for existing regulated fleets and facilitate the process for evaluating future rule expansions consistent with the principles described here.

We very truly look forward to immediately improving the current rule and working to achieve the most cost-effective and successful future emissions reductions from the waterfront as possible.

Sincerely,

California Association of Port Authorities
Pacific Merchant Shipping Association
World Shipping Council
Cruise Lines International Association
Western States Petroleum Association

2019 At-Berth Regulation - Alternative Proposal

Executive Summary

All signatory parties to this Alternative Proposal share the California Air Resources Board (CARB) goal of reducing health impacts related to waterborne-related goods movement emissions impacting local residents. We would like to thank CARB staff for the opportunity to develop the following Alternative Proposal as we are moving forward with Amendments to the At-Berth Regulations for Oceangoing Vessels and are pleased to present the following.

Existing at-berth regulations have resulted in significant emissions reductions well in excess of original agency projections. This success has resulted from the collaboration of many key public and private stakeholders, and has included an unprecedented level of worldwide investment in vessel fleets and shore-side power infrastructure. This Alternative Proposal establishes additional compliance procedures for the current Shore Power Rule as the last emission reduction target is reached in 2020, while offering a path forward toward potential increased emission reductions from existing and new vessel classes in the years to follow.

Highlights

- Requires that every shorepower-equipped vessel plug-in while at a berth which is able to provide shoreside power to that vessel;
- Is consistent with the emissions reductions goals set by CARB staff proposal;
- Improves and streamlines compliance methodologies for currently regulated fleet;
- Expands regulatory framework to include reporting requirements and evaluation benchmarks for currently unregulated vessels;
- Creates new compliance and reporting requirements for ports and marine terminal operators;
- Establishes a feasibility and cost-effectiveness framework for evaluating potential new shore power requirements and infrastructure needs;
- Reinvests non-compliance fees in new Port infrastructure or waterfront emissions reductions; and
- Establishes prioritization dialogue for investment of private and state Incentives dollars.

This Alternative Proposal builds on California's strong regulatory foundation for reducing vessel emissions while at berth. It outlines a program that will increase compliance and bring currently unregulated vessels into the regulatory framework.

All of the signatory parties commit to continuing this dialogue and to serious consideration of amendments to create and perfect an achievable rule and set of standards that meet the needs of industry, the state, and local public health interests.

Background – Current Regulatory Benefits and Industry Achievements

CARB currently administers the world's most comprehensive At Berth ocean-going vessel regulation. At the time of its adoption this rule was predicted to result in tremendous, unprecedented air quality benefits and also billions of dollars of new investments in vessel and port electrical infrastructure. Under the current At-Berth regulation, CARB staff estimated (in the original 2007 ISOR) that:

- "… the proposed regulation would reduce hoteling diesel PM and NOx emissions from container ships, passenger ships, and refrigerated cargo ships by 50 percent and 75 percent relative to levels expected to be emitted in 2014 and 2020, respectively." (pg. 14)

- "…approximately 1,100 tons of diesel PM and 61,700 tons of NOx will be removed from California's air between 2006 and 2020 due to the implementation." (pg. 15)

- "For the container-ship category, the regulatory period is 2009-2030 to account for ship turnover. Total emissions reductions to 2030 are 2,600 tons of diesel PM and 140,000 tons of NOx." (pg. 16, Table 4)

- "In addition, hoteling CO2 emissions are expected to be reduced by 122,000 to 242,000 metric tons in 2020." (pg. 14)

- "… total statewide costs for affected businesses and port authorities to comply with the proposed regulation to be approximately $1.8 billion, in 2006 dollars." (pg. 21)

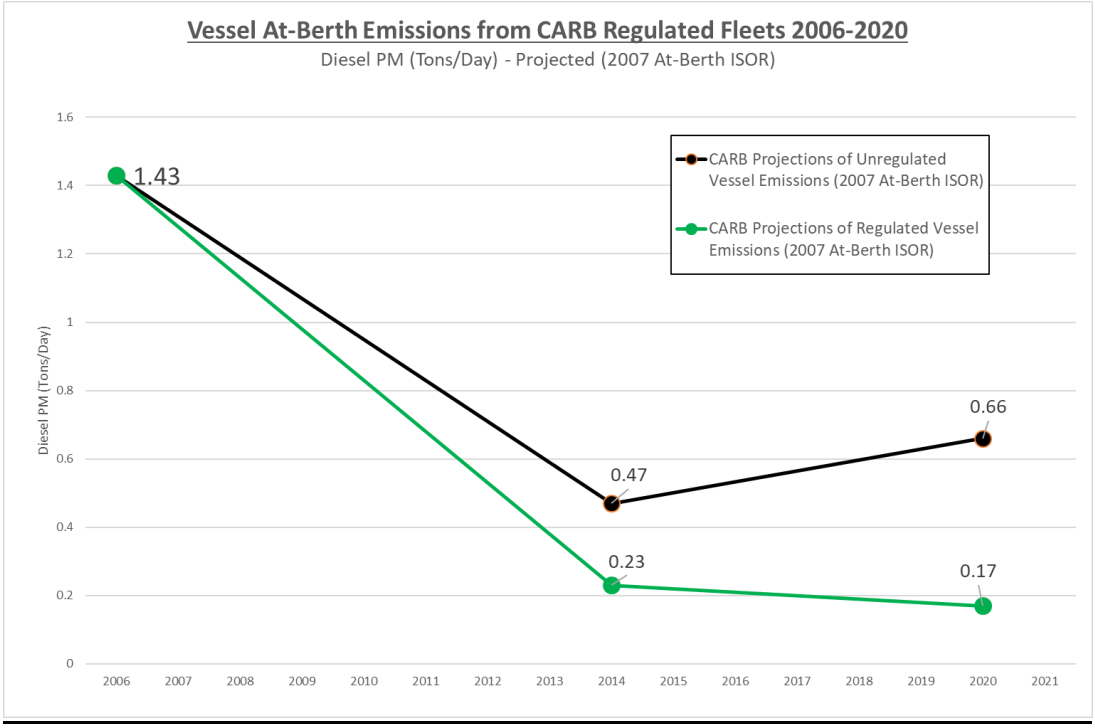
- "Annually, the costs are expected to vary from $30 million to $137 million. … the high end of the range represents a year when capital expenditures are being made for shoreside infrastructure and for retrofitting a considerable number of ships to meet the 2020 milestone." (pg. 21)

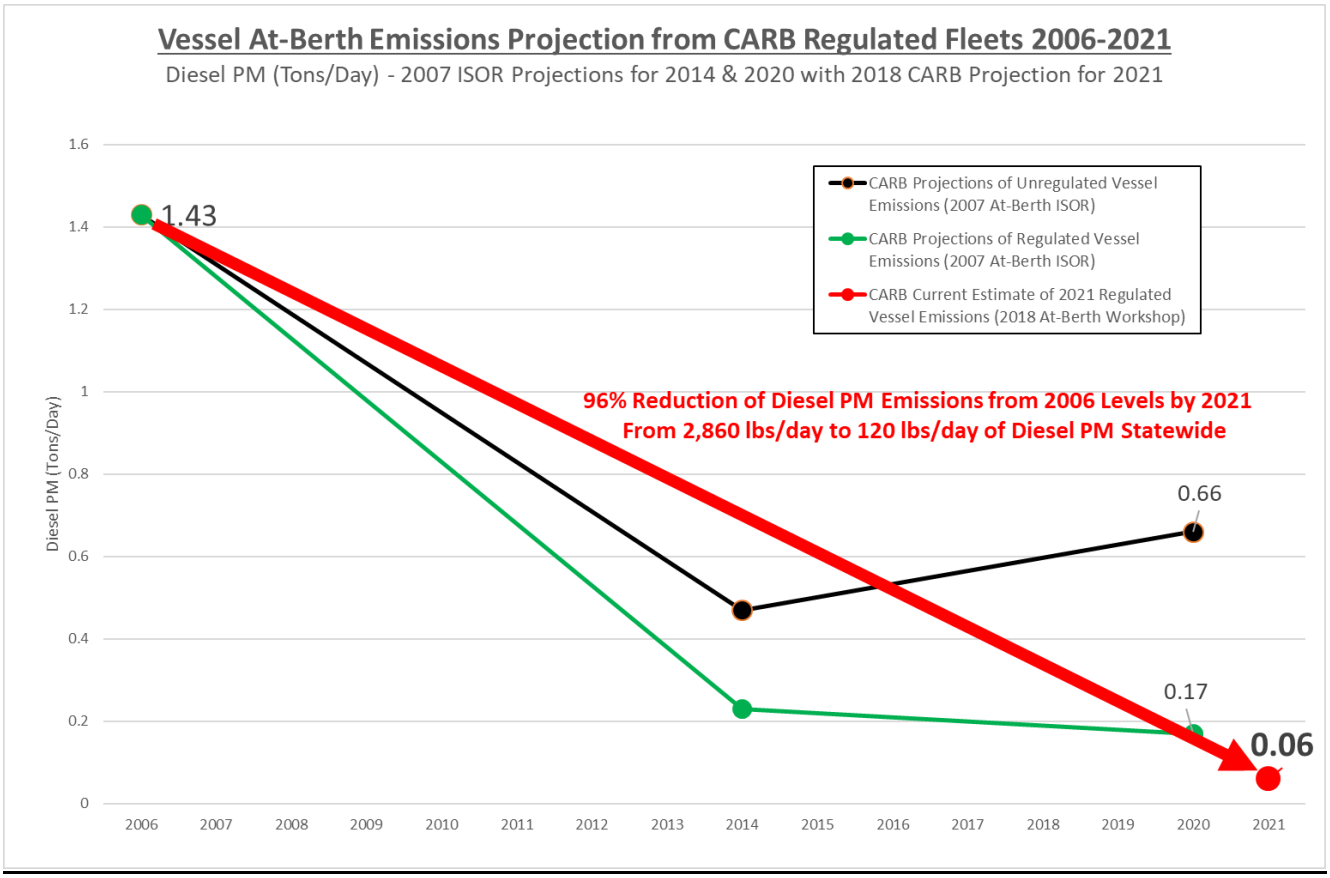
- "The total costs to a typical ship company complying with the proposed regulation, including capital and ongoing costs are estimated to be about $34 million. This cost would be distributed over the years 2009 to 2020 for passenger ship companies and reefer ship companies and to 2030 for container ship companies." (pg. 21)

- "Similarly, the total costs to a typical terminal operator complying with the proposed regulation, including capital and ongoing costs, are estimated to be about $11 million. … With 31 terminals and 35 vessel fleets affected by the proposed regulation, the costs to a typical business would be $26 million." (pp. 21-22)

- "The costs to be expended by the port authorities to add shore-power equipment to their facilities ranges from $4 million to $86 million. … Staff assumes that the landlord ports will work with their tenants, the terminal lessees, to provide the shoreside infrastructure necessary to meet the requirements of the proposed regulation. Furthermore, staff assumes that the landlord ports will eventually recover their capital costs through modifications to terminal leases, while the non-landlord ports will recover their capital costs through fees collected from the carriers." (pp. 22-23)

The results of the current rule and the resulting estimated $1.8 billion investment by the regulated components of the maritime industry have been impressive – with total Diesel PM projected by CARB staff to be reduced by 96% since 2006 in 2021. (see below charts based on CARB data, Attachment A)


Vessel At-Berth Emissions from CARB Regulated Fleets 2006-2020
Diesel PM (Tons/Day) - Projected (2007 At-Berth ISOR)
Diesel PM (Tons/Day)
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
1.43
0.47
0.23
0.66
0.17
CARB Projections of Unregulated Vessel Emissions (2007 At-Berth ISOR)
CARB Projections of Regulated Vessel Emissions (2007 At-Berth ISOR)


Vessel At-Berth Emissions Projection from CARB Regulated Fleets 2006-2021
Diesel PM (Tons/Day) - 2007 ISOR Projections for 2014 & 2020 with 2018 CARB Projection for 2021
Diesel PM (Tons/Day)
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
1.43
0.66
0.17
0.06
96% Reduction of Diesel PM Emissions from 2006 Levels by 2021
From 2,860 lbs/day to 120 lbs/day of Diesel PM Statewide
CARB Projections of Unregulated Vessel Emissions (2007 At-Berth ISOR)
CARB Projections of Regulated Vessel Emissions (2007 At-Berth ISOR)
CARB Current Estimate of 2021 Regulated Vessel Emissions (2018 At-Berth Workshop)

Alternative Proposal Overview

The Alternative Proposal establishes a path forward to increase compliance and continue to ensure further emission reductions from vessels while at-berth in California ports. The Proposal includes measures to ensure compliance and emissions reductions consistent with current CARB emissions goals, expand investments in port infrastructure, and increase vessel compliance.

CARB currently regulates Container, Passenger and Refrigerated vessel fleets and the ports they visit. CARB has also determined currently unregulated vessel fleets include Ro-Ro, Auto Carrier, Liquid Bulk and Tanker vessels and the ports they visit.

Improves the Currently Regulated Vessel Program

The following outcomes will be assured through a series of amendments to the existing rule:

- Improves and streamlines compliance methodologies for the currently regulated fleet in 2020.
- Creates new compliance and reporting requirements for ports and marine terminal operators.
- Requires that when a terminal is able to provide shorepower to a shore power-equipped vessel that the vessel must plug-in while at berth, subject to exceptions or exemptions.
- Reinvests non-compliance fees in new Port infrastructure or waterfront emissions reductions.
- Prioritizes cost-effective investment of private and CARB Incentives dollars.
- Establishes a consensus regulatory framework for the evaluation of future rule expansions.

With respect to currently Regulated Vessel Fleets and Ports, the Alternative Proposal would update and improve current vessel compliance mechanisms applicable immediately to the 2020 fleet requirements, establish new and expanded marine terminal and port compliance requirements, and create a framework for new investment in at-berth infrastructure.

With respect to currently Unregulated Vessel Fleets, these fleets would be included in the amendments as well. The Alternative Proposal would establish reporting compliance methodologies and evaluation benchmarks consistent with the current staff proposal for Bulk vessels for all vessel types and meet all of CARB's SIP requirements, the Climate Change Scoping Plan, and the AB 617 Blueprint.

Builds a Framework to Include Future Vessel Types and Fleets

During the November 2018 work sessions held with the Industry Coalition and its members, CARB indicated that to be viable, an Alternative Proposal should at least meet and achieve the following principles:

- Emissions reduction goals of the current CARB staff proposal must be met
- All parties to a successful at-berth connection must have substantive roles to play in the new regulatory framework for the currently Regulated Vessel Fleets: vessels, marine terminal operators, ports, and equipment providers.
- If a "check-list" approach is applied to currently Regulated Vessel Fleets, non-compliance must have consequences.
- Vessel Fleet rules should not include complicated credit or trading schemes.

Alternative Proposal – Substantive 2020 Effective Amendments
*All provisions **E**ffective Immediately upon Adoption at December 2019 CARB Board Meeting*

FOR CURRENTLY REGULATED VESSEL FLEETS AND ASSOCIATED TERMINALS and PORTS:

- CONNECTING EQUIPPED VESSELS – When a Shorepower-Equipped Berth is available and able to safely Connect a Shorepower-Equipped Vessel, the connection must be made.
  No time-based rules (including 3&5-hour rule). Commissioning is presumed to be a Connection. Use updated definitions for vessel connected, plugged, and able to work.

- PORTS and MARINE TERMINALS ARE REQUIRED TO PLAN & REPORT – all Ports and Marine Terminal Operators must comply with recordkeeping, reporting rules and submit Terminal Plans with subsequent updates beginning in 2021 for currently regulated fleets. Updates must include description and timeline of all infrastructure installations planned at specific-berths.

Accelerated Transition to New Requirements & Improve Compliance Over Current Rule

- Enforce Vessel Fleet Compliance against Vessel Compliance Checklist (to be developed)
  Vessel Fleet Compliance would be determined on an Annual Fleet-Average Basis by Port
  2020 – 80% compliance w/ checklist
  2031*– 85% compliance w/ checklist *(dependent on feasibility and rulemaking)
  Vessel Fleet Compliance reporting would occur on an Annual Basis
  Update and improve current reporting requirements and avoid usage of old technology or applications (i.e. approve uses of automated technologies).

- Enforce Marine Terminal compliance against Terminal Compliance Checklist (to be developed)
  Marine Terminal Compliance would be determined on an Annual Berth-Average Basis
  2022 – 80% compliance w/ checklist
  2031* – 90% compliance w/ checklist *(dependent on feasibility and rulemaking)
  Marine Terminal Compliance reporting would occur on an Annual Basis
  Marine Terminal 30-day Reports for non-connection, equipment, & electrical issues

- At-Berth Infrastructure Incentive Funding Applications by Ports remain eligible for GGRF/VW Incentives independent of Vessel or Terminal Checklist compliance status

- Conform and maintain existing exemptions and exceptions plus add new and clarifying exceptions for Vessel and Marine Terminal safety and force majeure situations

- Maintain existing regulatory thresholds for minimum number of calls for Regulated Fleets on a port by port basis (including treating LA/LB as one port for Fleet thresholds)

FOR ALL CURRENTLY UNREGULATED VESSEL FLEETS AND ASSOCIATED MARINE TERMINALS and PORTS:

- BULK CARGO, RO-RO & TANKER VESSEL FLEETS ARE REQUIRED TO REPORT – all vessels must report General Visit Information Annually beginning in 2021

- PORTS and MARINE TERMINALS ARE REQUIRED TO PLAN & REPORT – all Ports and Marine Terminal Operators serving currently unregulated fleets must comply with recordkeeping, reporting rules and submit Terminal Plans with subsequent updates beginning in 2024

FOR OPERATORS OF ALTERNATIVE EMISSIONS CONTROL STRATEGIES:

- Certification must demonstrate cost-effectiveness and Emissions Control greater than Vessel Fleet Average Basis standard

Alternative Proposal - Procedural Provisions to Guide Consideration of Post-2020 Amendments
Guidelines for Process to Run Concurrently with and Subsequent to Adoption of 2020 Rule Amendments

APPLICABLE TO ALL AT BERTH RULE EXPANSION AMENDMENTS FOR THE CURRENTLY REGULATED FLEET AND CURRENTLY UNREGULATED FLEET

- Conduct a feasibility study to identify cost effective emission control programs for all vessel categories based on reasonable implementation deadlines, safety concerns, and technological feasibility. This feasibility study should be conducted in cooperation with all industry stakeholders, be based on data which is made publicly available during study development, and include a detailed evaluation of all of the following:

    (i) the status and timing of rule implementation in light of port/terminal infrastructure planning and any future infrastructure development potentially necessary to provide at-berth emissions controls, with future infrastructure designation to include rigorous cost estimates of any necessary electrical infrastructure modifications or alternatives,
    (ii) the existing shore-side electrical infrastructure, including electrical sub-station and off-terminal electric utility infrastructure, and present availability of alternatives,
    (iii) the feasibility of alternative at-berth emission control technologies to capture emissions from ships that cannot plug in to shore power, including vessel types that can't use the alternatives in each vessel category and for different engine sizes, and including currently unregulated vessel fleets,
    (iv) the number and types of alternative control technologies that would be needed at each California port,
    (v) navigation, safety and harbor logistical considerations, especially for barge systems,
    (vi) cost effectiveness of various rule expansion scenarios and alternative programs based on a detailed estimate of the additional emission reductions to be gained with possible expansion of the rule, including an assessment of additional costs on a cost per ton of emissions reduced basis under all possible additional infrastructure scenarios,
    (vii) determine how the marginal cost of various potential port emission control programs compare to other potential efforts to reduce emissions from other sources at ports which could be more cost-effective investments for control programs.
    (viii) opportunity costs as at-berth regulations impose substantial infrastructure obligations on the industry, funds may need to be diverted from other important air quality programs, including zero- and/or near-zero emissions vehicles and equipment, to ensure compliance as soon as possible.

- Evaluate emission control programs for all key source categories that operate in and around ports in order to prioritize incentive funding from GGRF/VW and other sources of incentive funds and maximize total emission reduction per dollar, with the most long-term residual emissions benefits, and facilitating highest cost-effectiveness. For programs that operate throughout California, evaluate ports within regional context (versus other regional potential sources of prioritized health risk or criteria pollutant evaluation) instead of by comparing ports against each other.

SUBSEQUENT ACTION FOR CURRENTLY REGULATED VESSEL FLEETS, MARINE TERMINALS, and PORTS:

For Implementation After Current Rulemaking (2021 and beyond):

- Establish regular feasibility "check-in" steps as part of the rule, 2022, 2025, 2028, 2031, to assess whether the proposed implementation deadlines remain viable or can be accelerated through additional amendments to the rule.

- Any acceleration would require providing vessels with at least 18 months' notice in advance of a future rule effective date.

CONCURRENT AND SUBSEQUENT ACTIONS FOR CURRENTLY UNREGULATED VESSEL FLEETS, MARINE TERMINALS, and PORTS:

During Rulemaking (2019-2020):

- Immediately disclose the Bulk Vessel cost-effectiveness calculations which led to their exclusion from emissions reductions.

- Compare Bulk Vessel cost-effectiveness with other vessel cost-effectiveness calculations for Tankers and Ro-Ro's.

- Contrast DPM reductions from the Ro-Ro and Tanker fleets with other sources of emissions at and near Ports and Terminals.

- Conduct actual emissions profiles for all bulk, ro-ro, and tanker terminals, individually by actual operating Port facilities, not "Port Complex" entities.

- Evaluate all bulk, ro-ro, and tanker terminals, individually for shore-based alternative emissions controls, and water-based alternative emissions controls.

After Rulemaking (2021 and beyond):

- Establish program staff calendar and deliverable to the Board for future discussion of whether or not these vessel fleets are good subjects for statewide rulemaking or if their emissions are best off-set through incentives, MOUs, or alternative emission reduction strategies. Discussion required in context of SIP, AB 617, and Scoping Plans.

- Establish 2025, 2028 and 2031 as target dates for full reviews of Bulk, Ro-Ro, and Tanker Reporting Data and Terminal infrastructure plans and application of new evaluation of Cost-Effectiveness Data and Emissions.

PRIORITIZATION OF AWARDING PORT (AT BERTH OR ALTERNATIVE) INCENTIVES AND USE OF NON-COMPLIANCE FEES:

During Current Rulemaking and After Rulemaking (2019 and beyond)

- Prioritize Port projects and emissions reductions alternatives for receipt of GHG Reduction Fund and VW Settlement Fund proceeds

- Take a multi-pronged approach towards incentives for new At-Berth or alternative emissions reductions programs at Ports which is reflective of need for multiple strategies and approaches, and which acknowledges need for demonstrations to help establish cost-effectiveness and feasibility goals

- Utilize non-compliance fee revenues to build pooled funding which can be reinvested into shorepower infrastructure or other port-related air quality programs in accordance with prioritization based on cost-effectiveness

Attachment A

Data References

2007 ISOR, pg. 6-7:

3. EMISSIONS INVENTORY

Hotelling emissions are associated with the use of diesel-fueled auxiliary engines on ocean-going ships to power the vessels' electrical systems while the ships are docked. These emissions are a function of how often the ship visits a California port, how long the ship is at berth, the emissions rate of the engines, and the typical operating load of the auxiliary engines while the ship is at berth.

ARB staff estimates that in 2006, the statewide hotelling emissions from approximately 2000 ocean-going vessels was 1.8 tons per day (TPD) of diesel PM emissions, and 21.1 TPD of NOx emissions. Table I presents hotelling emissions for the six major categories of ocean-going vessels that visit California ports—container ships, passenger ships, reefer ships, vessel carriers, bulk ships, and tankers. As can be seen in this table, hotelling emissions from the three affected ship categories, container ships, passenger ships, and reefer ships, represent over 80 percent of total statewide hotelling emissions.

Table 1: Estimated 2006 Hotelling Emissions by Ship Category

Ship Category	2006 Emissions, Tons/Day	
	NOx	PM
Container	13.8	1.1
Passenger	2.8	0.2
Reefers	0.9	0.1
Tanker	2.0	0.2
Bulk/General	1.0	0.1
Vehicle Carriers	0.6	0.1
Totals	21.1	1.8

Table 2: Estimated 2006 Hotelling Emissions by Port (Tons per Day)

Port	NOx	PM
Los Angeles/Long Beach	14.3	1.2
Oakland	2.6	0.2
San Diego	1.1	0.1
Hueneme	0.7	0.1
San Francisco	0.5	0.1
Other Ports	1.2	0.2
Total	21.1	1.8

As can be seen in this table, most of the shipping activities and hotelling emissions occur at the largest ports in California: Los Angeles and Long Beach followed by Oakland. The six ports affected by the proposed regulation account for over 90 percent of total hotelling emissions at California ports.

Staff developed growth factors for each ship category to project future hotelling emissions. In general, the growth in vessel hotelling emissions is directly proportional to the growth in vessel visits, ship size, berthing times, and, in the case of container ships, the number of refrigerated containers aboard.

Hotelling emissions from ocean-going ships are predicted to increase from 2006. Container ship and passenger ship emissions are expected to double by 2020. Reefer ship emissions are expected to decline at the Ports of Long Beach and Los Angeles, slightly increase at the Port of Hueneme, and triple at the Port of San Diego by 2020.

Table 3 presents projected 2014 and 2020 emission estimates for container ships, passenger ships, and reefer ships. In December 2005, the Board adopted an auxiliary engine fuel regulation that would limit the sulfur content of fuel used with auxiliary engines starting in 2007. At the time this staff report was published, the regulation had been challenged in federal district court and is undergoing appeal at the Ninth Circuit Court of Appeals. The future emission projections were based on the assumption that the auxiliary engine regulation would ultimately be upheld and the auxiliary engines would be operating on low-sulfur fuel.

2007 ISOR, Appendix B, pg. B-19:

III. EMISSION ESTIMATES

Using the revised methodology we can estimate emissions associated with container, cruise, and reefer vessels operating at ports subject to the proposed Shore Power Regulation. Table III-1 provides auxiliary engine hotelling emissions estimates by vessel type; we estimate covered emissions sources emit about 17 tons/day NOx and 1.5 tons/day PM in 2006. Assuming existing controls (without the benefit of the proposed regulation) we estimate NOx emissions will grow in 2020 to approximately 37 tons/day, and in 2020 PM emissions will grow to approximately 0.6 tons/day. As the data suggest, ARB's auxiliary engine regulation that was adopted in 2005 will generate significant reductions in future years.

Table III-1 Auxiliary Engine Hotelling Emissions by Vessel Type without Shore Power Regulation

Emissions - 2006 (tons/day)				
Vessel Type	**NO_x**	**PM_{10}**	**ROG**	**SO_x**
Container	13.8	1.12	0.32	8.1
Cruise	2.5	0.24	0.06	1.7
Reefer	0.9	0.07	0.02	0.5
Total	**17.1**	**1.43**	**0.40**	**10.33**
Emissions - 2014 (tons/day)				
Vessel Type	**NO_x**	**PM_{10}**	**ROG**	**SO_x**
Container	21.5	0.38	0.52	0.57
Cruise	3.6	0.07	0.09	0.09
Reefer	1.0	0.02	0.03	0.03
Total	**26.1**	**0.47**	**0.63**	**0.69**
Emissions - 2020 (tons/day)				
Vessel Type	**NO_x**	**PM_{10}**	**ROG**	**SO_x**
Container	30.8	0.55	0.75	0.82
Cruise	5.2	0.09	0.12	0.13
Reefer	1.3	0.02	0.03	0.04
Total	**37.3**	**0.66**	**0.91**	**0.99**

2007 ISOR, pg. 15:

Figure 1: Projected Diesel PM Emissions with and without the Proposed Regulation

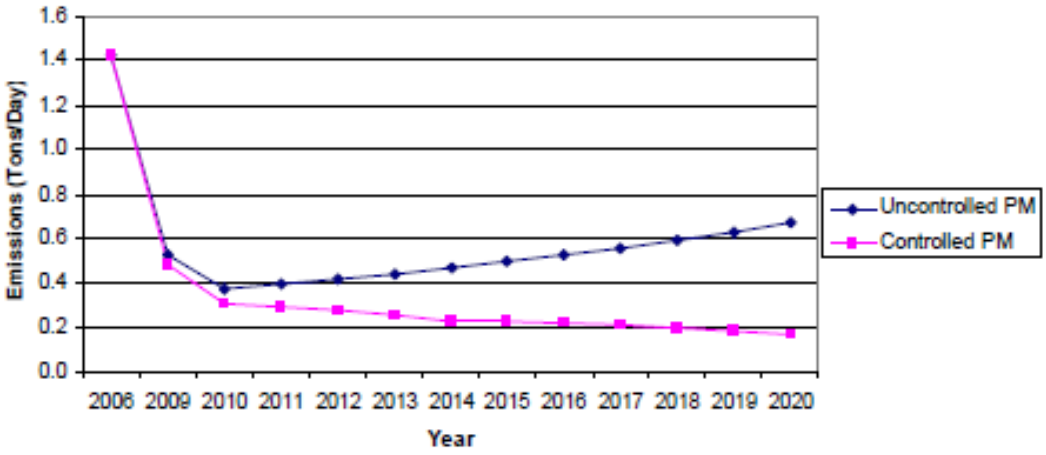
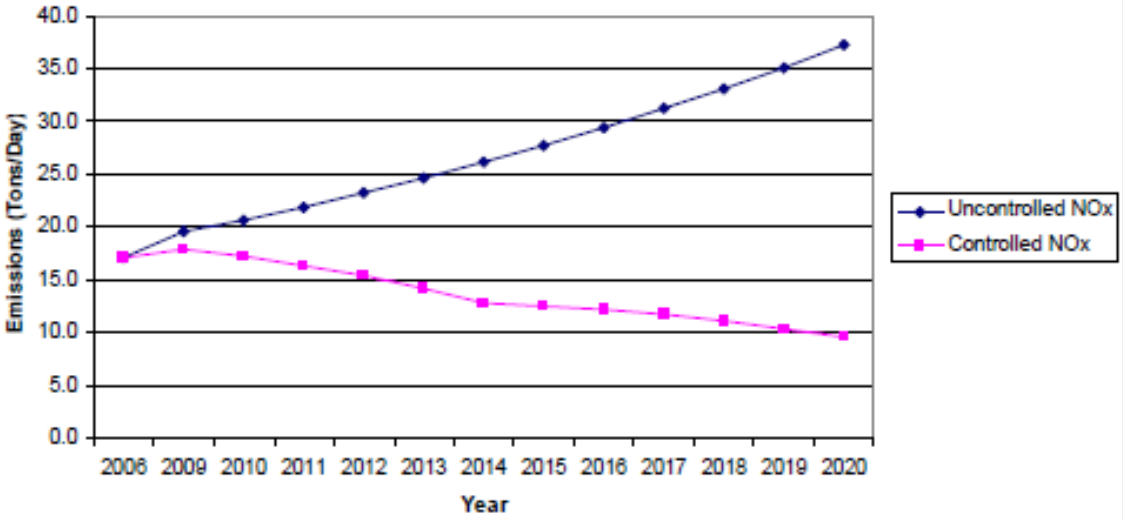


Figure 2: Projected NOx Emissions with and without the Proposed Regulation



CARB, ""CARB Draft At Berth Emissions Estimates (from Aux Engines and Boilers) under Existing Regulation and Draft Regulatory Concept (11/8/2018)" ("2018 Emissions Estimates")

2018 Emissions Estimates, DPM Inventory A:1-AE:23

2016 At-Berth Existing Rule Diesel PM (DPM) Emissions (Tons/Year)
Auxiliary Engine Emissions DPM (Tons/Year)

Air Basin	San Francisco Bay Area Air Basin						South Coast Air Basin		South Central Coast Air Basin	Sacramento Valley Air Basin	San Diego Air Basin	San Joaquin County Air Basin	North Coast Air Basin	
Ships	Carquinez MTC	Rodeo MTC	Oakland	Redwood City	Richmond MTC	San Francisco	Long Beach	Los Angeles	Hueneme	Sacramento	San Diego	Stockton MTC	Eureka	Total (TPY)
Container/Reefer	0.0	0.0	4.9	0.0	0.0	0.1	5.7	7.0	0.7	0.0	0.1	0.0	0.0	18.5
Tanker	2.7	1.1	0.0	0.0	3.6	0.1	4.1	1.8	0.1	0.0	0.5	0.5	0.0	14.5
Cruise	0.0	0.0	0.0	0.0	0.0	1.9	1.8	0.8	0.0	0.0	0.8	0.0	0.0	5.2
Roro	0.6	0.0	0.0	0.0	0.5	0.0	0.7	0.6	0.9	0.0	1.5	0.0	0.0	5.0
Bulk/General	0.3	0.0	0.1	0.1	0.2	0.0	0.6	0.7	0.1	0.4	0.1	1.0	0.0	3.7
Total	3.6	1.1	5.0	0.1	4.3	2.1	12.9	10.9	1.8	0.4	3.0	1.5	0.0	46.8

2021 At-Berth Existing Rule DPM Emissions (Tons/Year)
Auxiliary Engine Emissions DPM (Tons/Year)

Air Basin	San Francisco Bay Area Air Basin						South Coast Air Basin		South Central Coast Air Basin	Sacramento Valley Air Basin	San Diego Air Basin	San Joaquin County Air Basin	North Coast Air Basin	
Ships	Carquinez MTC	Rodeo MTC	Oakland	Redwood City	Richmond MTC	San Francisco	Long Beach	Los Angeles	Hueneme	Sacramento	San Diego	Stockton MTC	Eureka	Total (TPY)
Container/Reefer	0.0	0.0	4.0	0.0	0.0	0.2	5.9	6.1	0.2	0.0	0.1	0.0	0.0	16.5
Tanker	2.6	1.1	0.0	0.0	3.5	0.1	4.4	2.0	0.1	0.0	0.6	0.5	0.0	14.9
Cruise	0.0	0.0	0.0	0.0	0.0	2.0	1.6	0.7	0.0	0.0	0.9	0.0	0.0	5.2
Roro	0.7	0.0	0.1	0.0	0.6	0.0	0.9	0.8	1.0	0.0	1.7	0.0	0.0	5.9
Bulk/General	0.4	0.0	0.1	0.1	0.2	0.0	0.8	0.9	0.1	0.5	0.2	1.2	0.0	4.3
Total	3.7	1.1	4.1	0.1	4.3	2.3	13.7	10.5	1.4	0.5	3.5	1.7	0.0	46.9

2021 At-Berth Draft Regulatory Concepts DPM Emissions (Tons/Year)
Auxiliary Engine Emissions DPM (Tons/Year)

Air Basin	San Francisco Bay Area Air Basin						South Coast Air Basin		South Central Coast Air Basin	Sacramento Valley Air Basin	San Diego Air Basin	San Joaquin County Air Basin	North Coast Air Basin	
Ships	Carquinez MTC	Rodeo MTC	Oakland	Redwood City	Richmond MTC	San Francisco	Long Beach	Los Angeles	Hueneme	Sacramento	San Diego	Stockton MTC	Eureka	Total (TPY)
Container/R	0.0	0.0	1.6	0.0	0.0	0.2	1.7	2.1	0.1	0.0	0.0	0.0	0.0	5.6
Tanker	2.6	1.1	0.0	0.0	3.5	0.1	4.4	2.0	0.1	0.0	0.6	0.5	0.0	14.9
Cruise	0.0	0.0	0.0	0.0	0.0	0.6	0.8	0.4	0.0	0.0	0.3	0.0	0.0	2.1
Roro	0.7	0.0	0.1	0.0	0.6	0.0	0.9	0.8	1.0	0.0	1.7	0.0	0.0	5.9
Bulk/Genera	0.4	0.0	0.1	0.1	0.2	0.0	0.8	0.9	0.1	0.5	0.2	1.2	0.0	4.3
Total	3.7	1.1	1.8	0.1	4.3	0.9	8.6	6.2	1.3	0.5	2.8	1.7	0.0	32.9

Attachment B

Policy & Procedural Context for Alternative Proposal

In addition to the existing Regulations, CARB is operating under or has adopted multiple policy positions with respect to the consideration of updates to the scope, breadth, and applicability of the At-Berth Rules. These include all of the following*:*

Executive Order B-32-15, Sustainable Freight Action Plan, Action G-3 (pg. C-53)(adopted 2016):

3. At-Berth Regulation Amendments
Overview: The goal of this proposed measure is to further reduce emissions from ships. ARB staff would develop and propose amendments to the current At-Berth Regulation and look for additional reductions from additional vessel fleets or types.
…
Proposed Actions: ARB would evaluate how the current At-Berth Regulation can be amended to achieve further emissions reductions by including smaller fleets and/or additional vessel types (including roll-on/roll-off vehicle carriers, bulk cargo carriers, and tankers). In addition, there are two companies with portable emissions capture and control systems that have successfully demonstrated performance and may now be used for compliance with the current Regulation on certain container vessels. If one or both systems prove to be feasible and cost-effective on additional vessel types, the technology could help support an ARB staff proposal to expand the scope of the Regulation to include additional vessel types and/or smaller fleets. ARB staff anticipate bringing this measure to the Board in 2017.

Estimated Cost: ARB will estimate costs from this action during the measure development process for the Proposed 2016 State Strategy for the State Implementation Plan. See http://www.arb.ca.gov/planning/sip/sip.htm.

Benefits: This action is anticipated to provide criteria pollutant and greenhouse gas emissions reduction benefits. ARB will quantify emissions reductions from this action during the measure development process for the Mobile Source Strategy and Proposed 2016 State Strategy for the State Implementation Plan. See http://www.arb.ca.gov/planning/sip/2016sip/2016mobsrc.htm and http://www.arb.ca.gov/planning/sip/sip.htm.

2016 State Implementation Plan (Resolution 17-7, Attachment A, "Proposed New SIP Measures and Schedule"), Mobile Source Strategy (pg. 84), (adopted 2017)

Measure Title: At-Berth Regulation Amendments
Measure Overview: The goal of this measure concept is to further reduce emissions from ships at berth and to advance the commercialization of near-zero and zero emission technologies. ARB staff would develop and propose amendments to the current At-Berth Regulation to include other vessel fleets and types.
…
Description of Measure and Commitment: In December 2007, ARB approved the Airborne Toxic Control Measure for Auxiliary Diesel Engines Operated on Ocean-Going Vessels At-Berth in a California Port Regulation (Regulation). The Regulation was designed to reduce emissions from diesel auxiliary engines on container ships, passenger ships, and refrigerated cargo ships while at berth at California's major seaports. The Regulation is also limited to fleets of 25 or more vessels (five or more for passenger ships).

ARB would investigate whether the Regulation can be amended to include smaller fleets and/or additional vessel types (including roll-on/roll-off vehicle carriers, bulk cargo carriers, and tankers). In addition, there are two companies working on portable systems. One company has successfully demonstrated that its system can provide durable performance and may now be used for compliance with the Regulation on specified vessel types. If one or

both systems become commercially available and are cost-effective, the technology could help support an ARB staff proposal to expand the scope of the Regulation to include additional vessel types and/or smaller fleets. ARB staff needs to investigate the feasibility and cost-effectiveness of expanding shore-power or alternative At-Berth technologies to additional vessel fleets and types not currently covered by the existing Regulation.

Climate Change Scoping Plan Update (pp. 73-74, 78-80, Appendix H) (adopted 2017)

Transportation Sustainability

California's population is projected to grow to 50 million people by 2050. How and where the State grows will have important implications for all sectors of the economy, especially the transportation sector. …

Transportation also enables the movement of freight such as food, building materials, and other consumable products, as well as waste and recyclables. The California freight system includes myriad equipment and facilities, and is the most extensive, complex, and interconnected system in the country, with approximately 1.5 billion tons of freight valued at $2.8 trillion shipped in 2015 to, through, and within California. Freight dependent industries accounted for over $740 billion of California's GDP and over 5 million California jobs in 2014.

…

Efforts to Reduce Greenhouse Gases

The measures below include some required and new potential measures to help achieve the State's 2030 target and to support the high-level objectives for the transportation sector. Some measures may be designed to directly address GHG reductions, while others may result in GHG reductions as a co-benefit. …

Ongoing and Proposed Measures – Sustainable Freight

• Implement the California Sustainable Freight Action Plan:

• 25 percent improvement of freight system efficiency by 2030.

• Deployment of over 100,000 freight vehicles and equipment capable of zero emission operation, and maximize near-zero emission freight vehicles and equipment powered by renewable energy by 2030.

…

[Table H3-2. Vehicle Technology and Fuel Description]

2016 Mobile Source Strategy

The Mobile Source Strategy identifies actions to be undertaken to simultaneously meet air quality standards, achieve GHG emission reduction targets, decrease toxics health risk, and reduce petroleum consumption from transportation emissions by 2031. More information on the Mobile Source Strategy can be found at: https://www.arb.ca.gov/planning/sip/2016sip/2016mobsrc.htm

The California Sustainable Freight Action Plan

The California Sustainable Freight Action Plan (Action Plan) is a multi-State agency effort to improve freight system efficiency by 25 percent by 2030, and to deploy over 100,000 freight vehicles and equipment capable of zero emission operation, and maximize near-zero emission freight vehicles and equipment powered by renewable energy by 2030.

The Action Plan Includes recommendations on: • A long-term 2050 Vision and Guiding Principles for California's future freight transport system. • Targets for 2030 to guide the State toward meeting the Vision. • Opportunities to leverage State freight transport system investments. • Actions to initiate over the next five years to make progress towards the Targets and the Vision. • Pilot projects to achieve on-the-ground progress in the near-term. • Additional concepts for further exploration and development, if viable. More information on can be found at: http://www.dot.ca.gov/casustainablefreight/

AB 617 Community Air Protection Blueprint, Appendix D (pp. D-3-4, D-6, D-8-10) (adopted 2018)

II. STATEWIDE EMISSION REDUCTION STRATEGIES

Identifying specific strategies for reducing criteria air pollutants and toxic air contaminants in communities with high cumulative exposure burdens is critical for implementing strong statewide actions to ensure new emissions reductions. The strategies outlined in this section reflect actions that CARB and air districts are already taking to deliver new reductions in communities. This includes new strategies from existing air quality and climate plans, early action incentive funding appropriated by the Legislature, and additional community-focused actions (e.g., new regulatory measures, targeted enforcement activities, other new tools and resources).

FOUNDATIONAL STRATEGIES IN CARB AIR QUALITY AND CLIMATE PLANS
CARB's Governing Board has adopted several comprehensive air quality and climate plans in recent years, including the State Strategy for the State Implementation Plan, the California Sustainable Freight Action Plan, California's 2017 Climate Change Scoping Plan, and the Short-Lived Climate Pollutants Reduction Strategy. Each of these plans includes a suite of emissions reduction strategies that will address many of the sources that are concentrated within heavily impacted communities like cars, trucks, freight sources, and other equipment. Together they provide a foundation for additional emissions reductions needed to deliver healthful air in communities with high cumulative exposure burdens.

Table D-1, Table D-2, and Table D-3 provide lists of new CARB strategies associated with these plans. CARB staff have already begun developing regulations, policies, and incentive programs to implement these strategies. This is an ongoing process that will begin achieving emissions reductions in the near-term and providing benefits that support community-level actions, with a focus on zero emission technologies where the technologies are now feasible. New regulations cover the following range of sources:

- For communities heavily impacted by freight sources –

o Expanded standards for clean operation for ships while they are in port.

…

[Table D-1 "State Strategy for the State Implementation Plan Measures and Schedule (*Approved 2017*)"]
At-Berth Regulation Amendments

…

[Table D-2 Summary of California's 2017 Climate Change Scoping Plan Update Measures (*Approved 2017*)]
Mobile Source Strategy (Cleaner Technology and Fuels [CTF] Scenario)* …
California Sustainable Freight Action Plan* …
*These measures and policies are referred to as "known commitments."

Addendum to the adoption of Resolution 17-7

Furthermore, in addition to the existing Regulations and multiple policy positions regarding potential At-Berth Rule amendments, there was additional procedural, non-policy direction given to the staff by the Board in an Addendum to the adoption of Resolution 17-7, which was the motion to approve the state SIP in March 2017.

This additional direction in the Addendum was that "within 18 months of this date, ARB staff shall develop At-Berth regulation amendments that achieve up to 100% compliance by 2030 for LA Ports and Ports that are in or adjacent to areas in the top 10% of those defined as most impacted by CES."

This is not an adoption of a policy or amendment of a plan, including the SIP, but just a direction to staff to develop and work on the preparation of a proposal for the Board for future consideration. The Alternative Proposal is consistent with this direction and seeks to work with staff to place a set of amendments before the Board which will be an increase in compliance beyond 80%.

Attachment E:
Port of Oakland Cost-Effectiveness Comparison

52.C.155

Current Rule to Proposed Rule DPM Cost-Effectiveness (Oakland 2018)

Average rate of auxiliary engine emissions (DPM):	0.18 g / kWh
Average power of 4 auxiliary engines (container vessels at berth):	1100 kW
Average Oakland time at berth per call (container vessels 2018):	20 hours / call
	3,960g DPM per call

Number of New Vessel calls covered (per Application of Proposed Reg to 2018): 39 calls

Total New At Berth DPM Reductions (2021)(assumes 100% reduction):	154,440 g / year
	340 lbs / year
	0.93 lbs/day
	0.17 tons / year
	0.0005 tons / day
	0.93 lbs/day

2021 Required Power Vaults – Oakland 3 x $2m/vault (CARB est.[1]):	$6,000,000
2021 Required Retrofit Costs per vessel (CARB est.):	$900,000
2021 Required Container vessel retrofits (57) for new visits (403):	7 calls/vessel
2018 Oakland newly regulated calls (39)	5.5 vessels
Total Estimated 2021 Oakland Costs for 39 calls:	$11,000,000
Annualized (2021-2031):	$1,000,000 / year

Remediation Fund Costs ($4,890/hour) x 39 calls x 20 hours: $3,814,200 / year

Half Costs DPM:	$500,000 - $1,900,000
Annual DPM tons reduced:	0.17
Cost-Effectiveness:	***$2.9m - $11.2m/ ton***

Apples to Apples COST-EFFECTIVENESS with Current Regulation
Current Regulation ISOR Methodology (pp. 23-24)

> "Because the proposed regulation reduces significant amounts of both NOx and PM, staff also evaluated cost-effectiveness by attributing half the total annualized cost to the PM emission reductions and half to the NOx emission reductions. The resulting cost-effectiveness values using that method are $6,400 per ton of NOx reduced and $345,000 per ton of PM reduced."

> "Table 5. Summary of Cost-Effectiveness for Shore-Power
>
> | | Half Costs for PM (Dollars per Ton of Pollutant Reduced) |
> |---|---|
> | **Container Ships – Oakland** | **$200,000 to $1.2 million**" |

[1] SRIA Appendix A

BOARD OF HARBOR COMMISSIONERS
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WORLD TRADE CENTER® OXNARD

The Port OF Hueneme
Oxnard Harbor District

December 9, 2019

Heather Arias
California Air Resources Board
1001 I Street
Sacramento, California 95812

Submitted Electronically

Comments on CARB Proposed At-Berth Regulation

Dear Ms. Arias:
We write today to provide comment on the proposed rewrite of the Control Measure for Ocean-Going Vessels At Berth regulation. This is letter presents the Port of Hueneme's (Port) updated comments on status of California Air Resources Board's (CARB) new proposed At Berth Regulations. In light of our extensive comments which are reproduced below unchanged from our 2017 and 2019 comments, we will update CARB with briefer commentary herein which is largely based upon the information and discussion conducted at the recent CARB Board meeting on December 5, 2019.

- The Port would first like to state unequivocally that it is in full support of regulating the emissions from Ocean Going Vessels (OGV) and has partnered with CARB and our local air district to achieve substantial emission reduction progress since the implementation of the first At Berth regulation. Thanks to the combination of the clean fuel rules and the current At Berth regulation **the Port has seen as greater than 84% reduction in the emission of diesel particulate matter from OGV at berth in the Port since 2008**.

- The Port believes that this rule rewrite has the potential to achieve further emissions reductions from OGV, however in order to ensure that the Port can continue its role as the engine which drives substantial regional economic activity, enabling employment of more than 15,000 people, these proposed revisions must be conducted in a manner which pursue the most cost effective reductions in emissions. For the Port, CARB is seeking to apply requirements for further emissions reductions which would be nearly completely reliant upon a technology that is not currently commercially available and is not yet approved for use by CARB. This alternative control system (ACT) will likely be a system which captures emissions from OGV and physically or chemically removes the pollutants from the exhaust gases. These systems are large, heavy, and technically complicated in their design and operation. The implementation of one of these systems at the Port will take substantial resources and time. **This is not to imply that the Port is in opposition to the use of an ACT system for emissions reductions in any way!** However as a steward of public funds the Port does not take lightly the responsibility of investing in a yet unproven technology which may have a cost equivalent to a third of its annual revenue.

53.1

- The CARB Board seemed during the December 5th meeting to favor moving the date of compliance for requiring an ACT for Roll On Roll Off (RORO) vessels from 2025 to 2023. At the present time the Port presumes that the State of California will require that the ACT system

53.2

operate as a zero emission system which will require it to be powered by electrical power. Current barge based emissions capture systems use diesel fuel and produce significant emissions through the use of heavy machinery and generators to power the emissions filter process. Presently the Port is nearly at the maximum of its available electrical power ceiling as it seeks to continue the implementation of zero emission technologies on Port. Adding additional power load to the Port will require additional power supply from its utility provider Southern California Edison (SCE). SCE has notified the Port that the regional circuitry upgrades needed to supply the Port with additional power will be of such scale as to take three to five years to complete and cost $30-50 million dollars. This utility upgrade would preclude the Port from being able to operate a zero emissions ACT by 2023.

53.3

- As noted, the annual revenue of the Port is approximately $16-18 million dollars annually. It is estimated that additional shoreside power capacity at the Port would cost approximately $20 million dollars. An ACT system for the Port is estimated to cost $5-7 million dollars. Additionally, the Port has only six major customers which move cargo through the Port enabling those 15,000 jobs. As noted in previous comment letters, some of the communities surrounding the Port are State designated disadvantaged communities and the Port takes seriously its role of providing the types of jobs which can enable individuals to reach ladders of opportunity. Port related jobs can bring families out of poverty and are increasingly uncommon in the state of growing economic disparity in Ventura County and the State in general. The loss of a single customer would have major economic implications to the surrounding region as each direct Port job has a multiplier creating an additional five to six jobs in the community.

53.4

- During the meeting on the 5th, many in the audience and the Commissioners stated that it would be “large multinational corporations” who would be forced to pay for these regulations and therefore the impact would be minimal amongst the “billions” which these corporations make in profits. Unfortunately, the reality is that most of the cost of these regulations will be carried by the State’s ports. Goods movement is a global system of connectivity which is structured to move goods from their location of manufacture to their location of consumption. The “large multinational corporations” involved in this process have a growing amount of choice when it comes to choosing a path through this supply chain and the ports of California are not their only choice for offloading their goods. Ports in the Gulf of Mexico and in other states along the Pacific Coast can be significantly cheaper. Rates of cargo diversion away from California will increase as California ports raise their rates to help fund the needed infrastructure improvements required by these new regulations. California ports will continue to lose market share and employment opportunities for local citizens, especially in areas already suffering from a lack of middle class jobs as the costs of doing business in California continues to increase. Additionally, the local demand for goods shipped from overseas will not diminish and that market will continue to demand fast cheap shipping for a plethora of goods from fresh produce to consumer goods. These goods will still have to reach consumers in California and when shipped into out of State ports will be trucked back into local stores and warehouses resulting in significant net increases in emissions of toxic pollutants and greenhouse gases.

53.5

- As part of its conversations with CARB over the last two years of the development of this proposed regulation, the Port has sought to make clear to the CARB staff how unique the characteristics of the Port are, and how these characteristics directly impact how it would comply

with the proposed regulation. Due to our size and physical constraints solutions that work for ports like Los Angeles or Oakland are typically not well suited for application at Hueneme. However, the Port sought to show CARB that we are in full support of their goals to further reduce emissions from the Port. Thus, in an effort to help ensure that currently uncaptured emissions originating from the at berth time of the currently unregulated fleet could be reduced in the most cost effective way, the Port put together a list of potential projects which could achieve significant emissions reductions in the near term future and potentially at a lower cost. These "alternatives" were brought forward in a good faith effort to show the potential for in-lieu emissions reductions which could be financed in part by those customers of the Port in the unregulated fleets. Following months of collaborative communication with CARB staff, it was unexpected to the Port that the discussion at the December 5th meeting centered around these projects in no way being undertaken in lieu of the new requirements and could be required in the interim when direct compliance was infeasible on the short term. Thus it appears that CARB intends to require the Port and its customers operating RORO vessels be required to implement the alternative projects which the Port proposed on an earlier timeline and not in lieu of any of the requirements of the proposed regulations. As noted by some of the audience members the operation of a modern seaport berth is a highly technical, dangerous, and expensive ballet of many players all of whom play a part in successfully moving cargo safely and efficiently. In applying new regulations into this system, the "devil is in the details," as noted by several CARB Board members during the meeting on the 5th. As implied by Board members during this meeting, if CARB were to propose a scheme in which the alternative projects proposed by the Port were to be required as a short term compliance step, any such regulation would have to ensure that it was procedurally and legally sound, scientifically valid, and equitable to those parties subject to the rule.

53.6

- In closing the Port wishes to reiterate again, that it is fully on-board with further reducing emissions from its operations and has multiple efforts underway at present including:

    - Writing in conjunction with the Ventura County Air Pollution Control District, its own clean air plan which will assess a brand new emission inventory for all Port activities and operations; and
    - Has just installed the first reference grade air quality monitors at a local elementary school which once running and calibrated will provide current air quality information to the local community; and
    - Writing a Port wide electrifical master plan which will help to guide the extensive engineering analyses and future scenario assessment needed to continue the Port on its plans toward zero emissions; and
    - In 2020 installing infrastructure including switchgear, transformers, conduit and plugs to plug in a new generation of zero emission electric cargo handling equipment at the Port, and
    - Will be operating in conjunction with partners, an electric hybrid mobile harbor crane as well as a zero emissions hydrogen fuel cell Class 8 heavy duty truck prototype, and the first electric terminal trucks within the next two years.

The Port is committed to maintaining its critical role of being the economic engine for the region while growing its leadership in the path to a future of zero emission, sustainable goods

movement. The Port envisions an equitable future in which economic opportunities and a clean, decarbonized environment are accessible locally and which both provide and give back to future generations.

Sincerely,

Giles Pettifor,
Environmental Manager

Spring 2019 Comments:
Our comments on the current process include:

- It is imperative that CARB identify the potential for real and profound economic impacts (especially at smaller, niche ports) as well as increased state-wide emissions, (from the diversion of cargo to out of state ports) which may result from increased costs associated with the proposed regulation. Without a cost benefit analysis on a port by port basis the real impact of these changes cannot be ascertained. The Port wishes to document its request prior to **CARB's moving forward that the regulation process must include the completion of a full cost benefit analysis at each of the subject ports**! These costs should be made clear in comparison against the quantity of emissions that will be reduced at each individual port subject to the new regulations. 53.7
- **CARB needs to identify the quantified emission reductions it is seeking to achieve via the implementation of the new regulations**. This targeted volume reduction should then be applied to the modelled emissions of each port, on a port by port basis to determine what is the scientifically calculated emission reduction goal. Bringing verified, valid emissions data into the analyses for this regulatory process will ensure that the cost benefit analysis, which must accompany this effort, is as accurate as possible. The emissions of each port are different as well as the basin status and these characteristics should be reflected in CARB's analyses. 53.8
- CARB estimates of **port emissions for each port subject to the regulations should be scientifically valid, using the best available science and valid methodologies** that both CARB and the subject ports concur are valid. CARB's reduction target should be applied to the agreed upon inventory emissions amount to ensure fair calculation of responsibility. 53.9
- The **costs of proposed emissions reductions should be grounded in emissions costs generated for other similar State programs** such as the Carl Moyer technology retrofit program. 53.10
- Many ports statewide, including the Port, are investing in developing air quality plans specifically tailored to their own emissions inventory, physical and logistical characteristics of their cargo and waterfront setting, as well as their own community inputs and resource availability. These **local plans should be recognized when appropriate as real alternatives to the regulations and are avenues to emission reduction opportunities not currently contemplated by CARB as they are quantifying strategies to meet emission reduction goals**. 53.11

As follows the original fall of 2017 Comment Letter from the Port to CARB:

I. Introduction

The Port of Hueneme (Port) would like to thank the California Air Resources Board (CARB) for this opportunity to provide formal comments on the proposed amendments to the existing At Berth Regulations. The Port enjoys a long history of working cooperatively with both CARB and the Ventura County Air Pollution Control District (APCD) and looks forward to continuing these productive relationships to ensure success in future emission reduction programs.

Our collective efforts realized the installation of shoreside power vault and substation systems to enable the plug in of regulated refrigerated vessel fleets. At the forefront of new and innovative technologies, California leads not only the nation, but the world with shoreside capabilities. In leading the world with clean technology, we become the first to learn how to tackle the challenges inevitable with new technologies. This comment letter puts forth recommendations to address those challenges and respectfully requests that getting the first phase of the regulations perfected be the main purpose of the at-berth regulation amendments.

In the workshops of August 28 and September 7, 2017, CARB presented the concept of expanding its regulatory authority to new fleets, a concept which need thoughtful consideration, particularly as we continue to iron out the challenges with existing systems under the current regulations. As a partner in sustainable economic development, we urge CARB to consider the potential of very real impacts to local economies and pursue a cost-benefit analysis of the socio-economic impacts of the proposed amendments prior to promulgation of regulations mandating requirements on all vessel calls. Further, the true air
53.12 quality benefit to a given air quality basin coupled with the actual costs of the expanded amendments needs to be fully understood to ensure the enactment of sound public policy consistent with the Governor's Executive Order B-32-15[1] which calls for transitions to zero emission, efficiency and increased competitiveness.

The Port appreciates the challenge CARB faces in drafting these regulations with a level of detail and forethought which accounts for the inherent complexities of the global maritime industry as well as the unique characteristics of California's ports and in a way which does not place an undue burden on these ports and put them at a competitive disadvantage. Working together we can find a solution that meets our mutual goals. The following comments provide important data and strategies to best inform future policy and regulation specific to the Port of Hueneme. The ultimate goal being to find a tangible pathway forward to achieve ambitious air quality improvements while supporting the economic backbone of socioeconomically distressed communities.

II. Environmental Profile

Port of Hueneme's Environmental Framework

Located at nexus of vibrant coastal communities, precious coastal wetlands, and Pacific Ocean pathways to our global trade partners, the Port takes very seriously its stewardship of the environment. As part of

[1] http://dot.ca.gov/hq/tpp/offices/ogm/cs_freight_action_plan/main.html

this responsibility the Port focuses particularly on its surrounding communities of Oxnard and Port Hueneme, its commissioning jurisdictions. The Port exists to serve these communities as an economic center providing employment, tax revenue and trade benefits for local citizens. The Port also strives to minimize potential impacts to these communities as it is nestled in adjacent to homes, schools and businesses. Due to the proximity of these sensitive receptors, air quality is of particular interest to the Port, and the Port works every day to take steps to minimize impacts to air quality. In an effort to demonstrate the seriousness with which the Port takes these duties of protecting the environment, the Port adopted an Environmental Management Framework (EMF) in 2012. The EMF outlines the strategic efforts the Port will undertake to protect the environment, and covers eight environmental elements including:

1. Community engagement
2. Sustainability
3. Air Quality
4. Water Quality
5. Soil and sediment
6. Marine resources
7. Energy management
8. Climate change adaptation

Since adopting this proactive agenda of sustainability, the Port has pursued the integration of the elements of the EMF into its daily operations as well as long term planning. Progress has been made every year since, and in 2016 the Port became the first port in California to be certified by Green Marine, the preeminent third party environmental certification organization for marine facilities. The Port is fully committed to making environmental progress in every way that it can as it grows and changes with the global economy.

While the Port moves forward with the implementation of its EMF, it must work to expend its limited resources in a manner that balances maintenance of critical Port infrastructure with investments in new equipment and technology which help the Port to comply with regulations and improve environmental performance. For this reason, the Port is continually looking for solutions that are both cost efficient and effective for the Port's characteristics, its operations and the local community.

The Port is unique in many ways that set it apart from both the large Ports of Los Angeles/Long Beach (LA/LB) and other smaller ports like San Diego or Stockton. As the Port was constructed with private funds in the 1930's it is not a California State Tidelands Port, which gives the Port more control over its operations, more accountability directly to its commissioning communities and the ability to operate more nimbly. The Port operates on 120 dockside acres and while this is smaller than other ports, the Port is very efficient with its limited space and constantly strives to use every bit of it as efficiently as possible.

III. Port Hueneme's Air Quality Basin and Port Emissions

53.13 **RECOMMENDATION: Apply the attainment status of Ventura County air basin to any regulation impacting the Port and consider the emissions data and growth rates specific to the Port as opposed to that of the LA/LB air basin or the Ports of LA/LB.**

Air quality regulation respective to a port or similar emission source should begin with a very simple analysis with two major local components:

53-14 Hueneme

1. Basin Status - Historical and current air quality within the basin in which the port operates.
2. Emissions - Current and estimated future quantity and quality of the port's emissions.

When beginning with these two components, it becomes clear how different the Port is from LA/LB.

1. Basin Status

53.15 It is not just the Port's physical setting and operations which are different from nearby LA/LB, the air quality within its surrounding basin is also very different. Table 1 presents the projected dates of attainment with National Ambient Air Quality Standards (NAAQS) for the air basins surrounding both the Port and LA/LB. The ozone standards are shown as this pollutant has the potential to exacerbate respiratory illness symptoms in sensitive populations including children and the elderly and those with inflammatory airways or asthma, and is of particular concern for community health activists.

	Attainment Date	
Ozone Standard	VC Basin	LA Basin
2008 - 8hr.	2020	2032
2015 - 8hr.	2026	2037

Table 1 Comparison Dates of NAAQS Attainment for Ventura County and Los Angeles Air Basins

Table 1 makes clear that the air quality within the air basin around the Port is now and will continue to be substantially better than that of LA/LB. The air quality within Ventura County has steadily improved during the last twenty five years even while the County's population has grown by more than 30% during that time period as clearly shown in Figure 1. Despite this growth in population, Figure 2 shows that the average ozone concentrations within the County have decreased over time, driving the reductions in days over the NAAQS metric that are shown in Figure 1.

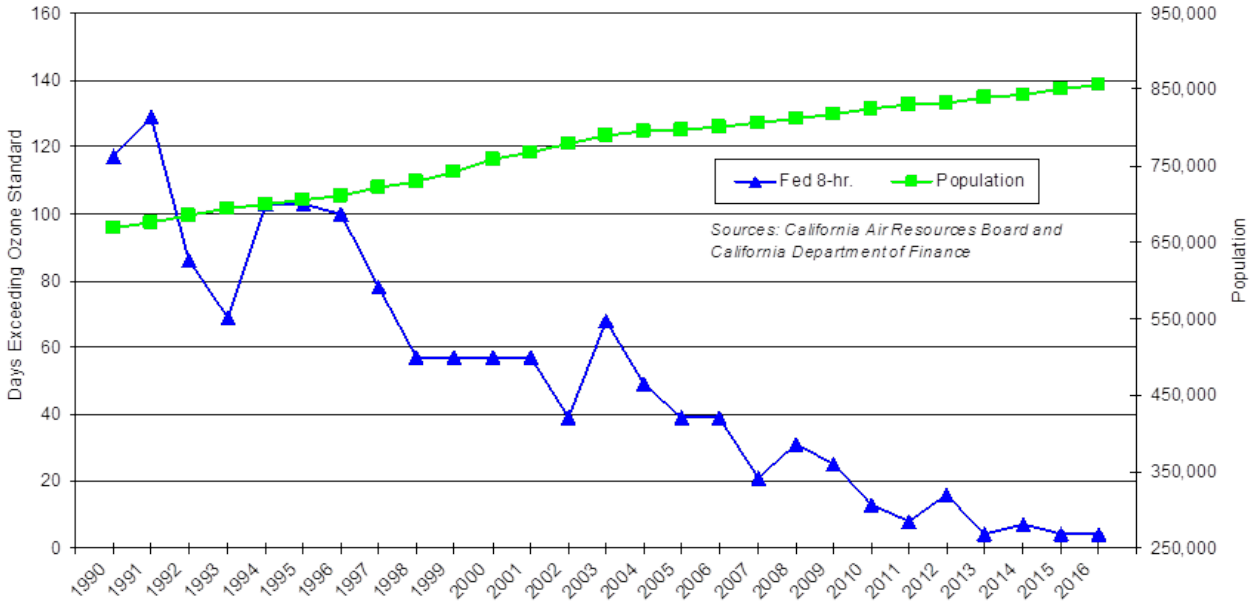


Figure 1 Ventura County Days Over Federal Ozone Standard vs. Population Growth.

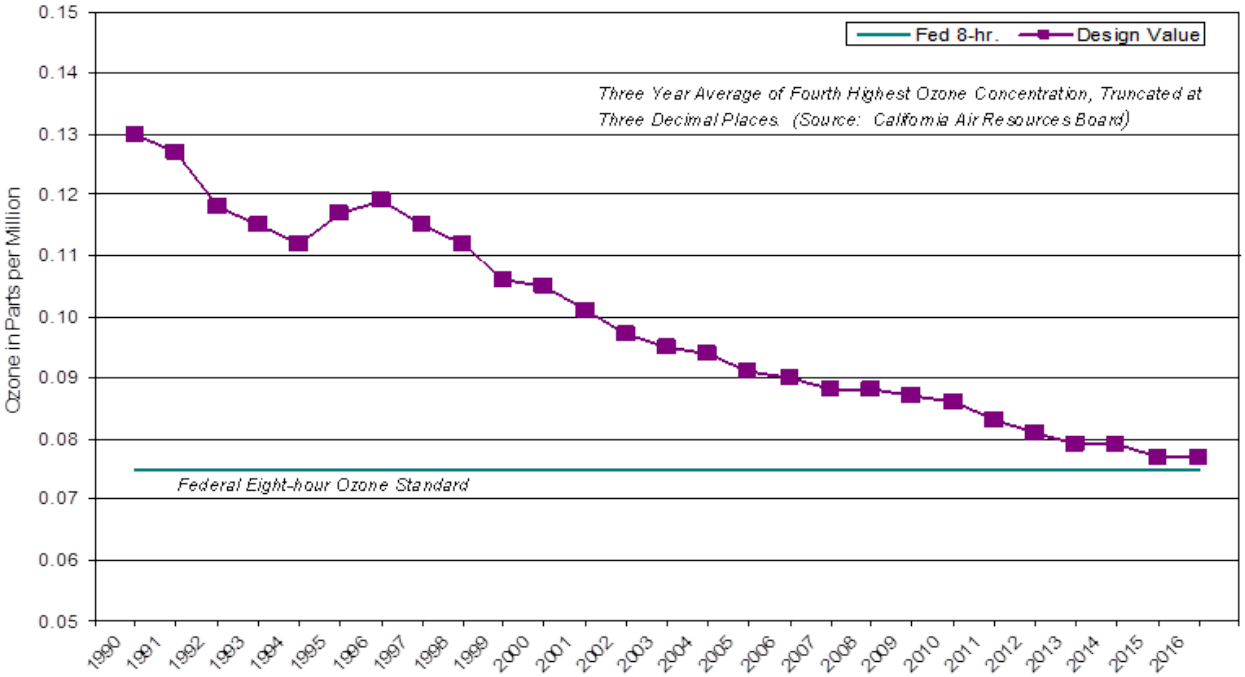


Figure 2 Ventura County 8-Hour Ozone Values

2. Emissions

OGV Emissions

53.15

Not only is the Ventura County air quality substantially better than that of the LA basin, a great deal of the air pollution within the air basins of Ventura County come from emissions from ocean going vessel (OGV) traffic offshore that is bound for LA/LB. The air basin over Ventura County extends three nautical miles offshore and is called the South Central Coast (SCC) Basin, while the basin which extends from three to one hundred nautical miles offshore is called the Outer Continental Shelf (OCS) Basin. CARB calculates attainment status for the SCC Basin using a photochemical model which incorporates emissions from both basins, meaning that transitory OGV emissions from LA/LB bound vessels in the OCS directly impact air quality in the SCC. When the pollutant quantities emitted by OGVs in both basins are analyzed, it becomes clear how much of a negative contribution is made by the OCS OGV, passing inside of the Channel Islands, as the majority of trans-Pacific traffic does, in transit to LA/LB.

Table 2 shows the estimated pollution contribution from OGV in both the SCC and OCS basins, while Figure 3 uses these numbers to clearly show how much greater the OCS portion is than that of the SCC basin, where the Port is located and represents a considerably low contribution to the problem.

		2020		2035	
	Basin	ROG	NO_x	ROG	NO_x
OGV Emissions*	SCC	0.04	**0.84**	0.06	**1.07**
	OCS	0.86	**12.54**	1.6	**9.63**

Table 2. Emissions from Ocean Going Vessels within Ventura County SCC and OCS Basins[2]

[2] Ventura County Air Pollution Control District. *Final 2016 Air Quality Management Plan.* 2016

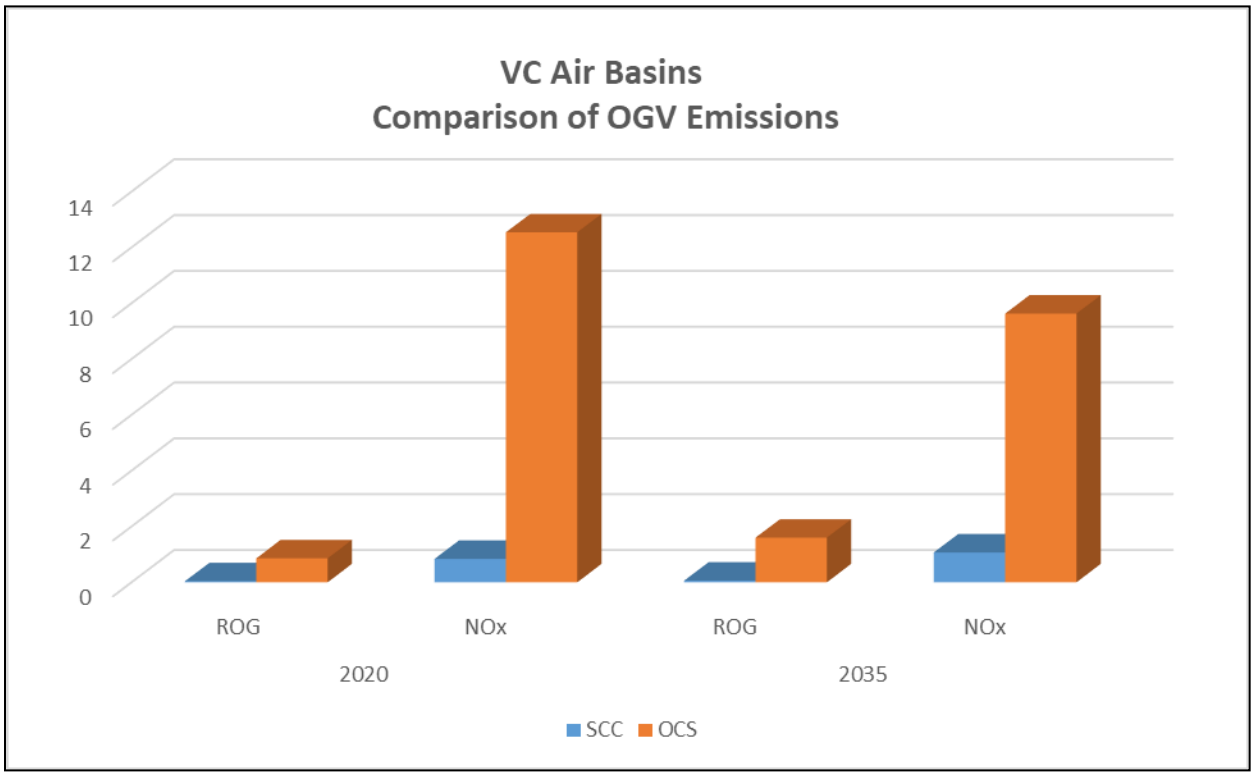


Figure 3. Emissions from Ocean Going Vessels within Ventura County SCC and OCS Basins

These numbers make it clear that Ventura County is coming from a very different place with regards to ambient air pollution levels. Essentially, the Ventura County basin's status quo is so much lower than LA/LB that it does not make sense to apply the same assumptions about emission related impacts for the Port. This point is extremely important to the proposed regulation amendments.

53.16

CARB's ongoing emission inventory analysis makes assumptions about growth rates of OGV business at California ports. CARB is applying estimated growth in OGV traffic in various vessel classes to calculate growth in emissions, rationalized by the assumption that more OGV activity means more engine use, which equates to proportional increases in emissions. During this process, the ports were lumped into regions for simplified assessments. The Port was thus included in the same region as LA/LB. Consequently, the growth rate of a significantly larger port complex with extremely different growth estimates was used in the emissions calculations as a surrogate for the Port. Due to a number of reasons, including the size constraints of the Port's berths and shore-side area, the growth rates of LA/LB are in no way accurate for the Port, and would grossly overestimate the anticipated growth of the Port and its future emissions. This would in turn overestimate the potential for impact on local air quality and potential for human health effects. The inaccurate growth numbers CARB used for the Port were: an increase in refrigerated carriers by almost 44% and roll-on roll-off vessels of over 80% by 2025. The Port has calculated as part of its own business planning a more modest growth rate of approximately 30% over 30 years. The emissions associated with this growth forecast should be applied to any policy impacting the Port.

Criteria Pollutant Emissions

Within the air basin of Ventura County, the Port is a fairly small contributor of pollutants as evidenced in Table *3*. The Port's emissions of all of the assessed criteria pollutants, except NO_x, contribute less than one percent of the Ventura County SCC air basin's totals! The Port has worked in the last decade to implement operational changes and new technologies to reduce emissions, such as the addition of shore power, and through investments in efficiencies to reduce delays in cargo movement. In comparison to the Port's 2008 emissions, and despite an increase in vessel calls and goods throughput, the Port has seen a reduction in nearly all of assessed criteria pollutants including carbon dioxide, VOCs, particulate matter and SO_x.

53.16

Port of Hueneme Compared to Port of LA, VCAPCD, SCAQMD Emissions						
Criteria Pollutants	**VOC tons/day**	**CO tons/day**	**NO_x tons/day**	**PM 10 tons/ day**	**PM 2.5 tons/day**	**SO_x tons/ day**
Port of Hueneme Total	0.05	0.2	1.6	0.02	0.01	0.01
Total VCAPCD Emissions	45	169.5	60	29.1	10.5	17.0
Port of Los Angeles	1.1	5.2	22	0.4	0.4	0.4
SCAQMD Total Emissions	640	2,735	673	346	127	70
Port of Hueneme % of VCAPCD	0.1%	0.1%	2.7%	0.06%	0.1%	0.1%
Port of LA % of SCAQMD	0.2%	0.2%	3.2%	0.12%	0.3%	0.5%

Table 3. Port Hueneme Emissions Contribution to VCAPCD Totals[3]

[3] VCAPCD emissions data obtained from California Air Resources Board. 2015. https://www.arb.ca.gov/app/emsinv/emssumcat_query.php?F_YR=2015&F_DIV=-4&F_SEASON=A&SP=2009&F_AREA=DIS&F_DIS=VEN. (accessed September 2017).

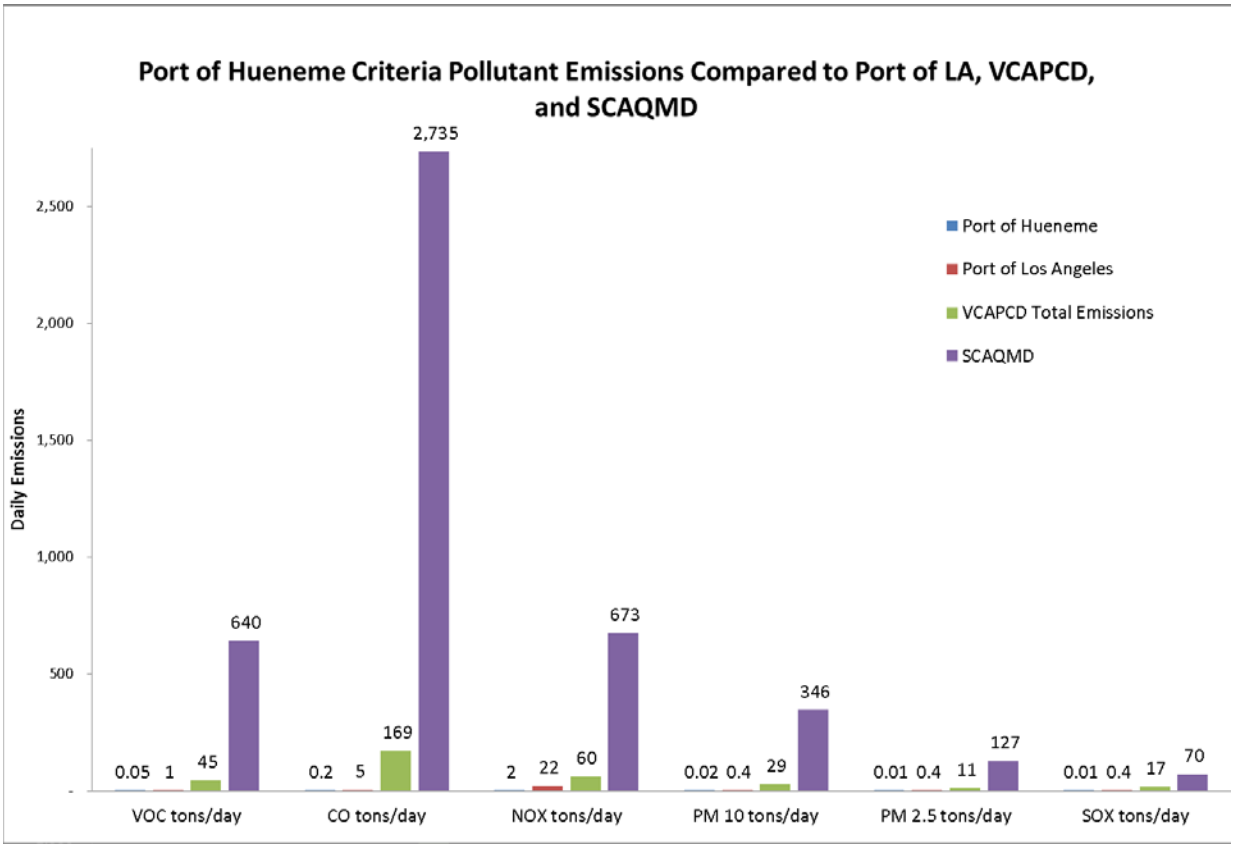


Figure 4. Emissions Comparison of Port of Hueneme to VCAPCD, Port of LA, and SCAQMD[4]

IV. Economic Profile

53.17 **RECOMMENDATION: Perform a robust cost-benefit analysis to understand the impacts of the proposed Amendments to the At-Berth Regulations to both the economy and the environment for the various business segments proposed to be regulated.**

State of the Local Economy and the Importance of the Port

The Port is one of the most productive and efficient commercial trade gateways for niche cargo on the West Coast. The Port is governed by five locally elected Port Commissioners from the communities of Oxnard and Port Hueneme. The Port moves $9 billion in goods each year and consistently ranks among the top ten U.S. ports for automobiles and fresh produce. Port operations support the community by bringing $1.5 billion in economic activity and creating 13,633 trade-related jobs. Trade through the Port

[4] California Environmental Protection Agency Air Resources Board. 2015 Estimated Annual Average Emissions: South Coast AQMD https://www.arb.ca.gov/app/emsinv/emseic1_query.php (accessed September 2017).
South Coast Air Quality Management District. Final 2016 Air Quality Management Plan 2017 http://www.aqmd.gov/docs/default-source/clean-air-plans/air-quality-management-plans/2016-air-quality-management-plan/final-2016-aqmp/final2016aqmp.pdf?sfvrsn=15 (accessed September 2017).

generates more than $93 million in direct and related state and local taxes, which fund vital community services.

As shown in Table 4, the median household income in Oxnard is $54,524 and $49,627 in Port Hueneme. Both Oxnard and Port Hueneme median household incomes are lower than Ventura County's $71,451. Oxnard median household income is lower than the state of California and Port Hueneme median household income is also lower than California's level of $58,916. Port Hueneme's per capita income is 33 percent less than Ventura County and Oxnard's per capita income is even less than the county per capita income, measuring at 42 percent less.

	California	Ventura County	Oxnard	Port Hueneme
Income: 2014B				
Average Household Income	$87,744	$99,452	$74,377	$64,251
Median Household Income	$58,916	$71,451	$54,524	$49,627
Per Capita Income	$30,268	$32,724	$18,921	$21,889
Avg Income Growth 2000-2010	33.0%	31.1%	26.6%	30.9%
Avg Income Growth 2014B-2019	15.3%	14.0%	14.9%	13.8%

Table 4. Median Household Income & Per Capita Income (2014)[5]

Poverty and Misery Index

The measure is an index known as the "Misery Index," which is made up of eight socioeconomic indicators, applied to 11 areas (called Neighborhood for Learning or NfLs) in Ventura County. The eight indicators are: the poverty rate among children age 5 and under; the percentage of women-led households with children 5 and younger who are below the poverty line; the percentage of adults 25 and older without a high school diploma; the percentage of people who speak English "less than very well"; the portion of schoolchildren eligible for subsidized lunches; the portion of students classified as English learners; and the percentage of students who tested at "below proficient" for math and language arts. The percentages are added together and weighted equally for the index.

As seen in Table 5, this index illustrates the deep socioeconomic divides in Ventura County. At one end of the spectrum is Oak Park, where more than 98 percent of the adult population has a high school diploma, and not a single child under the age of 6 lived below the poverty line in 2011. Oak Park's score on the index the sum of the percentages on eight different risk measures — was 37.2, less than one-third the score of the next area, the Conejo Valley. In Oxnard, El Rio and Port Hueneme the total index was more than 10 times as high as Oak Park. In El Rio, for example, 45.9 percent of households led by a woman, with children 5 or younger, were living in poverty.

[5] 2015, Easy Analytic Software,Inc.(EASI®) All Rights Reserved, Alteryx, Inc.

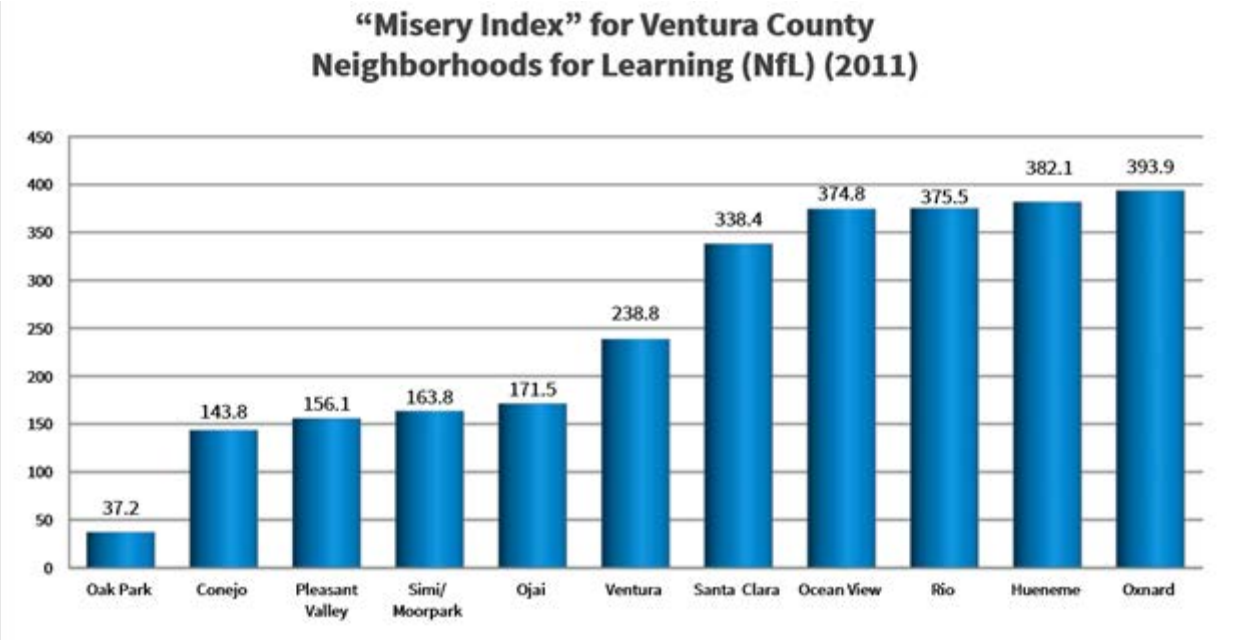


Table 5. Misery Index for Ventura County (2011)[6]

Business Environment and Challenges of At Berth Regulations

Automotive Category

Cargo throughput at the Port is dominated by two product lines, fresh fruit and automobiles. While demand and business for fresh fruit is fairly constant, the demand for automobiles is much more elastic and subject to broader global economic influences. The American public will likely purchase a banana in good economic times and bad, yet that is not the case with automobiles. In general, automobile transportation is a competitive business in which margins are small and competition is significant between carriers and amongst ports seeking to attract new business. In addition, many global carrier companies have large fleets of roll on roll off (RORO) vessels which travel on global routes that frequently change following the demand for specific product. For example, a global shipping company that has a significant presence in the Port and globally operates a fleet of approximately 120 RORO vessels, may only have half of their fleet call at the Port on an average year. Often, one vessel will call on the Port once a year, or once every two to five years. Due to the high costs to retrofit even a single vessel, this company would be very unlikely to retrofit all sixty vessels in order to comply with the proposed amendments. Thus, two choices would remain: the Port could purchase an emissions capture system for use by this company, or they could choose to move some portion of their automobile business to ports outside of California. The emission capture system would likely have to be a shore-side system as the Port does not have the space to be able to operate a barge mounted system and continue normal vessel operations. Yet, no shore-side systems are available as of yet, nor are any approved for use by CARB. This is an uncertain option to base compliance plans upon.

53.18

[6] VCCA 2015 State of the Region Ventura County Report

53.19 If shipping lines chose to pursue the retrofit of a few vessels, they would become the only ones capable of calling at California ports. However, this places the company at a disadvantage globally by having the entire state of California only serviceable by a specific set of vessels and not others. This is problematic for air quality as well, as the shipping lines will have to operate inefficiently. When vessels are not being used efficiently it results in greater emissions and high costs to the consumer. Logistically, many shipping lines will begin to look to the Pacific Northwest and Gulf ports to import their automobiles. Once imported, they will simply place them on trucks or rail and send them to California. The demand is in California, and they will find the cheapest way to get the automobiles here. Furthermore, this option leads to much more air pollution, the very consequence CARB is working so diligently to reduce.

53.20 John Martin, a nationally recognized maritime economist, conducted a study on the economic impact of the Port of Hueneme. He concluded that the Port is responsible for over 13,633 jobs, and $1.5 billion in economic activity for the region. The study also highlighted the Port's $93 million annual contribution to state and local taxes. If our customers decide to ship to other states, these jobs, economic activity, and tax revenues will be lost. Being located in a disadvantaged community where the city of Oxnard has a 24% poverty rate, higher than the state's average, makes the economic opportunity of the Port paramount to the citizens of this region. The Port not only provides jobs, but family sustaining jobs.

The Port's customers are not exempt from property taxes because they purchase property off Port. This means that all those imports and exports are generating the $93 million that is then reinvested in the schools, fire, police, healthcare, social services, and even our local AQMD. The Port services three automobile shipping lines. For just one of those to relocate means a loss of one third of the jobs, economic impact, and tax revenues over night. The Martin study found that the At Berth amendments as analyzed could have the potential impact on the local economy of the loss of:

- More than 2,700 jobs; and
- $300 million in economic activity annually; and
- More than $200 million in salaries and local consumption; and
- $25 million in of State and local taxes

53.21 In addition, to these socioeconomic impacts, business leakage from the Port to the Pacific Northwest ports, would have a substantial environmental costs as well. Emissions from the automobiles being delivered to distant markets like Los Angeles and Phoenix are accounted for with a U.S. Department of Transportation emission ton monetization rate. The emissions and subsequent costs resulting from vehicles being driven the increased distances to vehicle markets which are beyond that of delivery from the Port would be a cost of the proposed amendments and are shown in Table 6.

	Truck Miles		Ton Miles Penalty		Emissions Cost
	Portland to:	Huneme to:	Mileage Penalty	Ton Miles	Annual
San Francisco	645	364	281	21,053,236	$1,462,071
Los Angeles	975	70	905	225,140,993	$15,635,232
Seattle	171	1147	-976	-10,791,163	-$749,407
Portland	0	975	-975	-10,852,054	-$753,636
Denver	1252	1079	173	1,906,395	$132,392
Phoenix	1345	444	901	36,290,883	$2,520,271
Salt Lake City	775	752	23	258,967	$17,984
LasVegas,NV	982	325	657	14,125,214	$980,945
Total Emissions Cost					**$19,245,853**

Table 6. Total Emissions Costs for Vehicle Deliveries Resulting from Business Leakage from Port of Hueneme

The Martin Study identifies the worst-case scenario, but the true global nature of the Ro-Ro fleets would make the carriers very reluctant to retrofit their vessels when alternatives just up the coast and in Mexico and Canada exist. The competitive threat is very real. The extent to which the regulations could cause such leakage merits further evaluation and study for both the economic and environmental impacts before regulations are promulgated.

Break Bulk Project Cargo Category

Another important business segment to the Port is break bulk project cargo which contributes about 4% of the Port's revenue. This business line is extremely important to the Port's overall competitiveness and the thousands of jobs it supports. 100% requirement to reach zero emission for this vessel type call, would cause the industry to virtually disappear. These vessels make one time calls to ports to load and unload
53.22 special cargoes, and may never return for another call at the Port. By way of example the largest crane in the world from Arizona, came to Hueneme for a one time move to China. These types of pieces frequently move through the Port on a different vessel on each occasion. A retrofit would not be justified in the eyes of an ocean carrier for a single voyage, thus potentially eliminating this business segment at the Port.

To best understand the implications of the proposed amendments, all business types at the Port need to be evaluated and the opportunity costs understood, again calling the need for a cost-benefit analysis to inform the draft regulations.

Tanker Business Category

The Port operates a distribution hub for liquid fertilizer product which is an essential tool for the massive
53.23 agricultural industry of Ventura County. This $2 billion industry relies of timely delivery of fertilizer which is delivered to the Port by tanker vessel currently service by the Champion Tankers line. Champion operates about 20 tankers globally approximately six of which may visit the Port annually. This vessel category is subject to many of the same global economic challenges as any other ocean carrier and thus would reflect the same business challenges in justifying an expensive vessel retrofit or the risks of developing a fleet of captured California-only tankers.

V. Proposed Elements for Inclusion in At Berth Amendments

The Port is providing these comments not out of any effort to avoid regulation or doing its part to improve air quality in the region. The Port is fully committed to making progress to reduce emissions at the Port in a manner that is effective in addressing the pollutants which are most problematic in the surrounding areas and cost effective in reducing those emissions. It is clear to the Port that a one size fits all compliance pathway will not be effective in fairly applying emission reductions across the ports of California. Furthermore, smaller ports like Hueneme and its surrounding communities which rely on the Port for employment, will carry a much greater burden and are more at risk of serious negative economic consequences if the proposed amendments move forward without specific accommodations for smaller ports including Hueneme.

For these reasons, the Port would like to propose the following solutions to integrating a more equitable and realistic approach into the proposed amendments.

Alternative 1: Fix Current At-Berth Regulations

53.24 Under this alternative the Port recommends that the proposed amendments be shelved until the problems effecting the current regulations are solved. Presently under the existing At Berth regulations, several problems impact compliance attainment for vessels and fleet owners, and the Port believes that air quality would best be served by fixing these challenges before adding significant increases in the breadth of these regulations and thus compounding the level of regulatory complexity and compliance challenges by orders of magnitude. The current three hour plug in rule for shore power seems to be an arbitrary number which is difficult under even the best circumstances for a vessel to comply with. In numerous instances small delays or unforeseen events result in connections taking more than three hours, and missing the mark eliminates any incentive for continuing the attempted connection and thus negates potential emissions reductions. A sliding scale of compliance could be contemplated in which the duration at berth under shore power would be applied to a compliance total. A second confounding factor is the limited availability of technology vendors capable of providing support, system service and spare parts for shore power systems. Currently one company services all of the shore power systems in the State with one electrical engineer, this scenario leads to significant delays in servicing shore power equipment which results in vessel calls operating off of ship power and resulting emissions. It is challenging to not envision a situation in which these same types of problems will plague the emission reduction technologies which are currently being touted as significant solutions to reducing emissions from vessels including bonnet capture systems or similar technologies with the proposed amendments.

Alternative 2: Delayed Application of Requirements and Development of Local Air Plans

53.25 Under this scenario, smaller ports would fall subject to the proposed amendments after a set period of time such as ten years. During this intervening period, smaller ports would continue to be subject to the current At-Berth regulations. During this time, larger ports would be working with industry to develop and refine emissions control technologies including bonnet capture equipment and on-board scrubbers to such a degree that initial problems typical of any new technology could be worked out before they are required in all ports. Presently there are already problems with getting the resources needed from technology vendors to support ports with shore-side power systems in need of repair, and it is easy to envision a similar situation occurring with bonnet capture systems in the future. By implementing a delay for small ports, owners of vessel fleets visiting smaller ports would have time to assess new technologies and make informed decisions about retrofitting their fleets with new emission control technologies. In addition, smaller ports would have time to pursue the additional funds needed to invest in emission control technologies such as bonnet capture systems.

In addition, CARB had requested from the Port and its customers estimates of a specific cost point, a "tipping point" at which the burden on complying with the proposed amendments would drive business to leave the Port and move to a less expensive port such as Portland, Tacoma or the Gulf Coast. In discussion with customers of the Port, it has become clear that they are uncomfortable disclosing or even discussing such a cost due to the sensitive nature of disclosing strategic business planning with such detailed proprietary financial information, particularly in the highly competitive business segment of global vehicle shipping. However, one benefit of delaying the application of the proposed amendments to the smaller ports would be that in the interim time market forces would reach equilibrium between vendors of new control technologies and vessel owners and port authorities and make more clear how the increased regulatory costs of the At Berth amendments translate into increased operational costs and a resulting loss of business to other regions with lower compliance costs. This approach creates the opportunity to quantifiably measure leakage without impacting the most vulnerable ports. Delayed implementation would also enable ports time during which to begin coordination with local air pollution control agencies on developing local solutions.

Alternative 3 - Regional Targets and Solutions

53.26 Under this scenario, ports would be allowed to achieve compliance with the proposed amendments through the implementation of a locally developed plan which would achieve reductions in air pollutants equivalent to those of the proposed At-Berth amendments but through other efforts. A large percentage of the emission reductions, such as 75%, would have to take place at the port or adjacent port owned properties so that the benefits of these plans would be felt in the immediate communities around the ports which are most impacted by their emissions. These plans would be tailored specifically to a port's surrounding air basin, including NAAQS attainment dates, and its community needs and problem pollutants. These plans would be developed in partnership with their local Air Pollution Control District or Air Quality Management District with final approval from CARB.

The Port has begun the collaborative development process of a more comprehensive air quality plan that the Port is calling its Port of Hueneme Reducing Emissions and Supporting Health Plan (PHRESH Plan). The PHRESH Plan will be focused on developing Port specific strategies for reducing air pollutant emissions within the Port's direct operations or financial control. The PHRESH Plan will be tailored to the Port's features, equipment and operations and will assess a range of feasible reduction methodologies and source control technologies which could be implemented. The focus will be on achieving the most cost-effective solutions that provide the greatest amount of feasible reductions.

Additional Specific Comments on Proposed Amendments to the At Berth Regulations

Comment #1:

53.27 The Port strongly encourage CARB to conduct a socioeconomic assessment of the proposed amendments incorporating a full cost-benefit analysis due to the potential impacts of the concepts currently being discussed. As outlined above, the Port cannot emphasize enough the potential of economic harm which could result from the loss of small numbers of customers at the State's smaller ports.

Comment #2:

53.28 The Port frequently receives military cargo for the U.S. military which arrives on civilian vessels. The Port requests that CARB clarify if this situation would result in the vessel being exempt from the regulations due to the nature of its cargo.

Comments #3:

53.29 Some vessel lines are already developing and launching new vessels which call at the Port which incorporate onboard emissions controls technologies. The Port requests that CARB clarify whether this type of vessel will be exempted from the regulations or be grandfathered in.

Comments #4:

53.30 The Port requests clarification on the size of tanker vessels which will be subject to the regulations.

Comment #5:

53.31 There was discussion during the workshop of requiring ports to report vessel data to CARB under a new, streamlined reporting regimen. The Port requests clarification of this change and notes that altering the nature of the relationship between the Port and its clients could negatively influence it especially when regulatory compliance documentation is involved.

Comment #6:

53.32 The Port's customers encourage CARB making available grant funding or other incentive to offset the significant labor costs associated with shore power connections, which can total over $5,000 per call and at times exceed the cost of electricity used during the call.

We greatly appreciate the opportunity to provide these comments, and we look forward to working with CARB further on this important regulatory action. Please contact us if you have any questions or comments regarding this letter or its contents.

Sincerely,

Christina Birdsey,
Chief Operating Officer,
Port of Hueneme

Wallenius Wilhelmsen

California Air Resources Board
1001 I Street
CA 95814, Sacramento
California, USA
Att: Clerk of the Board, Ref: ogvatberth2019

05.12.2019

Comments on prospective at-berth regulation

Dear Boardmembers,

As a forward-thinking and environmentally aware operator of large fleet of ocean going vessels, Wallenius Wilhelmsen is diligently working to reduce its emissions as quickly as possible. True zero emissions is our goal because we believe it will be the surest path to ensuring our longterm competitiveness and leadership. To achieve our goal as soon as possible it is critical for all the right decisions and developments to occur in the realms of engineering, business and regulatory policy. In view of this, and given our significant business in Californian ports, we take a keen interest in CARB's regulatory review process concerning at-berth vessel requirements. We urge consideration of the following policy issues:

55.1 1) Any new regulatory requirement must be preceded by a comprehensive review that establishes valid and unequivocal justification for its introduction. The review must include a health and environmental impact assessment as well as a cost benefit analysis. Kindly note the passage on cost and viability of exisitng compliance options following this list.

55.2 2) The vehicle carrier (alias RoRo) segment competes directly with the general cargo and bulker segments for heavy machinery and breakbulk cargo. Therefore to maintain the competitive balance it is vital that any future compliance requirements that would be introduced for vehicle carries, should also apply to those segments.

55.3 3) Technology, such as in the field of batteries and hydrogen power systems, is developing at a rapid pace. Hence, the implementation of any future at-berth requirement should be preceded by a technology review that would defer the implementation if it was found that a new and superior technological solution was nearing readiness.

55.4 4) We find the lack of equality of shore power solutions objectionable. Such systems require an investment of 1mUSD per vessel for a benefit that cannot be enjoyed by any port community in the world outside of California. Furthermore, a capital outlay of that magnitude

Wallenius Wilhelmsen Logistics ASA
Office: : 300 Interpace Parkway Building A,
Suite A300, Parsippany, NJ 07054
Phone: +1 201 307 1300

www.walleniuswilhelmsen.com

will invariably thwart or delay the investment in at-berth solutions that could provide a health and environmental benefit wherever the vessel calls.

Comments on the cost and viability of existing compliance options

In addition to the 1mUSD per vessel capital cost to equip a vessel to receive shore-power, there are the direct operational costs of connection and electricity, as well as the indirect costs due to the delays and maintenance.

55.5

Given that approximately 90% of our fleet visit a CA port within a 2 year period, and that vessel deployment cannot be constrained based on a vessels ability to comply, an at-berth requirement would efffectively be a fleet requirement. Allied to that, vessels in our fleet typically call CA ports only 2-4 times a year and for a short as 12hours at a time. The upshot is the total cost of compliance would be very great relative to the benefit and the operating time of the vessel in California.

The cost of equipping RoRo berths to provide shore power is particularly high both since there is no existing power infrastructure to avail of and because of the large amount of power required. It is also not a given that sufficient surplus clean and renewable electrical power would be available nearby.

55.6

Sock-on-a-stack solutions are not operationally viable for RoRo if quay-based due to obstruction of cargo operations. The barge-based alternative is also not viable due to safety concerns and the threat to effective port operations. Moreover, the net benefit of a barge solution is highly doubtful when the emissions related to repositioning the barge are considered.

Thank you for taking the time to consider the foregoing and please do not hesitate to contact the under signed if further information or discussion would be helpful.

Regards,

Alex Conjour

VP, Port & Cargo Operations

alex.conjour@2wglobal.com

Roger Strevens

VP, Global Sustainability

roger.strevens@walleniuswilhelmsen.com

Comment Log Display

Below is the comment you selected to display.
Comment 56 for To Consider Proposed Control Measure for Ocean-Going Vessels At Berth (ogvatberth2019) - 45 Day.

First Name: Mishwa
Last Name: Lee
Email Address: mishwalee@gmail.com
Affiliation: Ms.

Subject: New rule to reduce air pollution from ships
Comment:
Thank you to the staff at CARB for proposing a rule to increase control of particulate matter and other air pollutants from more types of ships and tankers. I am a native of the Bay Area, suffer from asthma and have children and grandchildren who have more serious conditions than I. We all deserve clean air and yet suffer from pollution than can be drastically reduced.

56.1 I urge members of the CARB to vote for these improved air pollution control requirements to a greater types of ships. Your vote in favor of thee stricter regulation will show us that you truly care about the health of your district residents. Improved health outcomes will diminish public health financial burdens and increase productivity of us workers. Thank you

Attachment:

Original File Name:

Date and Time Comment Was Submitted: 2019-12-09 20:28:49

If you have any questions or comments please contact Clerk of the Board at (916) 322-5594.

Board Comments Home

CONTACT US

(800) 242-4450 | helpline@arb.ca.gov
1001 I Street, Sacramento, CA 95814
P.O. Box 2815, Sacramento, CA 95812



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Chair Nichols and Members of the Board
California Air Resources Board
1001 I Street
Sacramento, CA 95814

December, 09 2019

Ref. Proposed Control for Ocean Going Vessels at berth regulation.

Dear: Chair Nichols

My name is Theral Golden, and I am a resident of Long Beach, Ca. and I live in West Long Beach.

I believe it is governments primary responsibility to protect its residents and not to inflict adverse conditions on them.

West Long Beach Ca. is adjacent to the Port of long Beach and receives all the negative environmental impacts that the Port of Long Beach produces. Childhood asthma is about ten percent higher in this community and our neighboring communities that are adjacent to the Ports of Long Beach and Los Angeles than any other area in Los Angeles County. The American medical Association released a report in August of this year that clearly states: the ambient ozone level was 3 parts per billion higher in the cities studied and Los Angeles was one of them. Concluded where you live compared to another location over 10 years that was associated with an increase in emphysema roughly the equivalent of smoking a pack of cigarettes a day for 29 years. And the study determined that ozone levels in some major U.S. cities are increasing by that amount, due in part to climate change. This is compounded and amplified by port activity.

I would like to make and illustration that tells the story of living next to the port in a better way: The Port Of Long Beach is (my neighbor} and has a large dog that It walks every day and when that dog gets to my yard (My Community) the dog leaves a large Load of waste in my yard (negative environmental impacts) an when you ask the Port To clean the large load up there is an unlikely response, we are not authorized.

But the Port of Long Beach is allowing pollution of the air I breath without me having any recourse and that is unacceptable to me.

For the reasons above I oppose any extension of time in the implementation of the Proposed Control for Ocean Going Vessels at berth regulation.

57.1 I support an immediate implementation of the Proposed Control for Ocean Going Vessels at berth regulation.

Thank you for this opportunity to comment on the Proposed Control for Ocean Going Vessels at berth regulation.

Cordially,

Theral Golden
3549 Fashion Ave.
Long Beach, Ca. 90810

igus, Incorporated
257 Ferris Avenue
Rumford, RI 02916
(800) 521-2747

Comments on OGVAtBerth2019

iMSPO solution

igus started its' collaboration with the Ports of California in 2016 by discussing the challenges with their current shore power supply systems. After these meetings we left with some concepts to explore for developing new products to meet these challenges. ***(Refer to appendix A: Connection Dilemma)***

The final development of the igus Mobile Shore Power Outlet (iMPSO) system started in 2018 when a port in California formally approached igus to develop a solution that would help them augment their existing systems with the flexibility that would be required to meet the future At-Berth regulations. The currently installed fixed shore power outlets (SPO) in their present arrangement would not provide them the necessary flexibility to reach full compliance. Installing more SPO's can be very costly and is not a solution that can provide a guarantee that future needs could be met. It was apparent that a new technology was needed to help bridge the gap between existing technology limitations and future requirements.

With igus being the world-wide leader in flexible cable management systems, we recognized an opportunity where our core competence could be used as the basis for a new type of system that could be developed with cooperation from strategic partners that are leaders in their respective industries.

- The system was developed to be fully compliant with the standards set forth in IEC-80005-1, Annex D for container vessels, 7.5MVA, 6.6kV. It also meets EU Machinery Directive 2006/42/EC has an IP67 rating for all electrical components and will be manufactured with corrosion protection that meets the offshore industries rigorous C5-M specification.
- The travel distance is up to 1200ft in respect to maximum berth/vessel length. (1500ft is the maximum travel due to loading limitations)
- The main advantage of the iMSPO over other systems is that instead of installing multiple vaults, one mobile shore power outlet is installed that can be positioned at any place along the berth to serve any potential needed vessel connection point. This will allow any vessel that is calling at that berth to connect. It is a one-time investment that serves all requirements of the future.

An iMSPO installation utilizes the existing electrical infrastructure and does not require additional investment in electrical infrastructure modifications. The iMSPO can be connected to any existing vault on the terminal.

The most important limitation when considering an iMSPO is the space needed for the area of operation. The system is installed on the face of the quay wall above the fendering systems. Therefore, the position of the fenders, bollards and bull rails in each terminal must be analyzed

carefully. Some modifications may be required to create the space needed for the system and each installation may vary slightly based on site conditions. Studies have indicated that the worst-case scenario will result in the need to replace the affected fenders. Fender replacement is a common occurrence at the terminals and ports, since fenders are typically replaced every 5-10 years due to wear and tear or damage from vessel impacts. ***(Refer to appendix B: iMSPO solution)***

Company

igus is a family owned company with more than 4,150 employees and 35 subsidiaries worldwide that just celebrated its 55-year anniversary. At the headquarters in Cologne, Germany, igus is developing, manufacturing and testing in a facility that is more than 2,000,000 ft² delivering more than 7,000 orders worldwide every day.

igus Inc. was the first subsidiary established in 1985. Our U.S. headquarters supports production, assembly, testing, marketing and sales from a new 189,000 ft² facility located in Rhode Island. igus employs over 430 people in North America which includes offices in the USA, Canada and Mexico

For over 20 years igus has been viewed as a well-known and reliable manufacturer and solution provider in the maritime industry. igus has provided products and services for more than 8,000 port applications and more than 1,000 offshore applications worldwide.

Core competence and partners

igus' core competence is developing and manufacturing cable management systems for applications in more than 50 different industries. igus is driven by innovation to solve our customer problems and has organically grown at a rate of more than 10 % per year.

igus believes in strategic partnerships to provide our customers the best solutions and support. In order to focus on our core competence, we collaborate with partners who add value to the customer solutions that we provide. For shore power solutions igus cooperates with engineering and manufacturing companies who are experts and have valuable experience in delivering challenging project solutions. Our most valued partners are P2S, H3, Hybeko, Shiabata Fender Team and ART Engineering.

Manufacturing capacities

Our factory in Cologne is capable of manufacturing, assembling, harnessing, packaging and shipping up to 5 large projects that are comparable to the iMSPO system per week. These e-chain systems include steel parts and guide trough systems, cable assemblies that are built and tested with connectors or junction boxes according to low and medium voltage international

standards. We provide documentation that meets the highest standards within the offshore industry and perform factory acceptance tests in our laboratory which is the largest of its kind worldwide. In addition to our German factory our U.S. factory has the capacity to assemble multiple long-travel projects per week.

igus is the largest cable management supplier to the machine tool industry. We deliver hundreds of turnkey systems per year to single customers. We have the largest stock of cables for moving applications worldwide. We are accustomed to accepting very challenging projects and delivery requirements and we are willing to adapt and grow to meet these needs.

Installation capacities

igus supervision and project service teams are performing installations worldwide every day. Our project supervisors are certified for the highest industry standards like the offshore industry. igus also has a worldwide network of installation companies that are trained and certified to install igus cable management systems. Our team of direct igus support personnel and authorized service partners is well suited to meet any future challenges.

Developing cable management systems for other vessel categories

igus' growth philosophy is understanding customer challenges and developing solutions. We learn from every application and use our experience across different industries. We are constantly working on new products and improvements.

Together with our partners across multiple engineering professions and suppliers, we have the ability to develop turnkey solutions for our customers.

We believe in standardization to ensure product quality, service and price. Therefore, we are always trying to find standard components or systems that can be combined or adapted.

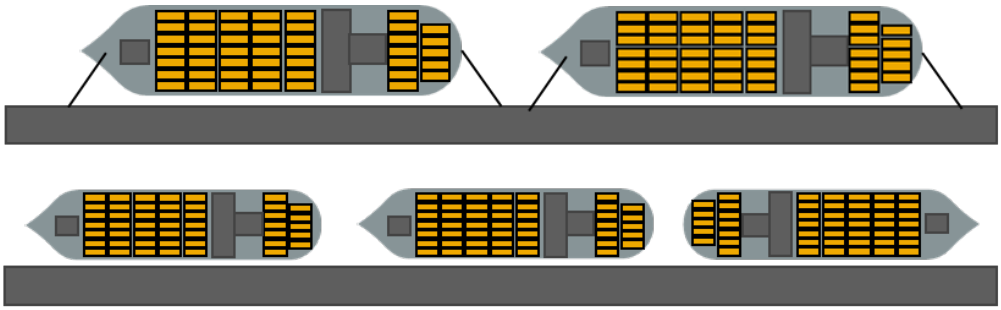
Currently, we are working with our partners on a mobile shore power machine that lifts and deploys cables onboard the vessel as required for Cruise, RoRo and Car Carrier vessels.

Igus has a strong track record of developing and delivering challenging system solutions for shore power and the maritime industry.
(Refer to appendix C: References)

Comments on OGVAtBerth2019

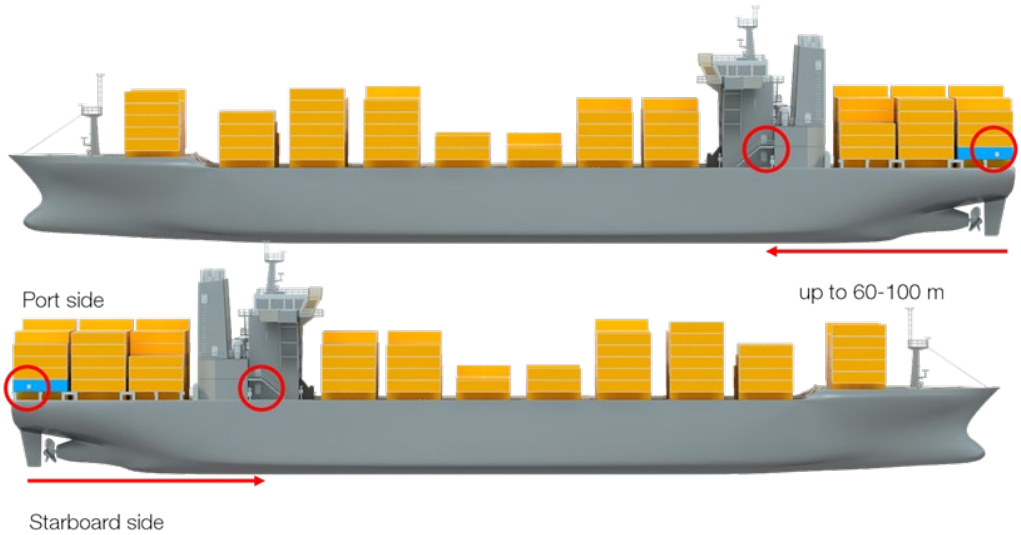
Appendix A: Connection Dilemma

The vessels that are calling at the terminals change every day. They change in size, berthing position (starboard and port side) and where the cable reel is positioned on board the vessel. This variance in needs creates situations in which the vessel cannot connect because the ship side cables will not reach the sockets.



Multiple ships and flexible berthing arrangements…

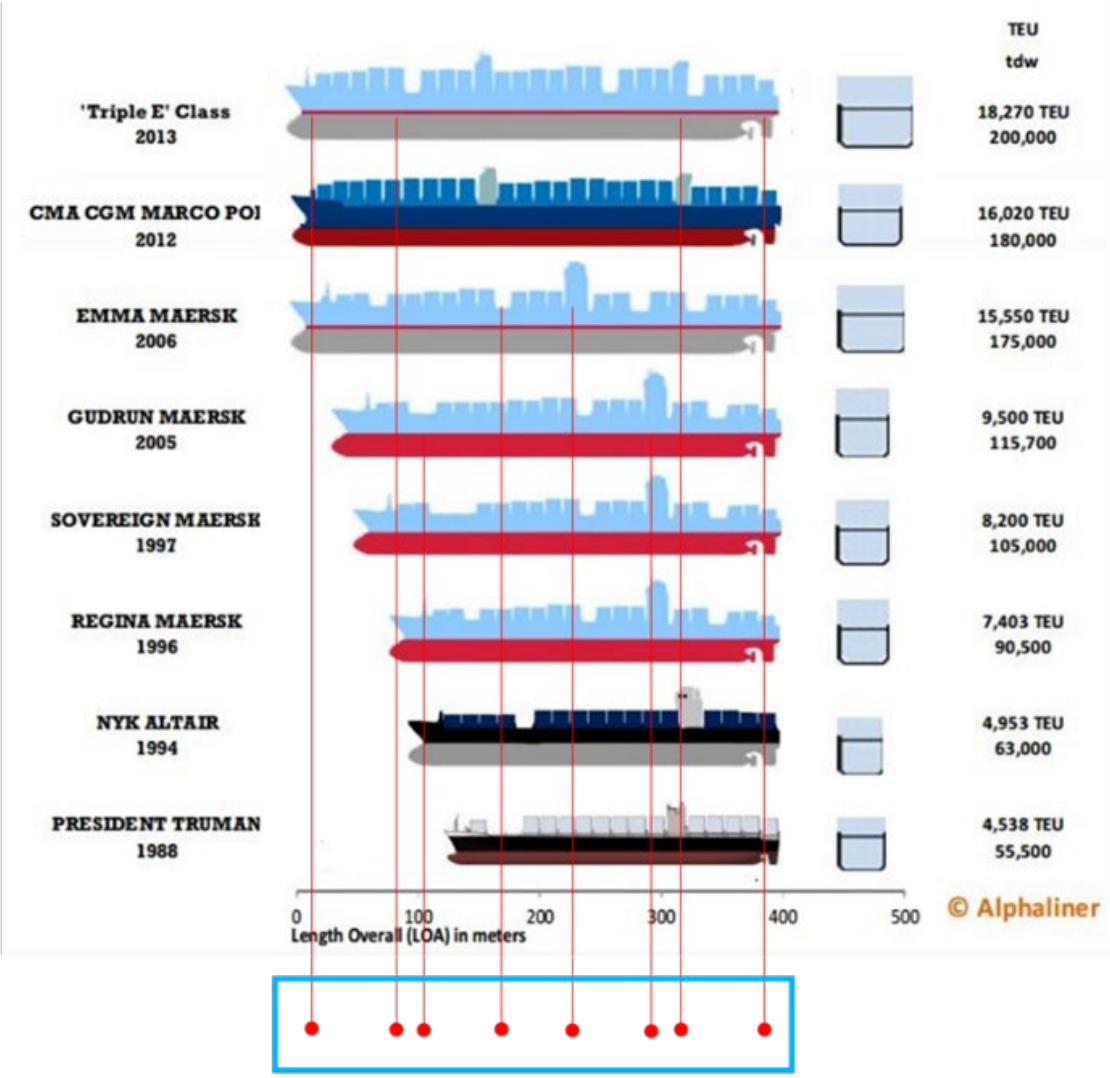
Illustrated below are the multiple onboard cable reel positions compounded by port and starboard cable deployment needs…



Port and starboard berthing requirements…

Comments on OGVAtBerth2019

As the size of ships increase the need for even more connection point possibilities are created.

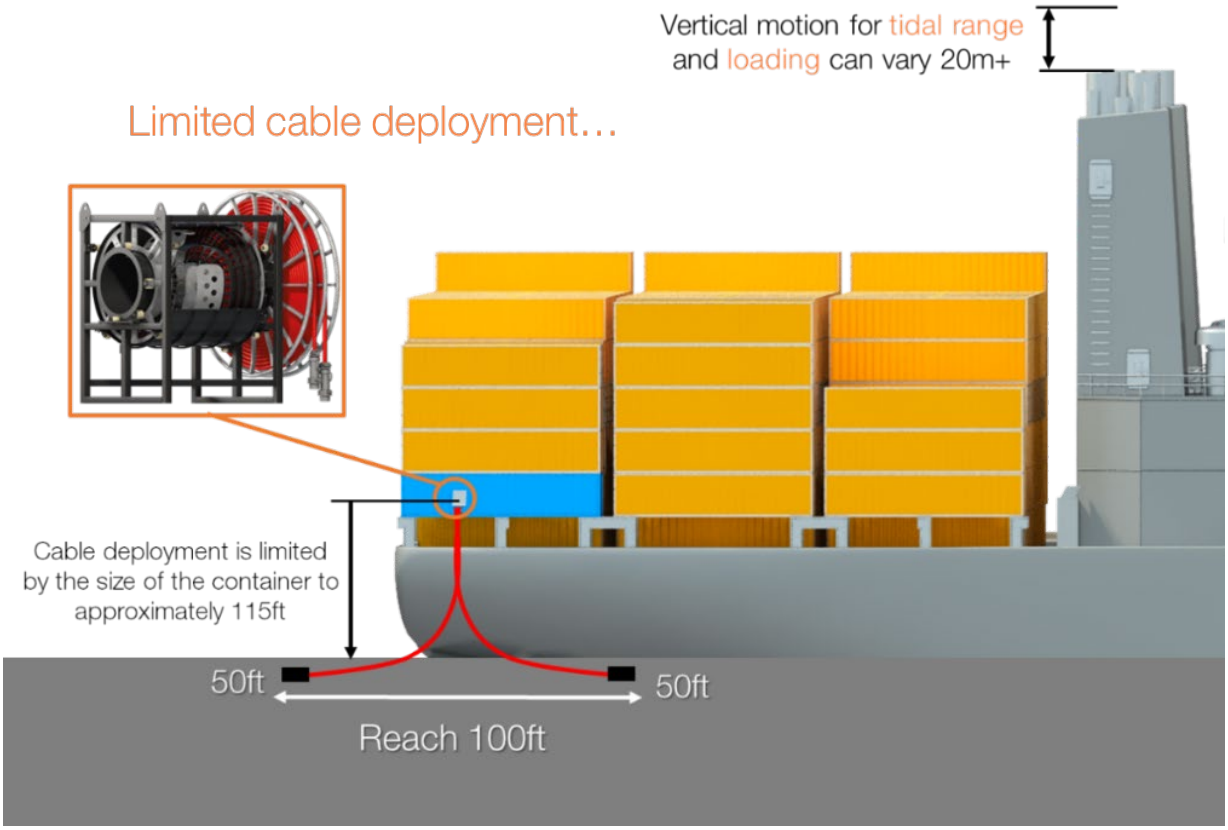


igus, Incorporated
257 Ferris Avenue
Rumford, RI 02916
(800) 521-2747

Comments on OGVAtBerth2019

This diagram illustrates the limited reach of the cable reel cable when trying to connect to a fixed Shore Power Outlet. A fixed vault installation would need to be installed every 100ft down the wharf to provide 100% connection capability. This method is a high-cost investment in infrastructure and would create significant interruptions to operations due to construction and trenching.

iMSPO can be added on to an existing installation utilizing the existing infrastructure. There is no need for trenching or expensive infrastructure components.



Appendix B: iMSPO Technology and Comparison and Advantages

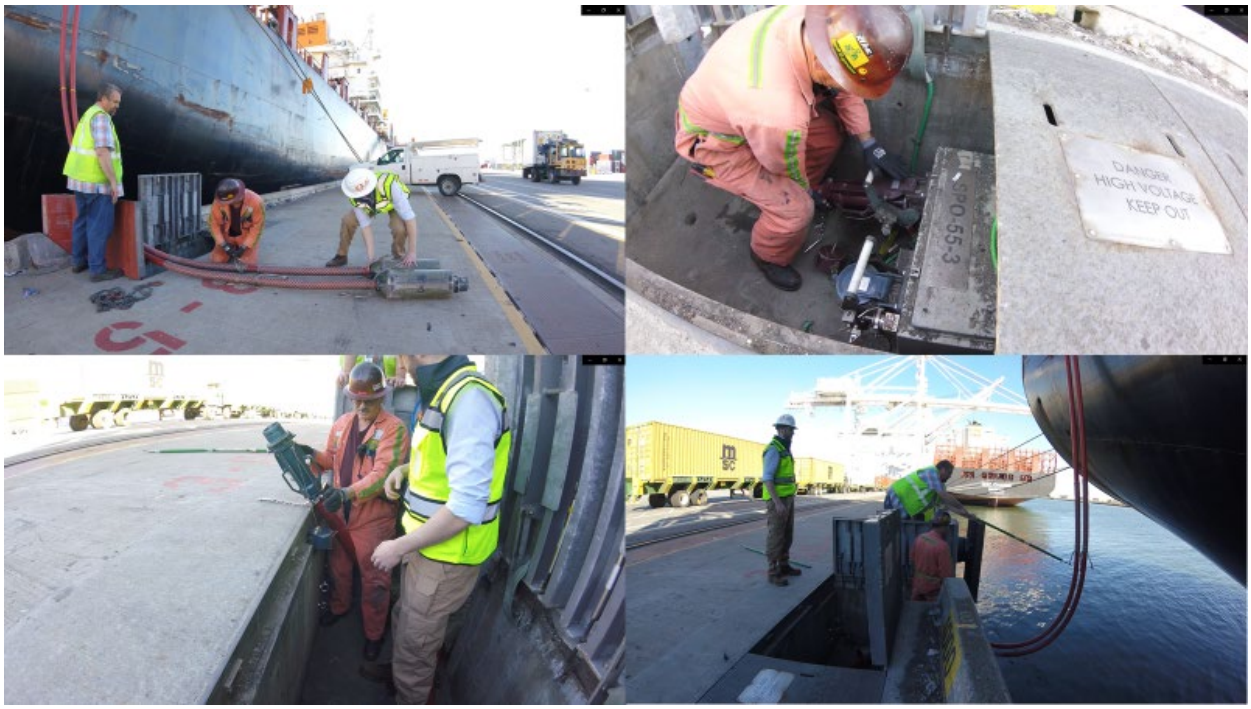
Find the video here: https://www.igus.com/info/industries-offshore-mobile-spo

iMSPO is easier to use and more ergonomic than standard fixed SPO's

1. All cable handling is minimized and performed above ground at a comfortable height.
2. The plug/receptable mating process is easier as it is performed at waist height and with lots of slack in the cable to facilitate alignment.
3. The shortest amount of cable is handled and minimal weight must be manipulated by the operators.

Fixed vault SPO cable handling

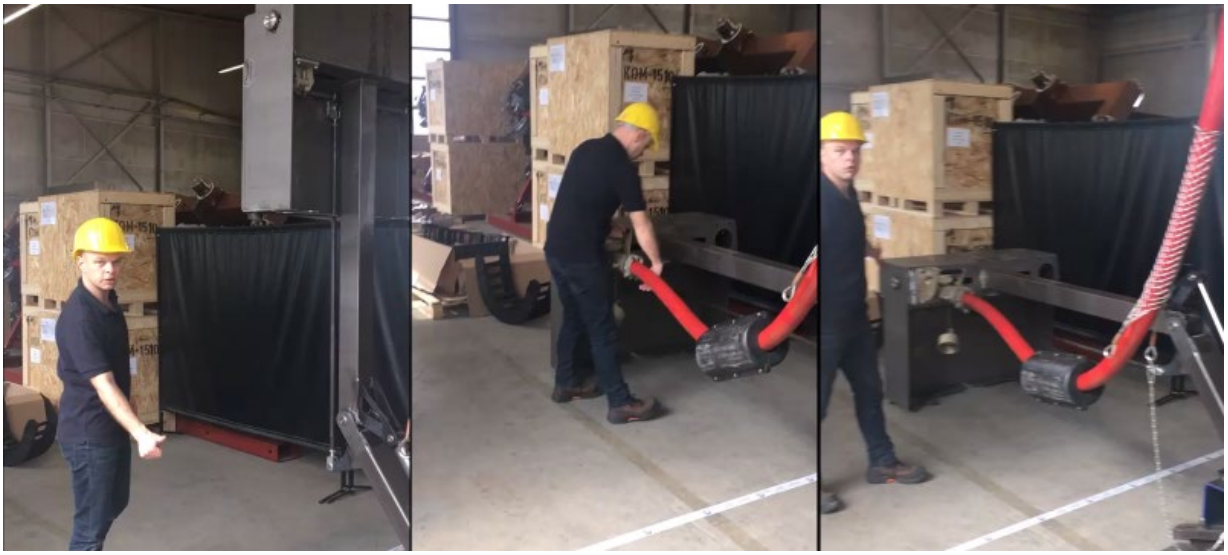
Illustrated below is a typical vault connection showing personnel working down in the vault and moving a large amount of cable. If there are ship/vault misalignments it could be necessary to handle up to 50ft of the cable to get the connectors to the vault.



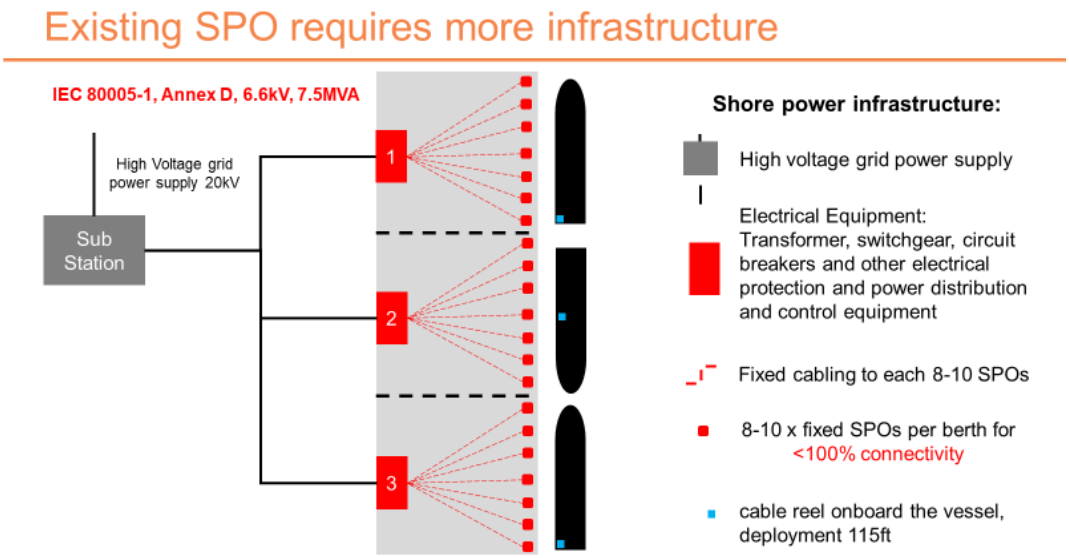
igus, Incorporated
257 Ferris Avenue
Rumford, RI 02916
(800) 521-2747

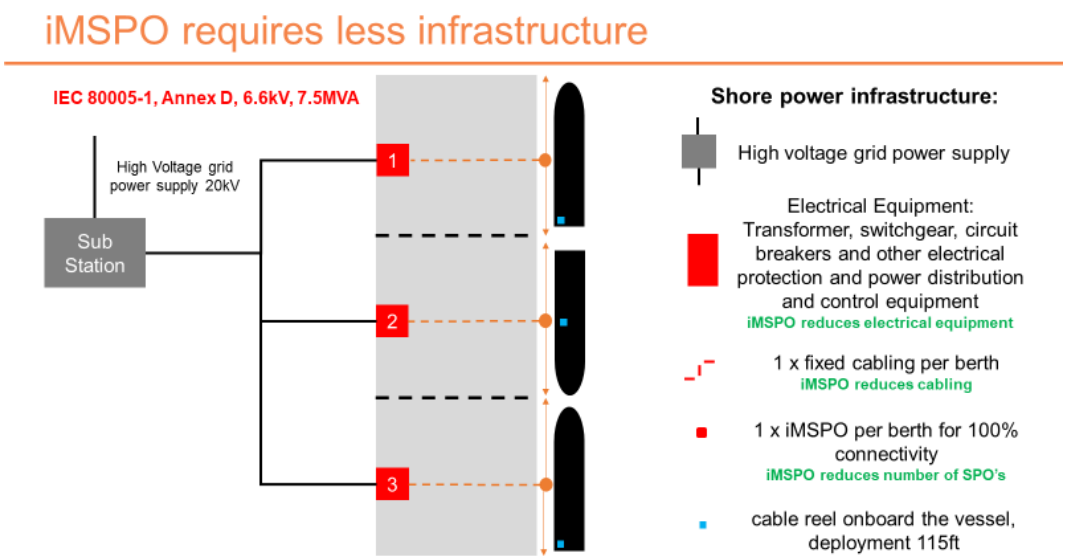
iMSPO cable handling

Illustrated below is a typical iMSPO connection showing an operator working with the shortest amount of cable at a comfortable height. With an iMSPO system there will never be a ship/vault misalignment which will provide optimal connecting conditions every time.



Comments on OGVAtBerth2019





Total cost of ownership benefits

1. One-time investment
2. Reduced electrical infrastructure and less maintenance
3. iMSPO will connect to any existing SPO utilizing existing electrical infrastructure.

Appendix C: References

E-Loop system, test field and assembly at igus factory





igus, Incorporated
257 Ferris Avenue
Rumford, RI 02916
(800) 521-2747

Comments on OGVAtBerth2019

Mobile shore power machine, test at partners factory











Comments on OGVAtBerth2019

Shore power connection for a floating storage unit (FSU), 7MVA, 6.6kV



Shore power connection for Ferries, 500kVA, 690V





Comments on OGVAtBerth2019

Shore power connection for Offshore Supply Vessels (OSV), 1000kVA, 690V







Comments on OGVAtBerth2019

Shore power for electric ferry, 120kVA, 400V



Shore power connection for Cruise Vessels/LNG Barge, 7MVA, 11kV



igus, Incorporated
257 Ferris Avenue
Rumford, RI 02916
(800) 521-2747

Comments on OGVAtBerth2019

Port of Antwerp, Sludge Recycling plant, e-chain E4.350R, travel 450ft







Comments on OGVAtBerth2019

Allseas, e-spool for cutting tool, 50 m deployment



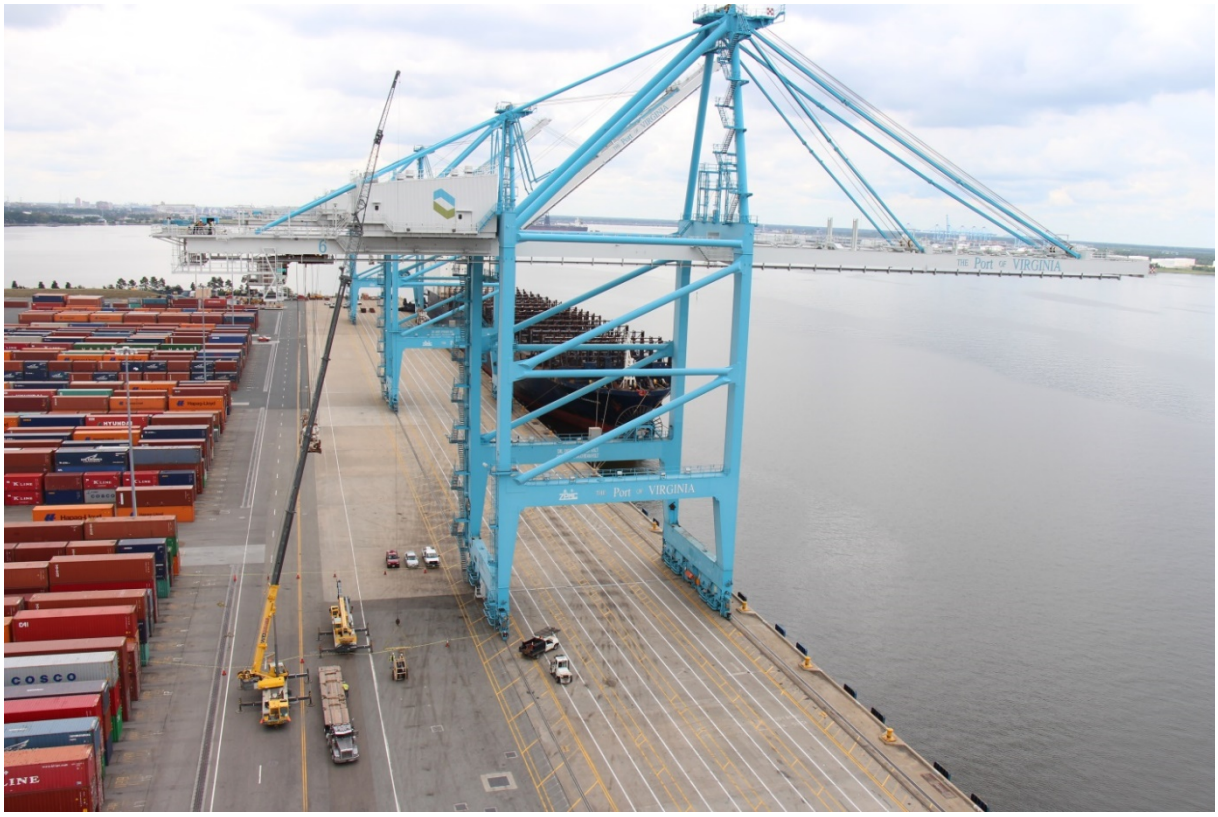




igus, Incorporated
257 Ferris Avenue
Rumford, RI 02916
(800) 521-2747

Comments on OGVAtBerth2019

Virginia Port Authority, e-chain system for 8 STS cranes







Comments on OGVAtBerth2019

DP World Vancouver, e-chain systems for trolley drive of RTGs



Busan Terminal, power supply for RTG, travel distance 700ft



igus, Incorporated
257 Ferris Avenue
Rumford, RI 02916
(800) 521-2747

Comments on OGVAtBerth2019

PSA Singapore, Power supply for 12 STS cranes, travel distance up to 1700 ft







MEMBERS
Humboldt Bay Harbor District
Port of Hueneme
Port of Long Beach
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Port of Redwood City
Port of Richmond
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Port of Stockton
Port of West Sacramento

CALIFORNIA ASSOCIATION OF PORT AUTHORITIES
1215 K Street, Suite 1150, Sacramento, CA 95814 • (916) 443-8891 Phone
600 Massachusetts Avenue NW, Washington, DC 20001• (310) 229-9603 Phone

OFFICERS
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President
Jim Matzorkis
Vice President
Andrew Palomares
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December 9, 2019

Mr. Richard Corey
California Air Resources Board
Clerks' Office
1001 I Street
Sacramento, CA 95814

SUBJECT: COMMENTS ON THE PROPOSED AT-BERTH REGULATION

Dear Mr. Corey:

The California Association of Port Authorities ("CAPA"), which is comprised of the state's eleven publicly owned commercial ports, appreciates this opportunity to provide comments on the California Air Resources Board's ("CARB") proposed "Airborne Toxic Control Measure for Auxiliary Diesel Engines Operated on Ocean-Going Vessels At-Berth in a California Port."

CAPA and its members have a long history of working collaboratively with CARB on air emissions regulations. We appreciate your willingness to meet with our members during the rulemaking process and take their comments into account, and we hope to continue serving as constructive partners to CARB as the process moves forward.

CAPA members are fully committed to reducing air emissions from vessels at-berth and their public health impacts on our communities, including homes, schools, and businesses, and we share CARB's goals of achieving ambitious improvements to air quality. We are proud of our role as environmental stewards and the significant results in reducing freight-related emissions reduction that we have already achieved working closely with our partners – including CARB, our local air quality and pollution control regulators, and our customers – through a combination of regulatory, incentive, and voluntary programs.

For example, the Port of Oakland has reduced diesel particulate matter (DPM) from truck emissions by 98%; between 2006 and 2016, the Port of San Diego reduced DPM by 85%, SOx by 97%, and NOx by 61%; and the Port of San Francisco has reduced particulate matter emissions from cruise ships by 61% from 2006 levels. Since 2005, the Ports of Los Angeles and Long Beach have reduced diesel particulate matter from OGVs by 93%, NOx by 60%, SOx by 97%, and CO2e by 31%, according to 2018 emissions inventories.

As CARB reviews the comments and considers next steps, CAPA suggests three important factors to bear in mind in seeking to realize our shared air quality improvement objectives:

- First, as CAPA noted in its October 9, 2017 submission and as is clear from the comments that have been submitted by our member port authorities, taking a standardized approach to achieving air emissions reduction is problematic. "If you've seen one port, you've seen one port" is a common expression in the port community. That statement certainly applies when it comes to California ports, whose operations vary significantly from port to port. Their facilities are different, as are the vessel types they service. CAPA members also operate in different air basins that have differing air quality concerns. These differences should be highly relevant to CARB as it seeks to put in place a world-class standard for reducing harmful air emissions, and CARB should take these differences into account in order to maximize the effectiveness of its regulatory scheme.

59-1

- Second, CARB should undertake a thorough analysis of the proposed measure and feasible alternatives to ensure that the measure selected maximizes net benefits to society. A final rule that inadvertently diverts cargo to ports outside California would result in the cargo being trucked back to California markets and actually increase air emissions and GHG concerns. In crafting a suitable approach, it is critical that CARB utilize the best available scientific and technical information. For instance, CARB forecasts a 5% year-over-year growth of cargo for the next decade, whereas our ports have voiced that a 2-2.5% growth rate is realistic. Accordingly, the forecasted emissions assumptions that CARB is relying on do not appear to be supported by the data and, as a result, they distort CARB's analysis of the proposal's effectiveness, impact on regulated entities, and benefits. In addition, the proposed rule relies on technologies – such as the bonnet system – that are still being proven for different vessel categories, and for which the cost effectiveness of widespread use remains to be confirmed. Given the proposal's potential negative impacts on employment, both at the ports and in the communities they serve (which are often in economically-challenged areas), it is important that we get this right.

59-2

59-3

- Taking into account these elements, CARB should modify its proposal to focus less on a "one size fits all approach" and more on permitting the use of flexible approaches, or alternative compliance plans, that will help each port achieve compliance taking into account its own unique circumstances. Approaches that CARB could usefully consider include: (1) providing funding to support investment in technologies that will help ports to comply with the proposed at-berth regulations and do not increase GHG emissions, recognizing that the funding and technologies required may differ from port to port; (2) providing flexible timeframes, given the uncertainty surrounding the availability of emissions capture and control technologies that are necessary to achieve compliance and taking into account the differences between California ports; and (3) allowing vessel operators, in coordination with ports, to develop local or regional emissions reduction plans that would achieve air emissions reductions that are equivalent to the proposed at-berth regulations, but through other means.

59-4

Thank you again for providing the opportunity to comment. This rulemaking will set an important environmental precedent for the United States, as well as globally, and we want these efforts to serve as a model throughout the country and the world for reducing air emissions from ships at-berth. We look forward to working with you to continue reducing emissions to the benefit of our communities, and improving the competitiveness of the California freight system. Please feel free contact us with any questions.

Best,



Eugene D. Seroka
President, California Association of Port Authorities

cc: Bonnie Soriano, CARB (via email Bonnie.Soriano@arb.ca.gov)
Angela Csondes, CARB (via email Angela.Csondes@arb.ca.gov)
Nicole Light, CARB (via email Nicole.Light@arb.ca.gov)

415 W. Ocean Blvd., Long Beach, CA 90802-6194 Tel 562.283.7000 www.polb.com

Port of
LONG BEACH
The Green Port

December 9, 2019

Mary Nichols
California Air Resources Board
Clerk's Office
1001 I Street
Sacramento, CA 95814

Dear Chairperson Nichols:

SUBJECT: COMMENTS ON THE PROPOSED REGULATION ORDER, "AIRBORNE TOXIC CONTROL MEASURE FOR AUXILIARY DIESEL ENGINES OPERATED ON OCEAN-GOING VESSELS AT-BERTH IN A CALIFORNIA PORT"

The Port of Long Beach (Port) appreciates this opportunity to provide additional comments on the California Air Resources Board (CARB) proposed regulation order, "Airborne Toxic Control Measure for Auxiliary Diesel Engines Operated on Ocean-Going Vessels At-Berth in a California Port" released in the Initial Statement of Reasons (ISOR). Concluding the Board Hearing on December 6, 2019 in West Oakland, the Port would like to make additional comments on the ISOR and CARB staff's presentation.

The proposed revised framework and timeline presented at the Board Hearing aligned well with the direction CARB staff has communicated in recent meetings. However, the emissions benefits and state of technology described in the meeting were overstated, and the presentation minimized the technology challenges the industry faces to comply with the proposed rule.

The Port would like to clarify a few items that were discussed during the staff presentation:

60.1 • The presentation implied that roll-on, roll-off (RoRo) vessels could utilize the current emission capture and control technology. This is not true. The technology for RoRo vessels will need to be engineered to accommodate the greater reach requirements of the RoRo vessels and different stack configurations. A technology capable of scrubbing RoRo emissions has never been demonstrated to date.

- The T121 Marathon terminal does have shore power capability that is being utilized by one tanker vessel. The single vessel capable of shore power is unique, using diesel-electric engines. The rest of the current tanker fleet visiting the Ports are not capable of shore power retrofits, as their boilers cannot be electrified. Thus, it is inappropriate to point to this example and extrapolate the possibility to the rest of the tanker fleets in California.

60.2

- The Port disagrees the staff work to date constitutes a robust feasibility assessment. As stated in the joint Port of Los Angeles and Port of Long Beach comment letter dated July 2, 2019, the berth analysis developed by CARB is not a technical document. It is an aggregation of terminal operator and harbor pilot opinions, and Google Maps research. The ISOR states that it is also founded upon port conversations; however, the analysis does not reflect Port of Long Beach input. The berth analysis should have been founded upon an engineering assessment of the infrastructure required at the terminals. Further, the costs used by CARB in the ISOR are based on conversations with technology developers, rather than real quotes. The Port provided CARB invoices from previous shore power construction projects and cost estimates for future shore power work required by the rule in the joint Port of Los Angeles and Port of Long Beach comment letter dated May 20, 2019. CARB staff overlooked the engineering assessment, which was based upon real data. In addition, the CARB OGV Technology Assessment referenced in the Board Hearing looked at the technologies available to date - and did not include a formal engineering assessment to address the readiness to control emissions from other vessel types. Previous letters from the ports, provided in the attachments, described the information that should be included in a feasibility assessment.

60.3a

60.4

60.3b

- Technology advancement for the RoRo and tanker technologies will be critical, and the industry needs more than the proposed $10 million for a tanker demonstration to foster market growth and acceptance for alternative emission capture and control technologies. It is clear from the hearing and from discussions with industry that there are considerable engineering and safety hurdles, and across California, the operational constraints are different from port to port. As we have requested in our previous comment letter, we believe $200 million will be needed statewide to support technology advancement and deployment, which is on the scale of the Prop 1B funds allocated to support the 2007 At-Berth Regulation. The Ports have significant experience successfully managing grant dollars and pushing technology innovation with the support of state grant funds.

60.5

The Port would like to provide the following comments to improve the integrity of the ISOR:

60.6

- The ISOR utilizes a report by the Mercator International in 2016, which estimates activity at the Port of Los Angeles and Port of Long Beach will grow by 57% between 2021 and 2032 as measured in 20-foot equivalent units (TEU). CARB staff used this to estimate emissions without the implementation of the new At-Berth Regulation. The results are a significant overestimation, as the TEU growth metric does not account for the fact that while cargo increases, the ships are getting larger and fewer ships are calling the Port. Since 2005, container throughput is up 21% at the Port of Long Beach, while containership calls are down 25% according to the 2018 Emissions Inventory. TEUs per call are up 60%.

60.7

- The ISOR does not adequately capture the emissions benefits associated with RoRo vessels. The Port in partnership with the Port of Los Angeles and the Pacific Merchant Shipping Association (PMSA) asked a third party consultant to develop a cost-effectiveness analysis for RoRo ships in the San Pedro Bay Ports (SPBP) which must comply with the proposed regulation. Given CARB's assumption that the RoRo industry will opt for barge-based emission capture and control technology, the analysis considers the emissions benefits of this technology, and the additional emissions produced from the harbor craft responsible for moving and placing the barge-based system. The anticipated benefits are shown below. The analysis identified that greenhouse gases and sulfur oxides will increase as a result of this regulation. The NOx and DPM benefits are small considering the respective Ports emissions inventories. Overall, auto carrier and RoRo at-berth emissions made up approximately 1% of all OGV emissions in the SPBP's 2018 inventory, or between 2-4.5% of all at-berth emissions. Furthermore, the analysis estimates cost effectiveness to range between $115k and $200k for the utilization for four, third party barge-based emission capture and control systems. The analysis is included in the attachments and a summary of the results is available in Table A1 below.

Table A1: RoRo Vessel Reductions from Barge-Based at-Berth Capture and Control, tpy

Port	PM_{10} tpy	$PM_{2.5}$ tpy	DPM tpy	NO_x tpy	SO_x tpy	HC tpy	CO tpy	CO_2e mt/yr
Emission Reductions (or increases)								
POLB	0.40	0.38	0.38	19.61	-0.66	-0.73	-5.04	-1,615
POLA	0.22	0.20	0.18	8.98	-0.37	-0.43	-3.30	-1,005
Total	0.62	0.58	0.56	28.59	-1.03	-1.15	-8.33	-2,620
Percent Reduction (or increase)								
POLB	36%	36%	38%	40%	-28%	-44%	-113%	-49%
POLA	39%	38%	39%	40%	-35%	-52%	-151%	-53%
Total	37%	37%	38%	40%	-30%	-47%	-125%	-50%

60.8

- The emissions inventory for the ISOR takes credit for Prop 1B emissions benefits which are already anticipated to occur. 12 berths at the Port of Long Beach

received Prop 1B funding for shore power installations, and thus, must meet the strict requirement that 90% of vessels visiting these berths control at berth emissions. The ISOR should only take credit for incremental emission reductions above and beyond the requirements in place today.

- The ISOR assumes the regulated terminals at the Port of Long Beach will not require any additional shore power upgrades to meet the proposed regulation. This does not align with information submitted by the Port of Long Beach in our May 20, 2019 comment letter. Port staff provided CARB with an engineering assessment of the infrastructure needed to maximize shore power at the regulated terminals. The Port would need to build an additional 42 shore power outlets and invest an additional $106 million in infrastructure to ensure nearly every vessel plugs in. This estimate was informed by previous shore power cost estimates and design, and the invoices utilized were provided to CARB staff. It is important to note that even with the additional infrastructure, we recognize that not every vessel would plug in 100% of the time. For example, some vessels which have not been retrofitted for shore power may still arrive. Given the uncertainty of the new framework, which regulates on a per vessel call basis, rather than fleet averaging, it is clear the terminals will need additional shore power outlets to mitigate the risk of noncompliance. It is disappointing that CARB did not utilize the engineering assessment nor the invoices providing true shore power costs. This information was developed based upon the knowledge and expertise of the Ports and our engineering experts. The Ports have more experience with shore power installation than any other entity.

60.9

- Some of the costs incorporated into the ISOR were gathered from casual conversations with terminal operators, technology developers, and vessel operators. In many cases, these parties were not briefed that the estimates would be used in the rule development, nor were the estimates verified. Additional vetting is necessary to ensure the cost analysis is robust and defensible.

60.10a

Fundamentally, the ISOR package should be founded upon real data. It is understood that much of this data does not exist today because the technologies either do not exist, or have not been demonstrated. For this reason, we support the additional evaluation that will be completed for the 2023 feasibility assessment proposed in the regulation.

60.10b

It is essential that CARB staff communicate the data gaps, the status of the technology, and the true public health benefits to the CARB Board and the public. The ISOR as it stands today overstates the emission and public health benefits of the proposed At-Berth Regulation, and utilizes unvetted data. While the Port of Long Beach supports reducing emissions from vessels at-berth, we do not support the ISOR package due to its limited data sources, and unrealistic assumptions.

We look forward to continued and productive coordination between the staffs of the Port of Long Beach and CARB over the next few months, and we anticipate that the final regulatory package will better reflect the true state of technology, associated costs, and projected emissions benefits.

Please feel free to reach out to Morgan Caswell, Port of Long Beach Manager of Air Quality Practices at (562) 283-7138 or via email at morgan.caswell@polb.com with any specific questions.

Sincerely,

MARIO CORDERO
Executive Director
Port of Long Beach

cc: Bonnie Soriano, CARB (via email Bonnie.Soriano@arb.ca.gov)
Angela Csondes, CARB (via email Angela.Csondes@arb.ca.gov)
Nicole Light, CARB (via email Nicole.Light@arb.ca.gov)

Attachments:
POLA/POLB At-Berth Regulation Comment Letter February 6, 2019
POLA/POLB At-Berth Regulation Comment Letter May 20, 2019
POLA/POLB At-Berth Regulation Comment Letter July 1, 2019
POLA/POLB At-Berth Regulation Comment Letter December 3, 2019
CARB At-Berth Regulation Cost Effectiveness Analysis for Auto Carriers and RoRo Ships at Port of Long Beach & Port of Los Angeles

SAN PEDRO BAY PORTS

CLEAN AIR ACTION PLAN

February 6, 2019

Bonnie Soriano
Chief, Freight Activity Branch
California Air Resources Board
1001 "I" Street
Sacramento, CA 95814

SUBJECT: PORT OF LOS ANGELES AND PORT OF LONG BEACH COMMENTS ON PROPOSED DRAFT REGULATORY LANGUAGE, "CONTROL MEASURE FOR OCEAN-GOING VESSELS OPERATING AT BERTH AND AT ANCHOR"

Dear Ms. Soriano:

The Port of Long Beach and Port of Los Angeles (Ports) appreciate this opportunity to provide comments on the California Air Resources Board (CARB) proposed draft regulatory language, "Control Measure for Ocean-Going Vessels Operating At Berth and At Anchor."

We value the partnership we have built with CARB and credit this positive relationship in large part to helping us achieve very significant emissions reductions at the Ports and throughout the freight industry over the last decade. Likewise, we appreciate CARB's willingness to continue to work with us to find solutions for overcoming the various challenges to meet our common emissions goals.

As described in the 2017 Clean Air Action Plan (CAAP) Update, the Ports' support increased efforts to capture at-berth emissions from ships and to obtain more emissions reductions from non-regulated vessels, and we are committed to working with CARB to achieve these goals.

The purpose of this comment letter is to assist CARB in the development of a feasible at-berth regulation that maximizes public health benefits, and also to communicate the challenges associated with implementing the draft regulatory language as currently proposed.

Port of LONG BEACH
The Green Port
Port of Long Beach | Environmental Planning
4801 Airport Plaza Drive | Long Beach, CA 90815
562.283.7100

THE PORT OF LOS ANGELES
Port of Los Angeles | Environmental Management
425 S. Palos Verdes Street | San Pedro, CA 90731
310.732.3675

The following summarizes comments of the Ports regarding proposed components of the draft regulation:

- **A Requirement to Control 100% of Visits Is Not Realistic** – Requiring 100% of vessel visits to use at-berth controls will require redundant systems to ensure coverage at all times, leading to skyrocketing costs for Ports, terminal operators, and ship owners with little additional emissions benefit. We urge reconsideration of such an absolute goal, even in light of your proposed use of exceptions, including terminal safety and emergency events, equipment failure, and physical and spatial constraints.

60.11

- **The Proposed Implementation Timelines Are Too Aggressive** – Of particular concern to the Ports, and our respective engineering staffs, is the implementation timeline for the proposed at-berth regulation. Expansion of shore power infrastructure, either through additional shore power outlets (SPOs) or via cable reel management systems, to meet the updated regulation requirement of 100% compliance for container, refrigerated cargo (reefer vessels) and cruise ships by 2021 will be a near impossible task for the Ports or the terminal operators to achieve due to the requisite planning and construction process for capital construction projects. The Port of Long Beach has estimated both the cost and timeline required to maximize compliance with the proposed draft regulation in the attached document, "Potential Strategies and Costs to Address the At-Berth Regulation" (Attachment A). The potential completion date for infrastructure required at the Port of Long Beach to accommodate the proposed regulations for container terminals is December 2025 at the earliest, depending on the extent of infrastructure required. Port of Los Angeles Engineering staff estimates the timelines and costs would be similar.

60.12

  Further, given the lack of proven and available shore power or alternative options for at-berth controls that can be utilized by Tankers and Auto/Ro-Ros, it is highly unlikely that technically feasible, cost-effective technologies will be available for implementation by 2025. Additional time is needed to allow for the necessary capital improvements and/or technology advancements that will be required.

  The Ports also believe that adequate time should be built into the schedule for submittal of terminal operator and Port plans, well in advance of the compliance deadline, in order to provide ample opportunity to adjust their plan given CARB feedback. It would also be helpful to see more details on what the required elements of such plans would be in the regulation.

60.13

60.14

- **A Technology Feasibility Assessment Process Is Needed** – As you know, the CAAP relies on a process for preparing regular feasibility assessments to assess the state of technology development and its readiness to be deployed in the marketplace to support efforts to achieve air quality benefits consistent with our CAAP goals. Given the reliance of the proposed regulatory amendment on emerging technologies, we believe a similar process would be appropriate and helpful for understanding the state of the technologies that would be needed to meet the requirements of the proposed regulatory language. This feasibility assessment should include an evaluation of:

  (i) The state of technology for both shore power and alternative emission control devices and deployment readiness;
  (ii) the requisite timeline for design, build, testing, and deployment of shore power and alternative control technologies for each California port and identification of any associated constraints such as wharf space;
  (iii) safety and navigation of harbor waters space due to applications of new technologies for unregulated vessel types;
  (iv) number and types of alternative control technologies, which would be needed at each California port;
  (iv) and the availability of incentives to encourage early demonstration of such technologies.

  Attachment A provides very useful information about the many technical challenges associated with the compliance options available today. These include immaturity of shore power for the non-container fleet, the safety concerns associated with using shore power and alternative emission control technologies to control emissions from tankers, and the navigability, space, and wharf integrity challenges associated with alternative emission control technologies. It is our finding that alternative compliance options may increase greenhouse gases, and cable reel management systems, which are needed for instances where ships do not line up with their requisite shore power outlet, are not in the shore power standard today (IEC/IEEE-80005), posing safety risks to ships and terminal equipment.

  In order to accelerate the development and deployment of shore power and alternative control options, including infrastructure, for non-container terminals and vessels, the Ports would like to see CARB prioritize funding in their investment plan, as they did for the currently regulated fleet through Proposition 1B in 2006. This funding would assist with economic feasibility and ensure this regulation is not an unfunded state mandate.

- **A Cost Effectiveness Assessment Is Needed –** An increase in at-berth control levels for currently regulated fleets and the addition of at-berth control requirements for other vessel categories will result in considerable costs to ports, terminals, and shipping lines. The Ports of Long Beach and Los Angeles have already spent more than $400M in infrastructure to meet the current shore power rule. Both Ports estimate that it would take at least another $100M per port to bring their container terminal infrastructure to a level to meet the 100% requirement proposed by the at-berth rule. Additional costs, which have not yet been defined, will be associated with implementing at-berth controls for Tankers and Auto/Ro-Ros. In addition, millions more dollars would be needed to outfit unregulated ships for shore power.

60.15

While we fully support the goal of increased control of ocean-going ship emissions, we recommend a study be undertaken to determine how the marginal cost of bringing container ship emission controls from 80% to 100% under the proposed rule compares with other potential efforts to reduce emissions from ocean-going ships, including transiting or maneuvering movements. We also wonder whether emissions reductions from other sources at ports could be identified as more cost-effective investments for control programs, such as incentive programs to retrofit or replace harbor craft engines as an example. Further, we encourage a discussion among stakeholders to determine the sequencing of emission control programs for all of the key source categories that operate in and around ports, in order to identify where money should be spent first to move forward with cleaning the air regionally and throughout California.

60.16

- **Compliance Comes First** - The proposed At-Berth Regulatory language imposes a substantial infrastructure obligation on the Ports and their tenants. As a result, should the regulation be adopted as is, the Ports and their tenants will need to align their priorities and resources to ensure compliance with the regulation is achieved. As a result, the Ports may need to divert funds from other CAAP commitments, including zero-emissions terminal equipment and near-zero and zero-emissions trucks. We urge a discussion among key stakeholders to consider the trade-offs of investing in one program versus another, based on overall local, regional and state air quality needs.

60.17

- **The Best Practices Checklist Is a Concept Worth Pursuing –** The Ports acknowledge that a major goal of this rule-making is to assign roles and responsibilities so that CARB may apportion compliance enforcement if multiple parties are at fault when a vessel fails to connect to shore power. Previously, CARB had suggested development of a "best

60.18

practices checklist" which the vessel owner, the terminal operator, and the Ports would follow to maximize compliance. The Ports support exploration of this concept.

The Ports thank CARB staff for the consideration of our comments. The Ports agree that more can be done to increase at-berth emission reductions over the next decade in parallel to our efforts to advance zero-emissions terminal equipment and trucks; it is a matter of finding the balance among all of these CAAP commitments by establishing realistic timeframes and implementation objectives with approved and verified technologies.

We look forward to meeting with the CARB in the future to further discuss the proposed amendments to the At-Berth Regulation. Please feel free to contact us with any questions or concerns regarding this letter.

Sincerely,

CHRISTOPHER CANNON
Director of Environmental Management

Port of Los Angeles

HEATHER TOMLEY
Acting Managing Director of Environmental Affairs and Planning
Port of Long Beach

CC: CARB – Cynthia Marvin (Cynthia.Marvin@arb.ca.gov)
Angela Csondes (Angela.Csondes@arb.ca.gov)
Nicole Light (Nicole.Light@arb.ca.gov)
Kaylin Huang (Kaylin.Huang@arb.ca.gov)

60.32

Potential Strategies and Costs to Address the At-Berth Regulation

Background

In August 2018 the California Air Resources Board (CARB) released draft regulatory concepts and the associated preliminary cost analysis for the Control Measure for Ocean Going Vessels At Berth and At Anchor Regulation (At-Berth Regulation). If adopted, CARB would require control of emissions from container and refrigerated cargo vessels for 100% of visits to the Port of Long Beach beginning in 2021. Roll-on roll-off (RoRo) vessels will need to reduce auxiliary engine emissions for 100% of visits beginning January 1, 2025. Tanker vessels must control auxiliary engine emissions through an interim CARB approved technology beginning January 1, 2025. All vessel visits for tankers must control auxiliary engine emissions through a CARB approved emission control beginning January 1, 2031. In addition to the auxiliary engine reduction requirements for all tankers, tanker vessels with steam driven product pumps are required to reduce their tanker auxiliary boiler emissions.

About This Assessment

In response to the proposed regulatory amendments, the Port of Long Beach (Port) has conducted a preliminary analysis of the infrastructure needed at each container terminal, the assumptions and caveats related to each method proposed to maximize compliance, the time required to design and install the necessary infrastructure, and the costs for each solution. The Port also estimated the hours of control required and operational costs for both container and non-container vessels visits to meet the proposed regulatory language requirements should alternative compliance strategies such as barge and land-based emission control technologies be utilized. This document outlines the Port's findings, which includes content from a third party analysis and in-house expertise.

Assumptions

In assessing the potential options for complying with the proposed regulation, the Port made several assumptions. First, the Port assumed that ships would meet the following requirements:

- All ships calling the Port will have shore power equipment available on both sides of the vessel.
- All shipside shore power equipment meets the IEC/IEEE 80005-01 standard, including "sufficient cable length to reach the shore side supply point (considering the tide loading conditions, etc.) plus 10 meters."
- Vessels calling the Port are equipped with 60 Hertz (Hz) operation.[1]

Ships not meeting these requirements may not be able to plug into shore power; however, this is outside of the Port's control.

Additionally, the Port assumed that all potential strategies must comply with the IEC/IEEE 80005-01 shore power standard and the National Electrical Code at least by the time the

[1] To provide infrastructure for 50 Hz ships would require complete duplication of the 60 Hz shore power infrastructure, including installation of transformers, substations, and SPOs. This solution is cost and operationally prohibitive. It is estimated only 1-2% of vessels which call the Port are equipped with 50 Hz operation.

regulation takes effect, that is, by January 1, 2020. Only strategies that have been proven and certified by these standards agencies have been deemed fit for deployment.

Potential Shore Power Compliance Strategies for Container Vessels

The Port evaluated three potential strategies for maximizing shore power usage.

- Installation of additional shore power outlets (SPOs)
- Cable-reel management system – currently under development and assumed to be approved and certified by 2021
- A combination of the above

Although other potential strategies exist, including cable chains with SPOs mounted on the face of the wharf and moveable transformers, these technologies are unproven and cost prohibitive.

Shore Power Outlet (SPOs) Installations

Installing additional shore power outlets is the only strategy that fully complies with IEC/IEEE 80005-1 and National Electrical Code, and it is the only strategy that is proven and ready for execution today. The Port already has installed 78 SPOs at all of its container terminals. At some terminals, these SPOs are spaced approximately every 200 feet. At other terminals, the SPOs are spaced at varying intervals according to berthing analyses performed several years ago based on the strings of vessels information provided by the terminal operators and shipping lines.

Per the IEC/IEEE 80005-1 code, ships at berth must provide enough cable to reach the SPO plus 10 meters. Given this requirement, the Port would need to install SPOs every 64 feet at container terminals in order to ensure that every compliant ship can meet an SPO.

Unfortunately, this solution is implausible. Each SPO vault measures roughly 12 feet across and requires significant cuts into the wharf's edge. Additionally, the placement of SPO vaults has limitations, such as the presence of mooring anchors and fender systems or vaults for water lines. Thus, installing SPOs every 64 feet would compromise the structural integrity of the wharf and pose significant operational and safety impacts. In other words, there is a physical limit to the number of new SPOs the Port can install.

As stated earlier, additional SPOs do not solve connectivity issues for ships with inadequate cable length, cables on the opposite side of the vessel, or 50 Hz ships. Further, upstream electrical constraints may impede connection. One transformer serves multiple SPOs; only one ship can connect to that transformer at any given time. Thus, while additional SPOs may appear to provide more opportunities for ships to connect, as long as those SPOs are tied to a single transformer, the connectivity is limited by the upstream equipment. Each new SPO requires additional equipment at the substation. Each substation can only accept a limited amount of additional equipment at which point another substation need be installed. The space requirements along the wharf and inside the terminal along with the costs make this option unfeasible.

In summary, even with additional SPOs, there are likely to be instances in which a ship cannot connect.

Cable Reel Management Systems

A potential strategy to maximize shore power compliance at container terminals is a cable reel management system. Cable reel management systems provide additional cable length between the SPO and ship-side connection point. In theory, these systems should be able to close the gap between a ship and an SPO that is out of reach. The Port and its operators have purchased a few 100' cable management systems. These systems were limited to 100' in length due to space constraints; however, these systems have not yet been successfully deployed due to limitations of the technology and conflicts with current code.

First, 100' of cable is not long enough to facilitate ship connections 100% of the time. In order to achieve 100% compliance, cable reels of up to 600' would be required.

Second, the cable reel system is not a proven, approved technology in the shore power standard (IEC/IEEE 80005-1). The system also does not comply with the National Electrical Code, which does not allow for exposed high-voltage cables. This lack of certification raises issues about safety and labor's willingness to employ the system. It is unclear when the cable reel management system will be adopted under the shore power standard. If this system has not been adopted by January 1, 2020, the Port will be unable to use this strategy.

Third, if the cable reel management system is approved, some terminals may not have sufficient space between the cranes and guard timber to accommodate the cable reel system. This will necessitate wharf upgrades and cable-containment strategies. Custom cable extensions may need to be fabricated for a ship that does not line up with an existing SPO, which could require additional cable extensions at each berth.

Lastly, cable reel management systems may interfere with shore power communications systems, and thus, some ships may not be able to connect.

The Port analyzed the cost and timeframe for deploying cable reel management systems. Additional costs will be incurred by the tenant each time the cable reel system is deployed, removed and stored and are not included in the table below.

Costs and anticipated timeline per pier for cable reel systems are summarized in Table 3 below.

Table 3. Deployment of Cable Reel Management Systems

	Cost	Expected Completion Date
Pier A	$3,000,000	May 2021
Pier C	$2,000,000	May 2021
Pier E	$3,000,000	May 2021
Pier G	$3,000,000	May 2021
Pier J	$4,000,000	May 2021
Pier T	$4,000,000	July 2021
All Container Terminals	$19,000,000	July 2021

*This table estimates a start date for design as January 1, 2020 when the regulation would go into effect.
**Assume $1 million per each 200 linear foot Cable Reel Management System and 1 per berth were used for the estimates which includes equipment, additional mobile platform for the existing wharf, and soft costs.

In summary, absent changes to the National Electrical Code and IEC/IEEE 80005-1 standard, cable reel management systems are not a solution port-wide, and even with these changes, require significant infrastructure improvements and may not be a solution for every terminal

SPOs and Cable Reel Management Systems

The Port analyzed a combination of new SPOs and cable reel management systems. This option utilizes additional SPOs to ensure a maximum of 200 feet between SPO installations and one 100-foot, cable reel management system at each berth to provide the needed extension from the shipside shore power equipment to the designated terminal SPOs.

A major challenge with this option is that it still would require the installation of an additional 67 SPOs. This strategy does not eliminate the challenges detailed above under the subsection "Shore Power Outlet (SPOs) Installations" nor subsection "Cable Reel Management Systems." Therefore, issues such as a limited upstream transformation and lack of standardization for cable reel management systems will also interfere with successful deployment of this strategy. Therefore at this time this option is not feasible.

Costs and anticipated timeline per pier for SPOs every 200 feet, combined with one 100-foot cable reel system at each berth are summarized in Table 4 below.

Table 4. Deployment of SPOs approximately every 200 feet, combined with one 100-foot cable reel system

Deployment of SPO every 200 feet and one cable reel per berth	**Cost**	**Expected Completion Date**
Pier A	$15,750,000	Dec. 2025
Pier C	$10,500,000	Dec. 2025
Pier E	$13,450,000	Dec. 2025
Pier G	$17,050,000	Dec. 2025
Pier J	$13,800,000	Dec. 2025
Pier T	$23,300,000	Dec. 2025
All Container Terminals	$93,850,000	Dec. 2025

*This table estimates a start date for design as January 1, 2020 when the regulation would go into effect.
** Costs include construction cost and soft cost to plan, design, and construct additional SPOs at each terminal. Pier G includes a new transformer to provide the power to one berth.

Additional Strategies

The Port also evaluated additional strategies not related to landside infrastructure that could improve shore power compliance. These strategies are likely to be undertaken by the terminal operators and shipping lines, not the Port itself.

- Worker training
- Alternative compliance systems for ships not capable of connecting to the landside infrastructure

Worker Training

The Port believes training of workers responsible for plugging and unplugging ships will improve shore power compliance. Assuming a ship can make a physical connection, with the requisite training, workers would be more likely to successfully troubleshoot connection problems as they occur, and provide the needed adjustment of the circuit breaker settings and other components involved in connection.

With or without training, Port terminals are going to continue to face situations where shore power connection is simply not possible, even after implementation of any of the pathways described above.

Alternative Compliance

Terminal operators may opt to invest in emission capture and control devices, rather than investing in additional shore power.

Container Terminals

It is estimated the container terminals will require an additional 15,000 hours of emissions control time.

Annual operating costs alone could be $23.2 million[2] dollars per year.

Non-Container Terminals

It is estimated the non-container terminals will require an additional 42,000 hours of emission control time.

Annual operational costs alone could be $39.4 million dollars per year.

The terminal operators may decide to design and construct their own emissions capture and control system to ensure the system is always available, and there will be significant upfront costs on the order of $5,000,000-$10,000,000.

Limitations of Alternative Control Systems

Alternative control systems face two key challenges for deployment in the timeframe proposed by CARB:

- Lack of available units
- Lack of wharf space for barge-based system berthing

Lack of Available Units

As of today, only two barge-based systems have been certified and a land-based system has yet to be tested. Many more systems would be required to help meet the 100% compliance deadline of 2021 for the regulated fleet and 2025 for the unregulated fleet. There are currently no production

[2] Operating costs used in this document only include the hourly labor cost to operate the emission capture and control systems. The Port assumed $1,000 per hour for barge-based systems, and $1,100 per hour for land-based systems, which is consistent with CARB assumptions. Any increases in these costs over time are not accounted for, nor are any capital or other operational/maintenance costs.

facilities manufacturing these systems. It is doubtful such systems can be certified, cost effective, and commercially available in such a short amount of time.

Lack of Wharf Space

One significant barrier to deploying barge-based systems is the lack of berth space for units that are not in use. The Port of Long Beach only has 2,000 linear feet of wharf space – equivalent to two berths – that are open and could be available for barge-based systems:

- D52, which is used for temporary berthing. 600' linear feet.
- T124, which is really designed for OGVs and thus would require fender installations and wharf modifications to accommodate barges. 1,400 linear feet.

All other space is leased out, which means the Port will be limited in its storage capacity for emissions capture and control systems.

Summary of Findings

The Port cannot identify a single method to ensure 100% shore power, but has established internal consensus that a mix of methods may be required to maximize shore power compliance for container vessels.

The most promising way to maximize compliance at a container terminal is for the Port to install additional SPOs with additional support from cable reel management systems.

Table 5. Comparison of Three Strategies to Maximize At-Berth Compliance

Strategy	Cost for all Container Terminals	Timeline (Design, Bid and Award, Construction)	State of Technology	Remaining Challenges
Additional SPOs Every 64 Feet	----------	----------	Established/Proven	• Wharf Integrity • Operation and safety • Physically impossible to install at 64'
Cable Reel Management System	Approx. $20 million	2 Years	Unproven	• No Standard • Electrical Code Issues • Requires additional mobile platform to the existing wharves • Moderate Cost
SPOs + 1 Cable Reel System	Approx. 94 million	5 Years	Unproven	• Timeline • High Cost • No Standard • Electrical Code Issues • Requires additional mobile platform to the existing wharves

In all of these scenarios, the Port is apt to spend millions of dollars on infrastructure beyond the roughly $200 million already spent on shore power. Additionally, the timeframe for completing these projects is likely to go well past January 1, 2021.

It is unclear what strategy non-container terminal operators will choose for regulatory compliance. Given shore power is an unproved technology for the proposed non-container vessel categories and the stringent timeline proposed, the Port assumed in this assessment that ships and terminals would opt for alternative compliance through emission capture and control systems. Should the non-container industry choose this strategy, it is clear industry will bear millions of dollars in operating costs per year.

Path Forward

The Port will need to produce a more detailed berthing analysis prior to entering the formal design process upon adoption of the proposed At-Berth Regulation. This analysis will directly inform decision-makers, including terminal operators and Port staff, and the design of each container terminal shore power compliance plan. In addition, the Port should continue to work with IEC/IEEE on the effort to update the current shore power regulation for container ships to ensure the cable reel management systems are safe, and standardized pieces of equipment

SAN PEDRO BAY PORTS

CLEAN AIR ACTION PLAN

May 20, 2019

Bonnie Soriano
Chief, Freight Activity Branch
California Air Resources Board
1001 "I" Street
Sacramento, CA 95814

SUBJECT: PORT OF LOS ANGELES AND PORT OF LONG BEACH COMMENTS ON FEBRUARY 22-23 2019 WORKSHOPS FOR THE "CONTROL MEASURE FOR OCEAN-GOING VESSELS OPERATING AT BERTH AND AT ANCHOR"

Dear Ms. Soriano:

The Port of Long Beach and Port of Los Angeles (Ports) appreciate this opportunity to provide comments on the concepts and berth analyses presented at the California Air Resources Board (CARB) February 22-23, 2019 workshops regarding the, "Control Measure for Ocean-Going Vessels Operating At Berth and At Anchor".

We want to thank CARB for continuing to work with the Ports and our tenants during this regulatory process to obtain the best available data and to craft a regulation which achieves significant public health benefits.

The purpose of this comment letter is to respond to the Regulatory Concepts and Berth Analyses provided at the February workshops. In the appendices, CARB will find specific information and data relative to each Port.

The following summarizes the Ports'comments regarding the regulatory concepts presented at the February 2019 workshops:

60.19

- **We agree that 100% compliance cannot be met by vessels in any category**– We want to thank CARB staff for adjusting the concepts to reflect the impossible goal of 100% compliance. It remains unclear whether or not terminals and vessel operators can meet the new minimum of 95% compliance. We urge CARB to produce a feasibility assessment to better inform this regulation, described below.

60.20

- **The Proposed Implementation Timelines are Still Too Aggressive –** In the updated concepts, container terminals are still required to control ship emissions for every visit, with 5% flexibility for Terminal Incident Events (TIEs), by 2021. This timeline is unreasonable based on lack of infrastructure needed to support such a high level of plug-in so quickly. In addition, there is considerable doubt regarding the ability of terminal operators, and/or third party vendors to develop and deploy a sufficient number of alternative emission control devices on a stringent time line of one year.

60.21

- **A Technology Feasibility Assessment Process Is Needed** – The Ports still urge CARB to develop a technology feasibility assessment, which would look at the state of technology development and its readiness to be deployed in the marketplace to support efforts to achieve public health benefits. Through conversations with stakeholders, it is clear there are challenges associated with the technologies upon which this regulation depends that may be too costly, technologically and operationally infeasible in some cases, or unsafe to use. For example, the Los Angeles/Long Beach Harbor Safety Committee has many substantial concerns regarding the use of barge-based emission capture systems for tankers. This feasibility assessment should include an evaluation of: (i) state of technology for both shore power and alternative emission control devices and deployment readiness (ii) the requisite timeline for design, build, testing, and deployment of shore power and alternative control technologies for each California port to achieve at minimum 95% compliance, and identification of any associated constraints such as wharf space (iii) safety and navigation of harbor waters space due to applications of new technologies for unregulated vessel types (iv) number and types of alternative control technologies, which would be needed at each California port (v) and the cost of the various types of technologies and availability of incentives to encourage early demonstration of such technologies.

60.22 As stated in our previous letter, in order to accelerate the development and deployment of shore power and alternative control options, including infrastructure, for non-container terminals and vessels, the Ports would like to see CARB prioritize funding as they did for the currently regulated fleet through Proposition 1B in 2006. CARB has not prioritized funding for shore power in their latest Cap-and-Trade Auction Proceeds Third Investment Plan, posted in January 2019. We urge CARB to work cross-divisionally on finding opportunities to invest in the nascent technology required for tankers and RoRos.

- **The Berth-Level Analyses report too few ship calls, and do not accurately reflect the infrastructure needed at each port–** CARB provided berth—level analyses of the 60.23 infrastructure which will be required for each terminal to meet the new proposed concepts at the February 2019 workshops. These analyses are founded upon Google Maps research, interviews with port tenants, and discussion with piloting companies. The analysis is not based on any engineering assessment of what it would take to expand shore power or to accommodate alternative capture and control technologies. Unfortunately, none of the analysis provided by POLB related to container terminal infrastructure was included in this berth-level analysis either. Subsequently to the February workshops, the POLB has updated and refined its estimate. The analysis utilizes costs from previous shore power projects, states the design requirements a terminal would need to maximize plug-in while ships are at-berth, and uses these metrics to quantify the anticipated costs to maximize connection at POLB container terminals. In this letter, POLB has provided more granular detail around the basis of the cost estimates, photographs which demarcate the existing shore power infrastructure, and improved vessel call data from the 2017 Wharfinger Report in Appendix B. In the Ports' previous letter to CARB POLA engineering staff had agreed with the POLB engineering analysis. Subsequently, POLA developed their own assessment of the infrastructure they will need, the associated cost and timeline, and additional edits to the CARB Berth-Level Analyses, which are included in Appendix A. In summary, the POLB and POLA estimates approximately $106 million and $147-$193 million respectively for additional electrical infrastructure. These estimates are rough orders of magnitude, with many exclusions and limitations, so the actual cost could be much higher. We are hopeful CARB will utilize this information, particularly in a feasibility assessment, as it is the most informed reflection of the current infrastructure at the POLA/POLB terminals today. The feasibility assessment should go into greater depth than the calculations provided herein.

CARB's Berth-Level Analyses as written today are not founded upon the requisite design and engineering expertise, and should therefore, not be used today to quantify the costs of

the newly proposed concepts. These costs can be more adequately captured through the process of a feasibility assessment.

- **Compliance may hinder CAAP efforts** – Lastly, the Ports are still concerned the cost of these proposed concepts will hinder the ability to meet their goals under the 2017 CAAP Update given the significant upfront costs of an At-Berth Infrastructure Program. In addition, the staff who are currently designing the near-zero and zero-emission terminal infrastructure for technology demonstration projects, and future full-scale deployments are the same staff members who would be responsible for designing the infrastructure to support the new At-Berth Regulation. This underscores the need for prioritizing programs and funding, as described in the Feasibility Assessment bullet above, in order to determine how to most effectively allocate our resources to participate in the development of your regulatory program.

60.24

The Ports thank CARB staff for hosting additional workshops, engaging with us directly, and their consideration of the comments contained in this letter as well as in the attached appendices.

We look forward to meeting with the CARB in the future to further discuss the proposed amendments to the At-Berth Regulation. Please feel free contact us with any questions or concerns regarding this letter.

Sincerely,

CHRISTOPHER CANNON
Director of Environmental Management

Port of Los Angeles

MATTHEW ARMS
Acting Director of Environmental Affairs and Planning
Port of Long Beach

Attachments: Appendix A, Appendix B

CC: CARB – Cynthia Marvin (Cynthia.Marvin@arb.ca.gov)
Angela Csondes (Angela.Csondes@arb.ca.gov)
Nicole Light (Nicole.Light@arb.ca.gov)
Kaylin Huang (Kaylin.Huang@arb.ca.gov)

THE PORT OF LOS ANGELES
425 S. Palos Verdes Street Post Office Box 151 San Pedro, CA 90733-0151 TEL/TDD 310 SEA-PORT www.portoflosangeles.org

Eric Garcetti | *Mayor, City of Los Angeles*

Board of Harbor Commissioners: Jaime L. Lee, *President*; Diane L. Middleton, *Commissioner*; Lucia Moreno-Linares, *Commissioner*; Anthony Pirozzi, Jr., *Commissioner*; Edward R. Renwick, *Commissioner*

Eugene D. Seroka | *Executive Director*

APPENDIX A

Port of Los Angeles

Response to CARB At Berth Regulation Berth Analysis Matrices

60.33

The Port of Los Angeles (POLA or Port) appreciates this opportunity to provide more detailed comments on the California Air Resources Board (CARB) Berth Analysis Matrices presented on February 22, 2019. Below are our comments on the various "CARB Staff Analysis of Potential Emission Reduction Strategies" for POLA.

Container and Refrigerated Cargo (Reefer) Vessels

POLA would like to reiterate that the timeline for container terminals is still too aggressive. The specific reasons why the deadline to meet 2021 is listed below.
The container shipping industry is going through tremendous changes including the consolidation of shipping lines and the emergence of new alliances, resulting in larger ships calling to POLA. The shore power vaults at the Port were designed for the average vessel size calling to POLA in the early 2000's, which were 10,000 to 12,000 TEU vessels. The vessels calling to POLA now are closer to 14,000 to 16,000 TEU. From our latest 2017 POLA Emissions Inventory, NOx emissions reduced from ocean-going vessels from 3,204 tons per year in 2016 to 3,061 tons per year, which is a 4% reduction in NOx. The number of TEUS increased by 5% from 2016 to 2017 (8,856,783 TEU vs. 9,343,193 TEU), but the number of container ship calls decreased by 8% from 2016 to 2017 (1,251 vs. 1,154). Our EI reports have shown that these larger container vessels have improved efficiency and helped to reduce emissions at POLA.

Unfortunately, the larger ships calling a terminal can limit the berth availability of shore power especially when multiple ships call the same terminal as the shore power cables are not lining up with the vault containing the shore power outlet. Cable management extension systems (cable reels) allow a vessel to plug into shore power without having the vessel's cables to be directly aligned to the vault. The cable reels currently available for purchase are 8 feet wide and the wharfs at five out of our seven container terminals only have 4-5 feet of space.

Fenix Marine Services and APM Terminals have a "vendor lane" which runs between the ship to shore cranes and the edge of the wharf, providing the necessary clearance to place a cable reel. At the moment, a narrower cable reel system is being designed for use on terminals without a vendor lane. However, there is currently no prototype and the system will require structural modifications to the wharf, the extent of which are unknown at this time. The cost for this narrower system is also unknown at this time. The current

cable reel system is estimated to cost $550,000. If a narrower system cannot be designed, then the wharfs will need to be extended.

Extending wharfs creates a host of issues. The Army Core of Engineers will not allow the wharfs at POLA to be extended any further into the water, as there would not be enough space to navigate the vessels in the water. This means that the wharfs have to be extend on the landside. The cranes and the cranes' rail management would need to be pushed back. Moving all the cranes back requires the crane arms to be extended in order to reach a vessel's cargo. Assuming funding is procured for the construction at a terminal, it would take at least 18 months to design the construction, 18-24 months for environmental assessment, 6 months to go to bid, and then 18 months to build. The total estimated time per a project would be 60 to 66 months or 5 to 5.5 years on average, but it may take longer as each terminal is unique. The estimated cost to extend one container berth could be between $35-40 million. In addition to all the construction, the terminal would not be able use of their berth during the construction. The terminal would be operating at a decreased capacity and would be losing revenue during the construction and diverting cargo to other ports outside of California.

The Port preliminary responsibilities as indicated by CARB is to "*install and maintain any necessary emissions control infrastructure and/or equipment needed for compliance with the regulation that is outside of a terminal's contractual ability to provide.*" In order to meet our responsibility outlined by CARB, POLA engineering staff has estimated that a vault would be needed every 200 feet apart per a berth with at least one 100-foot mobile cable reel at every berth. This is the same assessment as Port of Long Beach engineers had determined in the Ports' first joint letter to CARB. This would be a total of six vaults per a berth. The cost per a new vault is estimated to be $500,000. The cost to provide the necessary power to the terminals is approximately $2.5 million ($2 million for electrical equipment and $500,000 for installation). For purposes of POLA engineering assessment the cost of the cable reel system is estimated at $550,000 based on the currently available system. The cost for a narrower system for five of our terminals could be higher as the actual cost is unknown at this time.

Table 1 summarizes POLA engineering staff evaluation of just electrical infrastructure and costs for POLA to meet the Port's obligation under the current draft language for existing container terminal berths.

Table 1: POLA Container Terminal Electrical Infrastructure Evaluation

Tenant	Berth	# Existing Vaults	# New Vaults Needed	Total Cost of New Vaults	Cost of Equipment	Cost of Cable Reel	Total Overall Cost
WBCT - China Shipping	100	4	2	$1,000,000	$2,500,000	$550,000	$4,050,000
	102	4	2	$1,000,000	$2,500,000	$550,000	$4,050,000
WBCT – Yang Ming	121	2	4	$2,000,000	$2,500,000	$550,000	$5,050,000
	126	2	4	$2,000,000	$2,500,000	$550,000	$5,050,000
TraPac	136	2	4	$2,000,000	$2,500,000	$550,000	$5,050,000
	139	2	4	$2,000,000	$2,500,000	$550,000	$5,050,000
Yusen Terminals Inc.	212	2	4	$2,000,000	$2,500,000	$550,000	$5,050,000
	216	4	2	$1,000,000	$2,500,000	$550,000	$4,050,000
	220	4	2	$1,000,000	$2,500,000	$550,000	$4,050,000
Everport[1]	228	4	2	$1,000,000	$2,500,000	$550,000	$4,050,000
	230	4	2	$1,000,000	$2,500,000	$550,000	$4,050,000
Fenix Marine Services	302	4	2	$1,000,000	$2,500,000	$550,000	$4,050,000
	303	4	2	$1,000,000	$2,500,000	$550,000	$4,050,000
	304	4	2	$1,000,000	$2,500,000	$550,000	$4,050,000
	305	3	3	$1,500,000	$2,500,000	$550,000	$4,550,000
APM Terminals	401	4	2	$1,000,000	$2,500,000	$550,000	$4,050,000
	402	4	2	$1,000,000	$2,500,000	$550,000	$4,050,000
	403	4	2	$1,000,000	$2,500,000	$550,000	$4,050,000
	404	4	2	$1,000,000	$2,500,000	$550,000	$4,050,000
	405	4	2	$1,000,000	$2,500,000	$550,000	$4,050,000
						Subtotal =	$95,600,000
						20% Contingency =	$19,120,000
						Subtotal =	$14,720,000
						28% Soft Cost (Engineering & Construction) =	$32,121,600
						Total Cost =	**$146,841,600**

[1] As of 2019 there are only two vaults each at Berths 228 & 230. Two additional vaults at each berth have already being designed and construction is scheduled to begin within the next 18 months. This cost assessment only added two more vaults to Berths 228 & 230 in order to meet the Port's obligations estimated to be six vaults per a berth.

Table 2 summarizes POLA engineering staff evaluation of just electrical infrastructure and costs for POLA to meet the Port's obligation under the current draft language for berths that may be used as container terminals in the future.

Table 2: Future POLA Container Terminal Electrical Infrastructure Evaluation

Tenant	Berth	# Existing Vaults	# New Vaults Needed	Total Cost of New Vaults	Cost of Equipment	Cost of Cable Reel	Total Overall Cost
Fenix Marine Services	306	0	6	$3,000,000	$6,000,000	$550,000	$9,550,000
Unknown	206	0	6	$3,000,000	$7,000,000	$550,000	$10,550,000
Pasha	174	0	6	$3,000,000	$7,000,000	$550,000	$10,550,000
						Subtotal =	$30,650,000
						20% Contingency =	$6,130,000
						Subtotal =	$36,780,000
						28% Soft Cost (Engineering & Construction) =	$10,298,400
						Total Cost =	**$47,078,400**

Grand Total = **$193,920,000** for only electrical infrastructure costs.

As shown, the estimated cost for the Port to meet our obligations for our container terminals would be $147-$193 million. Similar to wharf extensions, the estimated time from start to finish for installing this infrastructure would be approximately 5-5.5 years per a project. Even if the Port could procure this funding and start working on providing electrical infrastructure at all our terminals instantly, the soonest that this undertaking would be completed is 2024-2025, well beyond CARB's proposed deadline of 2021. POLA does not have the resources to undertake that many projects at the same time, so some terminals' electrical infrastructure would not be completed before 2025.

Landside shore power electrical infrastructure life cycle appears to be 15-20 years with required updates, annual maintenance, and frequent cleaning of the equipment during this period. Currently Port staff costs are about $500,000 a year for maintenance and about $125,000 a year for recordkeeping for a total annual cost of approximately $625,000. This cost is so far for the currently regulated fleet of container, reefers, and cruise vessels. With the increased infrastructure, the staff cost for maintenance would increase to approximately $866,000 and recordkeeping would be around $135,000 for an estimated total staff cost of over $1 million.

Shipside infrastructure appears to have a much lower life cycle. Conversations with various shipping lines have found that the shipside electrical infrastructure life cycle is about five years with equipment needing to be fully replaced in the fifth year. The cost to install shore power onto container and reefer vessels is estimated to be $750,000 to $1 million. This five-year cost for shipping lines may cause them to see the alternative at berth emissions control technology as a more attractive option than having to invest close to $1 million every five years for shore power. This would be counterproductive to the regulation as shore power has been shown to have higher emissions reduction rate than use of the alternative emission control systems.

As for alternative emission control systems, there are currently only two certified barge based systems operating at both POLA and Port of Long Beach for container vessels. A land-based system is still being demonstrated at this time. There is serious doubt that more of these systems can be developed and deployed by 2021. The two San Pedro Bay Ports had solicited proposals for alternative emission control systems for ocean going vessels in 2018 as part of our Technology Advancement Program. In January 2019, the two Ports did not award any of the proposals as none met the requirements fo the solicitation satisfactorily. This highlights the need for a CARB feasibility assessment on these technologies and their use at each California port.

Passenger Vessels

POLA has on average about 110 cruise vessels call to our World Cruise Center on an annual basis. The assessment CARB has for passenger vessels is lower than our average number. POLA asks that CARB adjust the assessment with our annual average number of cruise vessels.

As cruise vessels increase in size, the amount of power drawn by these larger cruise vessels increase as well. The World Cruise Center underwent electrical upgrade construction to allow cruise vessels to draw 6.6 KV and 11 KV of power when at berth from June 2017 to April 2018. This upgrade took about three years to complete from initial planning to completion of the construction. Cruise vessels could not plug into both berths during the construction period. No new vaults were added to the berths for this upgrade. The cost of the upgrade was about $11 million. Table 3 lists the number of vaults currently at the World Cruise Center.

Table 3: POLA World Cruise Center Electrical Infrastructure

World Cruise Center (Berths 90-93)	# of Vaults	Power Provided
Berth 92	2	11 kV (2)
Berth 93A	4	6.6 kV (2); 11 kV (2)

After the electrical upgrade, the Port has seen an increase in the use of shore power by cruise vessels that call to our World Cruise Center. POLA Engineers have determined that Berth 92 would need an additional two vaults and a cable reel system to ensure the Port meets our infrastructure obligations per the current draft regulation. The cable reel for the cruise vessel is estimated to cost more than one for containers, as it will need to be able to operate at both 6.6 kV and 11 kV. Table 4 is an estimate of the cost for the added electrical infrastructure at Berth 92.

Table 4: Estimated Additional Infrastructure Cost at Berth 92

Berth	# of Existing Vaults	# New Vaults Needed	Total Cost of New Vaults	Cost of Equipment	Cost of Cable Reel	Total Overall Cost
92	2	2	$1,400,000	$5,000,000	$1,000,000	$7,400,000
					20% Contingency =	$1,480,000
					Subtotal =	$8,880,000
					28% Soft Cost (Engineering & Construction) =	$2,486,400
					Total Cost =	**$11,366,400**

The cost to install shore power onto a cruise vessel is estimated to be between $1 to $1.5 million. The cost of maintaining and recordkeeping for Port staff was included in the container/reefer section above. Construction for this project would probably take between 3-5 years.

Auto/Ro-Ro Vessels

POLA only has one automotive terminal, Wllenius Wilhelmsen Solutions (WWS) Vehicle Services America (Berths 195-199). Automotive carriers/Ro-Ros mainly call to berths 197-199. Table 5 shows vessel activity at WWS for the last 3 years.

Table 5: Vessel Activity at WWS 2016-2018

Berth #	# Auto & Ro-Ro Calls 2016	# Auto & Ro-Ro Calls 2017	# Auto & Ro-Ro Calls 2018
195	0	0	0
196	0	0	0
197	4	4	0
198	80	101	71
199	20	17	2
Total =	104	122	73

As shown by Table 5, the number of calls to WWS vary year by year. There is no real set average as the number of vessels is dependent on the market demand for automotive vehicles. Very few of the vessels calling are what CARB would define as "frequent" visitors (calling to the terminal four or more times in a calendar year) from year to year. A vessel may be in the string for a couple years, and then pulled from rotation if there is not enough demand or it is sent to a different string. For example, the "Pearl Ace" had five calls to WWS in 2016, one call in 2017, and no calls in 2018. Another example is the "Viking Sea." The "Viking Sea" had called WWS six times in 2016, three calls in 2017, and no calls in 2018.

Due to the infrequency of the automotive and Ro-Ro vessels to the Port, it is unlikely that the automotive shipping lines will invest the time and money to install shore power onboard their vessels. However, POLA engineers have calculated the cost of installing the necessary infrastructure for shore power at WWS if our tenant and the shipping lines it serves decides to use shore power, see Table 6. POLA assumes only one berth would require electrical infrastructure installed. Estimated time of completion is again approximately five years. The cost of these vaults are estimated to be slightly less at $400,000 per a vault due to the lower power needs of these types of vessels.

Table 6: POLA Engineering Electrical Infrastructure Costs at WWS

Terminal	# New Vaults Needed	Total Cost of New Vaults	Cost of Equipment	Cost of Cable Reel	Total Overall Cost
WWS (Berths 195-199)	4	$1,600,000	$9,000,000	$500,000	$11,100,000
				20% Contingency =	$2,220,000
				Subtotal =	$13,320,000
				28% Soft Cost (Engineering & Construction) =	$3,729,600
				Total Cost =	**$17,049,600**

This leaves the use of an alternative emissions capture and control system. Currently there is no certified alternative emissions capture and control system for automotive or

Ro-Ro vessels. As stated in the joint cover letter, POLA believes a feasibility study of this technology's utilization, including potential increased greenhouse gas emissions generated by this technology, is needed.

Port Engineers have determined the berths at WWS would likely be structurally sound enough to hold the weight of a land-based control system. In addition, there is likely enough room on the dock for a land-based control system. This is solely based on the currently demonstrating land-based control system at our Pasha terminal. As there is currently no certified system for use on automotive/Ro-Ro vessels, this assessment may change in the future if a land-based system is significantly different from the current land-based system being tested on Pasha's container steamships. The current cost to build the land-based system at Pasha is approximately $5 million. This does not include any labor or maintenance costs. These costs are hard to determine at this time, as there are still negotiations on the type of labor that will be used to operate and maintain the equipment.

POLA Port Pilots have determined it would be best to avoid a barge-based system for vessels that call to WWS. Ro-Ro vessels fuel when calling to WWS via a bunker barge. For safety reasons, the current barge-based system cannot be connected to a container vessel when the container vessel is fueling or bunkering. Similar safety concerns would prevent barge-based systems to connect to an automotive/Ro-Ro vessel when the vessel is fueling or bunkering. Automotive/Ro-Ro vessels are at WWS for less than 24 hours. A disconnected barge system may not have enough time to reconnect to the vessel before it is ready for departure.

On rare occasions, there are two vessels dock at WWS at the same time. When that happens, Port Pilots sometimes are required to sail a vessel around the one forward of the departing vessel. The Port Pilots require the offshore side of the forward vessel to be clear of any obstructions. A barge-based system connected to the forward vessel would have to be disconnected and moved in order for the Port Pilots to move the other vessel. Again, there may not be enough time for a disconnected barge system to reconnect to the vessel prior to its departure.

Tanker Vessels

The CARB Tanker Berth Analysis listed six liquid bulk terminals. POLA currently has seven liquid bulk terminals. Kinder Morgan is expected to leave Berths 118-119 by 2024. Table 7 is a list of POLA liquid bulk terminals with vessel calls for the last three years.

Table 7: Vessel Activity at POLA Liquid Bulk Terminals 2016-2018

Terminal	Berths	# Tanker Calls 2016	# Tanker Calls 2017	# Tanker Calls 2018
Kinder Morgan	Berths 118-119	38	34	37
NuStar Energy LP	Berth 163	4	6	13
PBF Energy	Berths 238-240C	30	46	33
Phillips 66	Berths 148-151	30	49	41
Shell Oil Products	Berths 167-169	45	60	34
Valero	Berths 164	28	40	27
Vopak Terminals	Berths 187-190	111	118	111

Wharfs for tanker terminals are currently being redesigned to meet California State Lands Commission requirements, Marine Oil Terminal Engineering and Maintenance Standards (MOTEMS). The new terminal design will be a pier that goes out into the water. The platform at the end of the pier will be only large enough to hold the necessary equipment for pumping tanker product in/out of the tanker. The tanker will be moored by tying up at nearby dolphin moors. POLA has already provided an example engineering drawing of the new terminal design in prior communications with CARB. There would not be any space to place shore power or a land based alternative system on these new piers.

Below is a list of future plans for the marine oil terminals at POLA.

- Berth 118-119 – Kinder Morgan Terminal – Berths are scheduled for demolition in the next few years.

- Berths 148-149 – Phillips 66 Terminal – This berth will cease operations as a marine oil terminal when the new berth at 150-151 is completed

- Berths 150-151 – Phillips 66 Terminal – This berth will be demolished and reconstructed as a typical modern marine oil terminal, with a minimal unloading platform and independent mooring and berthing dolphins connected by catwalks. A land-based emissions capture system will not be feasible. A barge-mounted emissions capture system could be used, but may be difficult due to the terminal's location on one of the main turning basins for the Port. The tenant will be required to conduct a feasibility study for a barge-based system as a condition of their environmental document, which is currently underway.

- Berth 163 – Nustar Terminal – This berth will be demolished and reconstructed as a typical modern marine oil terminal, with a minimal unloading platform and independent mooring and berthing dolphins connected by catwalks. A land-based emissions capture system will not be feasible. A barge-mounted emissions capture system could be used, and would be largely free of impacts from large passing vessels. The tenant will be required to conduct a feasibility study for a

barge-based system as a condition of their environmental document, which is currently underway.

- Berth 164 – Valero Terminal – This berth will be demolished and reconstructed as a typical modern marine oil terminal, with a minimal unloading platform and independent mooring and berthing dolphins connected by catwalks. A land-based emissions capture system will not be feasible. A barge-mounted emissions capture system could be used, but would be impacted by the narrow channel and vessels entering and exiting Berth 163. The tenant will be required to conduct a feasibility study for a barge-based system as a condition of their environmental document, which is currently underway.

- Berths 167-169 – Shell Terminal – This berth will be demolished and reconstructed as a typical modern marine oil terminal, with a minimal unloading platform and independent mooring and berthing dolphins connected by catwalks the tenant is required to conduct a feasibility study for a barge-based system as a condition of their environmental document, which is complete.

  As was stated in our email to CARB dated on March 8, 2019, our Port Pilots had determined that if the barge-based system is employed at Shell Berth 167 for a panamax size vessel (228M x 32M) or larger and there is a bulk vessel at Berths 154-155, access to the northern berths in the slip (Berths 165, 164, 163, & 161) will be restricted. Tugs and barges may be able to get by; however, if a barge-based system is also placed alongside a vessel at Berths 154-155 or the tanker at Berths 167-169 then access to the northern berths may not be adequate for a ship to pass.

  This would be a hindrance to three of our tenants' terminal operations past Shell: US Borax (Berth 165) that does dry bulk, Valero (Berth 164) that does tanker operations, and Nustar (Berth 163) that does tanker operations. This gives other terminals that would not be effected by this restriction an economic competitive edge over these terminals. In addition, our Construction and Maintenance (C&M) division is located at Berth 161. C&M does maintenance of the docks and wharfs for the Port and could be hindered as well. Our C&M division needs to have unrestricted access to enter and leave Berth 161 to conduct any emergency repairs that may arise at any time at the Port.

- Berths 187-189 – Vopak Terminal – This terminal consists of a full width, full length wharf that will be upgraded to comply with MOTEMS standards instead of being reconstructed. The tenant has chosen this option, and will be performing the design and construction themselves, in order to minimize impacts to ongoing operations. However, the existing timber wharf has deteriorated vertical load carrying capacity, which will not be fully restored by the planned upgrade. Upgrading the capacity of the wharf to HS-20 (highway) capacity would cost approximately $8.8 million. This cost estimate is based on the restoration of a very

similar wharf at Berths 196-199 that was completed in 2018. The project cost for this wharf, including contingency, was approximately $5,300 per lineal feet. The wharf at Berths 187-189 is approximately 1660 lineal feet. The tenant is required to conduct a feasibility study for a capture and control system as a condition of their environmental document, which has not yet commenced.

POLA Port Pilots have determined that if a barge based system is placed alongside a panamax or larger size tanker at Vopak Berth 189 it will restrict ship access to Berth 187 for the duration of the vessel's stay alongside Berth 189. Tug and barge traffic will be able to continue; however, there will not be enough room in the slip (Slip #5) for a ship of any size to access Berth 187. This would limit Vopak's operational capability and lower its economic competitiveness with other tanker terminals.

- Berths 238-239 – PBF Terminal – This berth will be demolished and reconstructed as a typical modern marine oil terminal, with a minimal unloading platform and independent mooring and berthing dolphins connected by catwalks. A barge-mounted emissions capture system is feasible, as the terminal is on the wide Main Channel of the Port. The tenant is required to conduct a feasibility study for a barge-based system as a condition of their environmental document, which is complete.

We again stress the need for a CARB technology feasibility assessment on the state of alternative emission control technology. POLA is requiring our marine oil terminals to conduct feasibility studies on the use of alternative emission control systems. However, these feasibility studies will be terminal specific and could not be used by other terminals to determine the feasibility of the technology for their purposes.

An email from CARB staff dated March 28, 2019 requested information on the cost estimate and duration for routing the tanker vessel auxiliary engine and boiler emissions to a land based emissions control system. This question should be asked to the tanker ship manufacturers and the alternative emissions control system companies. The Port does not have expertise in this field. We are unable to provide a cost estimate, but we can provide CARB with general information about what this project could entail.

Many of the tanker vessels that call to POLA would not be defined by CARB as a "frequent" visitor (calling to the terminal four or more times in a calendar year). Due to this infrequency, it is unlikely that shipping lines with tankers would spend the time and money to change an existing tanker's exhaust system to be able to be treated in this fashion. If a shipping line did decide to undergo this type of project, the tanker would have to be taken out of service and dry docked. The Port does not have the knowledge to provide an estimate of how long the retrofitting would take. It would be more cost effective to design and build a new tanker to have this feature rather than try to retrofit an existing tanker.

The Port thank CARB staff for the consideration of our comments. We look forward to meeting with the CARB in the future to further discuss the proposed amendments to the At-Berth Regulation.

60.34

APPENDIX B
Port of Long Beach
Response to CARB's February 22-23rd, 2019 Workshops and Additional Cost Estimate Detail

Background

February 22-23rd, 2019, the California Air Resources Board (CARB) held workshops for the Control Measure for Ocean Going Vessels At Berth and At Anchor Regulation (At-Berth Regulation). In the newly proposed regulatory concepts, CARB would require control of auxiliary engine emissions from container, passenger, and refrigerated cargo vessels for every vessel visit to the Port of Long Beach beginning in 2021. Each terminal would have an allocated number of acceptable Terminal Incident Events (TIEs) to provide flexibility. These TIEs equate to 5% of total container vessel visits received during the previous year. Roll-on roll-off (RoRo) vessels will need to reduce auxiliary engine emissions for every vessel visit beginning January 1, 2025, with TIEs flexibility, calculated as 10% of the vessel calls of the previous year. Beginning January 1, 2027, acceptable TIEs for RoRos drop to 5%. Tanker vessels must control auxiliary engine emissions through a CARB approved technology beginning January 1, 2027, with the equivalent TIEs allocation calculation as the RoRos (10% of the previous year's calls). In 2029, tanker acceptable TIEs will drop to 5%. Tanker vessels with steam driven product pumps are no longer required to reduce their tanker auxiliary boiler emissions. Lastly, CARB provided stakeholders with berth analyses of the necessary infrastructure for each vessel type to meet these proposed requirements.

About This Response

The Port of Long Beach (Port) is providing supplementary information per CARB request on the estimates provided in the joint comment letter the Ports of Los Angeles and Long Beach, "Potential Strategies and Costs to Address the At-Berth Regulation", submitted on February 6th, 2019. Importantly, these cost estimates were developed using data from previous shore power installations, such as progress payments, bid analyses, and maps of the shore power infrastructure at the container terminals. Those documents are provided in the attachments to this appendix. The attachments also provide vessel call data as reported in the 2017 Wharfinger Reports to better inform the berth analyses CARB distributed at the February workshops. The estimated hours of control required and operational costs for both container and non-container vessels visits should alternative compliance strategies such as barge and land-based emission control technologies be utilized has been revised. Lastly, this appendix provides documentation of the costs associated with the Prop 1B shore power installations – specifically at Piers A, G, T, and G. Under the Prop 1B program, the Port was required to tease out hard costs from the progress payments. These hard costs have been provided to help inform future CARB analyses of infrastructure costs. It's important to note that these costs are in 2012 dollars, and future estimates should account for escalation.

Shore Power Outlets Calculation & Locations

The proposed concepts explained in the February 2019 workshops are written in such a way that terminals would need to make a reasonable effort to control emissions for every vessel visit. The Port would like to highlight that terminals would not plan a compliance strategy, which meets a

95% control criteria, as TIEs can occur due to reasons out of their control. They would plan to meet 100% emission control while ships are at berth, knowing unforeseen circumstances will hinder their success, hopefully, within the 5% threshold.

To maximize shore power connection at the container terminals, Port staff established design criteria, which requires shore power outlets (SPOs) every 200 feet, combined with a 100-foot cable reel system. This design criteria was used to calculate the minimum number of SPOs required at each pier. As demonstrated in Table 1, staff divided the wharf length for each berth by 200 feet, providing the optimal number of SPOs given 200-foot spacing. Staff then subtracted the existing number of SPOs at each berth to determine the additional shore power outlets required.

Table 1.

Location	Existing SPOs	Number of Berths	Length of Wharf (ft)	SPO @200'	Additional SPOs required for 200' spacing given current infrastructure	Number of Cable Reel Management Systems Required
Pier A Berths A88-A96	9	3	3556	18	9	3
Pier C SSA Terminals	8	2	1797	9	1	2
Pier E	15	3	4369	22	7	3
Pier G						
Berth G232	5	2	1337	7	2	2
Berth G236	6	2	1290	6	0	2
Berths G234, G235	1	1	1243	6	5	1
Pier J						
Berth J245-J247	9	2	2019	10	1	2
Berth J266-J270	11	3	2694	13	2	3
Pier T	11	4	5022	25	14	4
Total	75	22			42	22

The total count of functional SPOs today is 75, however, Pier E will be installing 5 SPOs as part of Phase 3 of the Middle Harbor Project at Long Beach Container Terminal. These SPOs are included in the Pier E calculation above. SPOs which have been abandoned or de-energized are not included in the calculation in Table 1. As far as cable-reel management systems, staff made an assumption that each berth would require one, 100-foot cable reel management system. Because the Port has 22 berths, it is assumed 22 cable reel management systems are required.

Cost Estimates & Timeline

The updated estimate for all six piers is approximately $107 million. To prepare this estimate, Port staff analyzed three previous shore power installation projects at Pier A, Pier J, and Pier T,

initiated in 2012, in order to develop a combined average cost per shore power outlet (SPO). Staff calculated the average SPO cost at each pier using progress payment documentation and tracked staff hours specific to these projects, and then averaged the average SPO cost of each project in order to get the combined average SPO cost. The total cost estimate is based on the average SPO cost multiplied by the number of new SPOs in Table 1, plus one cable reel per berth. The narrative describing the average SPO cost calculation is provided in ATTACHMENT A, Supporting Documentation for Container Terminal Cost Estimates.

The timeline to complete each pier is approximately 5.25 to 5.75 years, which includes 15 to 18 months to do preliminary design and environmental clearances, 15 to 18 months for design, 7 months for bid and award of a construction contract, and 26 months for construction and commissioning.

Exclusions and Limitations

The various existing wharves were built at different times and have different configurations and structural limitations. Wharf modifications may be necessary to accommodate the density of SPOs, which is not included in the cost estimate.

The estimated total number of additional SPOs does not account for the exact location of the current SPOs, so additional SPOs may be necessary to meet the functional requirement.

Many wharves do not have sufficient space at the edge of the wharf to accommodate the current cable reel design. It is unclear if a narrow cable reel can be designed to fit the specific space constraints at each pier, and wharf modifications may still be necessary to be able to safely use cable reel in the narrow space. If that is not possible, more extensive wharf modifications would be required. The cost estimate does not include any wharf modifications to accommodate the cable reel, and assumes a narrow cable reel is roughly the same cost as the current design.

The combined average cost per SPO does not include transformer costs nor any contingency. Staff removed the transformer costs from the bids on the previous SPO projects used to calculate the average SPO cost, making an assumption each container terminal has enough power today. If any terminal requires additional power, the total cost for additional shore power at the Port could increase on the scale of millions of dollars.

POLB resources, both money and staff, are finite, and the POLB is in the midst of a significant capital improvement program. There is not sufficient staff to complete all piers simultaneously within the existing capital program, and there may not be financial capacity to accommodate all of the additional capital expense within the timeframe. Therefore, it is highly likely some of the piers would take longer to complete, resulting in additional cost escalation not included in the current estimate.

Updated Alternative Emission Control Hours

The Port has updated the additional emission control time required if container, passenger, refrigerated cargo, RoRo, and tanker ships must control emissions for every visit. Updates

include refined detail on which berths received Prop 1B funding, and thus are subject to higher shore power connection requirements earlier and consideration of the minimum and maximum number of additional applicable ships that will require emission control technology on a given day. The findings utilize the 2017 Ports of Los Angeles and Long Beach Emissions Inventory data and are as follows:

1) There will need to be at least 26 barge-based systems online in the San Pedro Bay to meet the 2029 requirements (95% of calls must be controlled with an exception of 5% TIEs for all regulated ship types) - assuming vessel traffic remains at 2017 levels. At the Port of Long Beach, the maximum number of applicable ships that are not using shore power is 14 per day, the average is 8, and the minimum is 2 ships. In 2017, 147 days occurred where the number of barges needed if the proposed regulation were in place exceeded the average. Looking at the San Pedro Bay Complex, the average number of applicable ships which would require a barge-based system is 15 per day, with a maximum of 26, and a minimum of 4 ships per day. The Ports would be required to have 26 barge-based systems to meet the requisite emission control requirement from ships on a peak day.
2) An additional 40k-52k hours per year of emissions will need to be controlled via alternative capture and control technology to meet the every vessel, every visit requirement for the proposed ship types.[1][2]
4) To keep a fleet of at least 26 barges "viable" the operational cost per hour will have to double to at least $2,000 per hour. This is due to the costs associated with both active and inactive barges. The operational cost is estimated to be $81-$105 million dollars per year[3].

These estimates assume that a barge-based system will be used for ships, which do not utilize shore power. It is, however, more likely that tankers will strongly consider land-based systems. Given the Port has not demonstrated land-based alternative control technologies for the proposed vessel types, and the potential steep costs associated with a land-based device (wharf upgrades, increased power consumption, etc.) the Port decided assuming the use of the barge-based system provides a more conservative estimate of the costs associated with this regulation. It is also important to note that accommodating a fleet of 26 barge-based emission capture and control systems would require significant berthing space at both ports, which have limited wharf availability.

Attachment A - Supporting Documentation for Container Terminal Shore Power Infrastructure Cost Estimates
Attachment B – Prop 1B Shore Power Infrastructure Costs
Attachment C – Maps of Container Terminal Shore Power Infrastructure
Attachment D – Port of Long Beach Vessel Visits by Berth

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[1] The lower additional emission control hours reflect a scenario in which all currently unregulated ship calls which will be subject to the new At-Berth Regulation are controlled via barge-based systems and all currently controlled ship-types are handled by additional shore power infrastructure. The higher emission control value reflects a scenario in which all currently unregulated and regulated ship types will be controlled by a barge-based system, and no additional shore power infrastructure will be installed.
[2]These estimates assume a requirement of 1.5 hours per arrival and departure for connecting and disconnecting times where there will be no emission reductions.
[3] This cost does not include costs related to barge movements, anchorages, lay berths, etc.

ATTACHMENT A
Supporting Documentation for
Container Terminal Shore Power Infrastructure Cost Estimates

Average Cost per Shore Power Outlet (SPO) Calculation Narrative

- Staff used the actual contract bid and change order prices from three separate Port construction contracts to install SPOs in 2012. The contracts were for Pier J, Pier T, and Pier A.
- For each contract, the cost of providing and installing transformers was deducted from the total contract amount. This assumes that if SPOs are added in the future, there is already adequate capacity at the terminals for additional SPOs. Therefore, the cost of transformers should not be included in the average cost of future SPOs. If there is not adequate capacity, the cost per SPO would increase.
- The cost of installing SPOs includes all design, permit, and management costs (as referred to as soft costs). The costs for each project are tracked in the City's cost accounting system (also known as FAMIS or EZFAMIS). The EZFAMIS report for each project was run to acquire the soft costs for each project.
- The total project cost (construction contract plus soft costs, less transformer costs) was then escalated using 2.5% per year from the construction contract award date (2012) to the midpoint of earliest possible future SPO construction contract award (2022).
    - The earliest possible future SPO construction contract date is based on a January 1, 2020 regulation start date, and includes the time necessary to do design, bid, and award.
    - If the regulation date is pushed out, the cost per SPO would increase to reflect the additional cost escalation.
    - The 2.5% is a relatively low average cost escalation, and is much lower than what we have seen in the local market the last 2-3 years. The average cost per SPO would increase if the cost escalation is higher than 2.5%.
- The escalated total project cost was then divided by the number of SPOs installed, providing an average escalated cost per SPO per project.
- We averaged the combination of each projects' average cost per SPO to get the combined average cost per SPO in 2022 of $2,272,609.

Pier J Shore to Ship Power Project

- The work under the Pier J project included retrofitting of four berths of the existing north wharfs (J245-J247) and south wharfs (J266-J270), including the installation of twenty (20) shore power outlet vaults on the wharf face, all associated conduit, electrical cables and connections, and four electrical substations to supply power to each individual berth. (SPO location Exhibit attached)
- The original construction contract amount awarded to Helix Electric Inc. was $25,200,000 (Analysis of Bids Exhibit dated February 7, 2012 attached)
- Transformer costs are from Bid Items 22, 23, 24, and 25 (Progress Payment#27) and are excluded from the SPO cost calculations.
- Project soft cost included planning, design and construction management costs (EZFAMIS Report of Work Order HA1316) and are incorporated in the SPO cost calculation.

- Costs related to SCE work to bring the power to Pier J, installation of 66KV Substation and Site Preparation for the substation (Griffith Contract) is excluded from the cost calculations (SCE related cost items were highlighted in orange in the attached EZFAMIS Report).
- Average cost per SPO is calculated based on 20 SPO Vaults.

Pier T Shore to Ship Power Project

- The work under the Pier T project included retrofitting four berths of the existing south wharfs (T132-T140), including the installation of eleven (11) shore power outlet vaults on the wharf face, all associated conduit, electrical cables and connections, and four electrical substations to supply power to each individual berth. (SPO location Exhibit attached).
- The original construction contract amount awarded to The Ryan Company is $20,559,112 (Analysis of Bids Exhibit dated February 14, 2012 attached)
- Transformer costs are from Bid Items 18, 19, 20, and 21 (Progress Payment#19) and were not included in this calculation.
- Project soft costs included planning, design and construction management costs (EZFAMIS Report of Work Order HA1317 attached)
- Costs related to SCE work is excluded from the cost calculations.
- Average cost per SPO is calculated based on 11 SPO Vaults.

Pier A Shore to Ship Power Project

- The work under the Pier A project included retrofitting of four berths of the existing south wharfs (A88-A96), the installation of nine (9) shore power outlet vaults on the wharf face, all associated conduit, electrical cables and connections, and two electrical substations to supply power to each individual berth. Substation A provides power to Berth A94-96 and Substation B provides power to berths (A88-A90) and (A92-A94), respectively. (SPO location Exhibit attached)
- The original construction contract amount awarded to Schimmick Construction Company is $11,513,850 (Analysis of Bids Exhibit dated January 31, 2012 attached)
- Transformer costs are from Bid Items 20, 21 and 22 (Progress Payment#15 attached)
- Project soft cost included planning, design and construction management costs (EZFAMIS Report of Work Order HA1314 attached)
- Costs related to SCE work is excluded from the cost calculations.
- Average cost per SPO is calculated based on 9 SPO Vaults.

Summary of the Average SPO Costs (2022)

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	Average $/SPO (2022)
Pier J	$ 2,221,185.36
Pier T	$ 2,303,100.04
Pier A	$ 2,293,541.56
Combined Average Cost Per SPO	**$ 2,272,608.98**

The cost of the 100-foot cable reel management system is expected to be $500,000 each. The Port estimated that each berth would require one 100-foot cable reel management system. Today there are 22 berths. The estimated total cost for cable reel management systems $11,000,000.

Cost Estimate for Six Piers to Install Additional Required SPOs
$2,272,608.98 x 42 SPOs +$11,000,000 = **$106,449,577.16.**

Port of LONG BEACH
The Green Port

ANALYSIS OF BIDS
CITY OF LONG BEACH, HARBOR DEPARTMENT

SPECIFICATIONS FOR: Shore to Ship Power Retrofit at Pier J, Berths J245-J247 and J266-J270

NO. HD-S2341

DATE OPENED: February 7, 2012

		Helix Electric, Inc. 8260 Camino Santa Fe #A San Diego, CA 92121 Phone: (858) 535-0505 Fax: (858) 535-0738		Shimmick Construction Company 8201 Edgewater Drive Oakland, CA 92618 Phone: (949) 333-1500 Fax: (949) 333-1510		Sully-Miller Contracting Company 135 E. State College Blvd #400 Brea, CA 92821 Phone: (714) 578-9600 Fax: (714) 449-8775		The Ryan Company 15 Commerce Way Norton, MA 02766 Phone: (508) 742-2500 Fax: (508) 742-2540		Griffith/Rosendin JV 12200 Bloomfield Avenue Santa Fe Springs, CA 90670 Phone: (562) 929-1128 Fax: (562) 864-7938	
ITEM	ESTIMATED QUANTITIES	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT
ITEM NO. 1 - Progress Schedules: Furnish all labor, materials, tools, equipment, and incidentals necessary to prepare, furnish, update, revise and maintain the cost and resource loaded scheduling... for the lump sum price (minimum amount of $25,000) of -	Lump Sum	100,000.00	100,000.00	25,000.00	25,000.00	33,460.00	33,460.00	138,415.00	138,415.00	25,000.00	25,000.00
ITEM NO. 2 - Site Specific Safety Plan: Furnish all labor, materials, tools, equipment, and incidentals necessary to develop, submit, implement and maintain a Site Specific Safety Plan, including... for the lump sum price (minimum amount of $30,000) of -	Lump Sum	150,000.00	150,000.00	30,000.00	30,000.00	35,535.00	35,535.00	107,658.00	107,658.00	30,000.00	30,000.00
ITEM NO. 3 - Furnish and Place Temporary K-Rail and Chain Link Fence: Furnish all labor, materials, tools, equipment, and incidentals necessary to furnish, place, move, relocate, store, remove and dispose of temporary K-Rail... for the lump sum price of -	Lump Sum	1,400,000.00	1,400,000.00	600,000.00	600,000.00	686,711.00	686,711.00	661,212.00	661,212.00	1,500,000.00	1,500,000.00
ITEM NO. 4 - Mobilization/Demobilization: Furnish all labor, materials, tools, equipment, and incidentals necessary for Mobilization and Demobilization as specified and shown for the lump sum price (fixed amount of $1,200) of -	Lump Sum	1,200,000.00	1,200,000.00	1,200,000.00	1,200,000.00	1,200,000.00	1,200,000.00	1,200,000.00	1,200,000.00	1,200,000.00	1,200,000.00
ITEM NO. 5 - Interim Demobilization/Remobilization: Furnish all labor, materials, tools, equipment and incidentals necessary to temporarily demobilize from the above-wharf work area, including temporary... for the unit price per each combined event of -	Unit Price	9,000.00	135,000.00	1,000.00	15,000.00	3,554.00	53,310.00	5,775.15	86,627.25	4,380.00	65,700.00
TOTAL:											
CERTIFIED CHECK OR BOND:											

Helix Electric, Inc.	483309/Exp.11/30/2013	$25,200,000.00	
LOWEST RESPONSIBLE BIDDER	LICENSE NUMBER	AMOUNT	AUTHORIZED SIGNATURE

Port of LONG BEACH
The Green Port

ANALYSIS OF BIDS
CITY OF LONG BEACH, HARBOR DEPARTMENT

SPECIFICATIONS FOR: Shore to Ship Power Retrofit at Pier J, Berths J245-J247 and J266-J270

NO. HD-S2341

DATE OPENED: February 7, 2012

		Helix Electric, Inc. 8250 Camino Santa Fe #A San Diego, CA 92121 Phone: (858) 535-0505 Fax: (858) 535-0738		Shimmick Construction Company 8201 Edgewater Drive Oakland, CA 92618 Phone: (949) 333-1500 Fax: (949) 333-1510		Sully-Miller Contracting Company 135 E. State College Blvd #400 Brea, CA 92821 Phone: (714) 578-9600 Fax: (714) 449-8775		The Ryan Company 15 Commerce Way Norton, MA 02766 Phone: (508) 742-2500 Fax: (508) 742-2540		Griffith/Rosendin JV 12200 Bloomfield Avenue Santa Fe Springs, CA 90670 Phone: (562) 929-1128 Fax: (562) 864-7938	
ITEM	ESTIMATED QUANTITIES	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT
ITEM NO. 6 - Storm Water Pollution Prevention Plan(s) (SWPPP) Development and Compliance: Furnish all labor, materials, tools, equipment, and incidentals necessary to develop, provide, monitor... for the lump sum price (minimum amount of $150,000) of -	Lump Sum	300,000.00	300,000.00	150,000.00	150,000.00	289,563.00	289,563.00	184,554.00	184,554.00	150,000.00	150,000.00
ITEM NO. 7 - City Ordinance Construction Waste Management Plan: Furnish all labor, material, tools, equipment, logistics, forms, and incidentals necessary... (exclusive of the maximum $50,000 deposit) for the lump sum price (minimum amount of $5,000) of -	Lump Sum	10,000.00	10,000.00	5,000.00	5,000.00	6,186.00	6,186.00	6,275.00	6,275.00	5,000.00	5,000.00
ITEM NO. 8 - Soil Handling and Disposal, Non-Hazardous Waste: Furnish all labor, materials, tools, equipment, and incidentals necessary to excavate, stockpile... approximately seventeen-thousand six-hundred (17,600) tons... for the unit price per ton of -	Unit Price	12.00	100,800.00	12.00	100,800.00	21.00	176,400.00	40.97	344,148.00	7.90	66,360.00
ITEM NO. 9 - Shoring for Excavations: Furnish all labor, materials, tools, equipment, and incidentals necessary to design, place, maintain, move, and remove excavation shoring adequate for worker... for the lump sum price (minimum amount of $30,000) of -	Lump Sum	150,000.00	150,000.00	300,000.00	300,000.00	105,445.00	105,445.00	106,682.00	106,682.00	150,000.00	150,000.00
ITEM NO. 10 - Import Soil: Furnish all labor, materials, tools, equipment, and incidentals necessary to test, certify, load, transport, stockpile, place... approximately six thousand eight hundred ten (6,810) tons... for the unit price per ton of -	Unit Price	26.00	177,060.00	42.00	286,020.00	40.30	274,443.00	14.56	99,153.60	36.00	245,160.00
TOTAL:											
CERTIFIED CHECK OR BOND:											

Helix Electric, Inc.
LOWEST RESPONSIBLE BIDDER

483309/Exp.11/30/2013
LICENSE NUMBER

$25,200,000.00
AMOUNT

AUTHORIZED SIGNATURE

File: Bid Analysis HD-S2341 Bendalmeior (acp)[BID ANALYSIS] 2/7/2012 1:23 PM

Port of LONG BEACH
The Green Port

ANALYSIS OF BIDS
CITY OF LONG BEACH, HARBOR DEPARTMENT

SPECIFICATIONS FOR: Shore to Ship Power Retrofit at Pier J, Berths J246-J247 and J266-J270

NO. HD-S2341

DATE OPENED: February 7, 2012

		Helix Electric, Inc. 8260 Camino Santa Fe #A San Diego, CA 92121 Phone: (858) 535-0505 Fax: (858) 535-0738		Shimmick Construction Company 5201 Edgewater Drive Oakland, CA 92618 Phone: (949) 333-1500 Fax: (949) 333-1510		Sully-Miller Contracting Company 135 E. State College Blvd #400 Brea, CA 92821 Phone: (714) 578-9600 Fax: (714) 449-8775		The Ryan Company 15 Commerce Way Norton, MA 02766 Phone: (508) 742-2500 Fax: (508) 742-2540		Griffith/Rosendin JV 12200 Bloomfield Avenue Santa Fe Springs, CA 90670 Phone: (562) 929-1128 Fax: (562) 864-7938	
ITEM	ESTIMATED QUANTITIES	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT
ITEM NO. 11 - 3/4-inch Crushed Rock: Furnish all labor, materials, tools, equipment, and incidentals necessary to load, transport, stockpile, place, compact and grade approximately two thousand five hundred (2,500) tons... for the unit price per ton of -	Unit Price	25.00	62,500.00	40.00	100,000.00	50.20	125,500.00	25.50	63,750.00	27.00	67,500.00
ITEM NO. 12 - Disposal of Non-Hazardous Waste: Furnish all labor, materials, tools, equipment, and incidentals necessary to profile, load, transport... approximately thirteen thousand four hundred (13,400) tons... for the unit price per ton of -	Unit Price	10.00	134,000.00	45.00	603,000.00	26.75	358,450.00	45.80	613,720.00	42.50	569,500.00
ITEM NO. 13 - Crushed Miscellaneous Base from Port Crusher Site: Furnish all labor, materials, tools, equipment, and incidentals necessary to load, weigh... approximately five thousand six hundred eighty (5,680) tons... for the unit price per ton of -	Unit Price	40.00	227,200.00	18.00	102,240.00	37.50	213,000.00	24.10	136,888.00	30.80	174,944.00
ITEM NO. 14 - Furnish and Place Pavement Striping: Furnish all labor, materials, tools, equipment, and incidentals necessary to furnish and place 4-inch wide pavement striping complete as specified, for the unit price per linear foot of -	Unit Price	2.00	12,000.00	1.00	6,000.00	0.86	5,160.00	1.21	7,260.00	0.80	4,800.00
ITEM NO. 15 - Furnish and Place Pavement Markings: Furnish all labor, materials, tools, equipment, and incidentals necessary to furnish and place pavement markings, complete as specified, for the unit price per square foot of -	Unit Price	6.00	36,000.00	3.00	18,000.00	2.58	15,480.00	3.02	18,120.00	2.40	14,400.00
TOTAL:											
CERTIFIED CHECK OR BOND:											

Helix Electric, Inc.
LOWEST RESPONSIBLE BIDDER

483309/Exp.11/30/2013
LICENSE NUMBER

$25,200,000.00
AMOUNT

AUTHORIZED SIGNATURE

Port of LONG BEACH
The Green Port

ANALYSIS OF BIDS
CITY OF LONG BEACH, HARBOR DEPARTMENT

SPECIFICATIONS FOR: Shore to Ship Power Retrofit at Pier J, Berths J245-J247 and J266-J270 | **NO. HD-S2341** | **DATE OPENED: February 7, 2012**

		Helix Electric, Inc. 8250 Camino Santa Fe #A San Diego, CA 92121 Phone: (858) 535-0505 Fax: (858) 535-0738		Shimmick Construction Company 6201 Edgewater Drive Oakland, CA 92618 Phone: (949) 333-1500 Fax: (949) 333-1510		Sully-Miller Contracting Company 135 E. State College Blvd #400 Brea, CA 92821 Phone: (714) 578-9600 Fax: (714) 449-8775		The Ryan Company 15 Commerce Way Norton, MA 02766 Phone: (508) 742-2500 Fax: (508) 742-2540		Griffith/Rosendin JV 12200 Bloomfield Avenue Santa Fe Springs, CA 90670 Phone: (562) 929-1128 Fax: (562) 864-7938	
ITEM	ESTIMATED QUANTITIES	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT
ITEM NO. 16 - Furnish and Place Chain Link Fence and Gates: Furnish all labor, materials, tools, equipment, and incidentals necessary to furnish and place permanent chain link fence and gates including all footings, chain... for the lump sum price of -	Lump Sum	60,000.00	60,000.00	35,000.00	35,000.00	292,631.00	292,631.00	72,300.00	72,300.00	35,000.00	35,000.00
ITEM NO. 17 - Steel Guard Posts: Furnish all labor, materials, tools, equipment, and incidentals necessary to furnish and install ninety-five (95) steel guard posts, fixed and removable, including concrete footings... for the unit price per each of -	Unit Price	1,400.00	133,000.00	1,200.00	114,000.00	1,785.00	169,575.00	1,566.35	148,803.25	1,470.00	139,650.00
ITEM NO. 18 - Shore Power Outlet Vaults for Berth J245 (SPO 1, SPO 2, SPO 3, SPO 4, SPO 5): Provide all labor, material, equipment, and incidentals necessary to perform demolition and construction of shore to ship power... for the lump sum price of -	Lump Sum	400,000.00	400,000.00	550,000.00	550,000.00	616,045.00	616,045.00	248,506.00	248,506.00	645,000.00	645,000.00
ITEM NO. 19 - Shore Power Outlet Vaults for Berth J247 (SPO 6, SPO 7, SPO 8, SPO 9): Provide all labor, material, equipment, and incidentals necessary to perform demolition and construction of shore to ship power... for the lump sum price of -	Lump Sum	500,000.00	500,000.00	450,000.00	450,000.00	496,426.00	496,426.00	85,546.00	85,546.00	516,000.00	516,000.00
ITEM NO. 20 - Shore Power Outlet Vaults for Berth J266 (SPO 10, SPO 11, SPO 12, SPO 13, SPO 14, SPO 15): Provide all labor, material, equipment, and incidentals necessary to perform demolition and construction of shore to... for the lump sum price of -	Lump Sum	580,000.00	580,000.00	750,000.00	750,000.00	969,828.00	969,828.00	283,167.00	283,167.00	750,000.00	750,000.00
TOTAL:											
CERTIFIED CHECK OR BOND:											

Helix Electric, Inc.
LOWEST RESPONSIBLE BIDDER

483309/Exp.11/30/2013
LICENSE NUMBER

$25,200,000.00
AMOUNT

AUTHORIZED SIGNATURE

Port of LONG BEACH
The Green Port

ANALYSIS OF BIDS
CITY OF LONG BEACH, HARBOR DEPARTMENT

SPECIFICATIONS FOR: Shore to Ship Power Retrofit at Pier J, Berths J245-J247 and J266-J270

NO. HD-S2341

DATE OPENED: February 7, 2012

ITEM	ESTIMATED QUANTITIES	Helix Electric, Inc. 8260 Camino Santa Fe #A San Diego, CA 92121 Phone: (858) 535-0505 Fax: (858) 535-0738		Shimmick Construction Company 8201 Edgewater Drive Oakland, CA 92618 Phone: (949) 333-1500 Fax: (949) 333-1510		Suhy-Miller Contracting Company 135 E. State College Blvd #400 Brea, CA 92821 Phone: (714) 578-9600 Fax: (714) 449-8775		The Ryan Company 15 Commerce Way Norton, MA 02766 Phone: (508) 742-2500 Fax: (508) 742-2540		Griffith/Rosendin JV 12200 Bloomfield Avenue Santa Fe Springs, CA 90670 Phone: (562) 929-1128 Fax: (562) 864-7938	
		RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT
ITEM NO. 21 - Shore Power Outlet Vaults for Berth J270 (SPO 16, SPO 17, SPO 18, SPO 19, SPO 20): Provide all labor, material, equipment, and incidentals necessary to perform demolition and construction of shore to ship power... for the lump sum price of -	Lump Sum	550,000.00	550,000.00	600,000.00	600,000.00	681,001.00	681,001.00	218,699.00	218,699.00	630,000.00	630,000.00
ITEM NO. 22 - Transformer(s) for Berth J245 (SPO 1, SPO 2, SPO 3, SPO 4, SPO 5): Provide all labor, material, equipment, and incidentals required to furnish, install, and test the transformer(s) as part of a complete system... for the lump sum price of -	Lump Sum	600,000.00	600,000.00	600,000.00	600,000.00	617,070.00	617,070.00	641,584.00	641,584.00	595,348.00	595,348.00
ITEM NO. 23 - Transformer(s) for Berth J247 (SPO 6, SPO 7, SPO 8, SPO 9): Provide all labor, material, equipment, and incidentals required to furnish, install, and test the transformer(s) as part of a complete system... for the lump sum price of -	Lump Sum	600,000.00	600,000.00	600,000.00	600,000.00	617,070.00	617,070.00	641,584.00	641,584.00	595,348.00	595,348.00
ITEM NO. 24 - Transformer(s) for Berth J266 (SPO 10, SPO 11, SPO 12, SPO 13, SPO 14, SPO 15): Provide all labor, material, equipment, and incidentals required to furnish, install, and test the transformer(s) as part of a... for the lump sum price of -	Lump Sum	600,000.00	600,000.00	600,000.00	600,000.00	617,070.00	617,070.00	641,584.00	641,584.00	595,348.00	595,348.00
ITEM NO. 25 - Transformers for Berth J270 (SPO 16, SPO 17, SPO 18, SPO 19, SPO 20): Provide all labor, material, equipment, and incidentals required to furnish, install, and test the transformer(s) as part of a complete... for the lump sum price of -	Lump Sum	600,000.00	600,000.00	900,000.00	900,000.00	617,070.00	617,070.00	641,584.00	641,584.00	595,348.00	595,348.00
TOTAL:											
CERTIFIED CHECK OR BOND:											

Helix Electric, Inc.
LOWEST RESPONSIBLE BIDDER

483309/Exp.11/30/2013
LICENSE NUMBER

$25,200,000.00
AMOUNT

AUTHORIZED SIGNATURE

Port of LONG BEACH
The Green Port

ANALYSIS OF BIDS
CITY OF LONG BEACH, HARBOR DEPARTMENT

SPECIFICATIONS FOR: Shore to Ship Power Retrofit at Pier J, Berths J245-J247 and J266-J270 | **NO.** HD-S2341 | **DATE OPENED:** February 7, 2012

		Helix Electric, Inc. 8260 Camino Santa Fe #A San Diego, CA 92121 Phone: (858) 535-0505 Fax: (858) 535-0738		Shimmick Construction Company 8201 Edgewater Drive Oakland, CA 92618 Phone: (949) 333-1500 Fax: (949) 333-1510		Sully-Miller Contracting Company 135 E. State College Blvd #400 Brea, CA 92821 Phone: (714) 578-9800 Fax: (714) 449-6775		The Ryan Company 15 Commerce Way Norton, MA 02766 Phone: (508) 742-2500 Fax: (508) 742-2540		Griffith/Rosendin JV 12200 Bloomfield Avenue Santa Fe Springs, CA 90670 Phone: (562) 929-1128 Fax: (562) 864-7938	
ITEM	ESTIMATED QUANTITIES	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT
ITEM NO. 26 - Switchgear Assembly(s) for Berth J245 (SPO 1, SPO 2, SPO 3, SPO 4, SPO 5): Provide all labor, material, equipment, and incidentals required to furnish, install, and test the switchgear assembly as part of a... for the lump sum price of -	Lump Sum	1,112,440.00	1,112,440.00	1,950,000.00	1,950,000.00	2,257,118.00	2,257,118.00	1,983,333.00	1,983,333.00	1,803,184.00	1,803,184.00
ITEM NO. 27 - Switchgear Assembly(s) for Berth J247 (SPO 6, SPO 7, SPO 8, SPO 9): Provide all labor, material, equipment, and incidentals required to furnish, install, and test the switchgear assembly as part of a complete... for the lump sum price of -	Lump Sum	1,000,000.00	1,000,000.00	2,000,000.00	2,000,000.00	2,180,872.00	2,180,872.00	1,983,333.00	1,983,333.00	1,839,865.00	1,839,865.00
ITEM NO. 28 - Switchgear Assembly(s) for Berth J266 (SPO 10, SPO 11, SPO 12, SPO 13, SPO 14, SPO 15): Provide all labor, material, equipment, and incidentals required to furnish, install, and test the switchgear assembly as... for the lump sum price of -	Lump Sum	2,000,000.00	2,000,000.00	2,000,000.00	2,000,000.00	2,313,947.00	2,313,947.00	1,983,333.00	1,983,333.00	1,852,170.00	1,852,170.00
ITEM NO. 29 - Switchgear Assembly(s) for Berth J270 (SPO 16, SPO 17, SPO 18, SPO 19, SPO 20): Provide all labor, material, equipment, and incidentals required to furnish, install, and test the switchgear assembly as part of a... for the lump sum price of -	Lump Sum	2,200,000.00	2,200,000.00	2,190,000.00	2,190,000.00	2,390,042.00	2,390,042.00	1,983,333.00	1,983,333.00	2,026,687.00	2,026,687.00
ITEM NO. 30 - Ductbank and Raceways for Berth J245 (SPO 1, SPO 2, SPO 3, SPO 4, SPO 5): Provide all labor, material, equipment, and incidentals required to furnish, install and test the ductbanks and raceways as part of a... for the lump sum price of -	Lump Sum	1,500,000.00	1,500,000.00	2,000,000.00	2,000,000.00	1,014,160.00	1,014,160.00	1,146,620.00	1,146,620.00	1,150,000.00	1,150,000.00
TOTAL:											
CERTIFIED CHECK OR BOND:											

Helix Electric, Inc.	483309/Exp.11/30/2013	$25,200,000.00	
LOWEST RESPONSIBLE BIDDER	LICENSE NUMBER	AMOUNT	AUTHORIZED SIGNATURE

File: Bid Analysis HD-S2341 Bandelmaier (eop)[BID ANALYSIS] 2/7/2012 1:23 PM

Port of LONG BEACH
The Green Port

ANALYSIS OF BIDS
CITY OF LONG BEACH, HARBOR DEPARTMENT

SPECIFICATIONS FOR: Shore to Ship Power Retrofit at Pier J, Berths J245-J247 and J286-J270

NO. HD-S2341

DATE OPENED: February 7, 2012

		Helix Electric, Inc. 8250 Camino Santa Fe #A San Diego, CA 92121 Phone: (858) 535-0505 Fax: (858) 535-0738		Shimmick Construction Company 6201 Edgewater Drive Oakland, CA 92618 Phone: (949) 333-1500 Fax: (949) 333-1510		Sully-Miller Contracting Company 135 E. State College Blvd #400 Brea, CA 92821 Phone: (714) 578-9600 Fax: (714) 449-8775		The Ryan Company 15 Commerce Way Norton, MA 02766 Phone: (508) 742-2500 Fax: (508) 742-2540		Griffith/Rosendin JV 12200 Bloomfield Avenue Santa Fe Springs, CA 90670 Phone: (562) 929-1128 Fax: (562) 864-7938	
ITEM	ESTIMATED QUANTITIES	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT
ITEM NO. 31 - Ductbank and Raceways for Berth J247 (SPO 6, SPO 7, SPO 8, SPO 9): Provide all labor, material, equipment, and incidentals required to furnish, install, and test the ductbanks and raceways as part of a complete... for the lump sum price of -	Lump Sum	1,500,000.00	1,500,000.00	1,000,000.00	1,000,000.00	814,440.00	814,440.00	928,874.00	928,874.00	1,150,000.00	1,150,000.00
ITEM NO. 32 - Ductbank and Raceways for Berth J286 (SPO 10, SPO 11, SPO 12, SPO 13, SPO 14, SPO 15): Provide all labor, material, equipment, and incidentals required to furnish, install, and test the ductbanks and raceways as... for the lump sum price of -	Lump Sum	2,000,000.00	2,000,000.00	1,800,000.00	1,800,000.00	1,278,178.00	1,278,178.00	1,835,453.00	1,835,453.00	1,320,000.00	1,320,000.00
ITEM NO. 33 - Ductbank and Raceways for Berth J270 (SO 16, SPO 17, SPO 18, SPO 19, SPO 20): Provide all labor, material, equipment, and incidentals required to furnish, install, and test the ductbanks and raceways as part of... for the lump sum price of -	Lump Sum	1,500,000.00	1,500,000.00	1,300,000.00	1,300,000.00	1,176,073.00	1,176,073.00	1,066,532.00	1,066,532.00	1,330,000.00	1,330,000.00
ITEM NO. 34 - Conductors for Berth J245 (SPO 1, SPO 2, SPO 3, SPO 4, SPO 5): Provide all labor, material, equipment, and incidentals required to furnish, install, and test the conductor(s) as part of a complete system as... for the lump sum price of -	Lump Sum	400,000.00	400,000.00	550,000.00	550,000.00	637,918.00	637,918.00	556,501.00	556,501.00	604,784.00	604,784.00
ITEM NO. 35 - Conductors for Berth J247 (SPO 6, SPO 7, SPO 8, SPO 9): Provide all labor, material, equipment, and incidentals required to furnish, install, and test the conductor(s) as part of a complete system as specified... for the lump sum price of -	Lump Sum	200,000.00	200,000.00	400,000.00	400,000.00	451,610.00	451,610.00	400,827.00	400,827.00	457,211.00	457,211.00
TOTAL:											
CERTIFIED CHECK OR BOND:											

Helix Electric, Inc.
LOWEST RESPONSIBLE BIDDER

483309/Exp.11/30/2013
LICENSE NUMBER

$25,200,000.00
AMOUNT

AUTHORIZED SIGNATURE

File: Bid Analysis HD-S2341 Bandermeaur (scp)[BID ANALYSIS] 2/7/2012 1:23 PM

Port of LONG BEACH
The Green Port

ANALYSIS OF BIDS
CITY OF LONG BEACH, HARBOR DEPARTMENT

SPECIFICATIONS FOR: Shore to Ship Power Retrofit at Pier J, Berths J245-J247 and J266-J270 | **NO.** HD-S2341 | **DATE OPENED:** February 7, 2012

		Helix Electric, Inc. 8260 Camino Santa Fe #A San Diego, CA 92121 Phone: (858) 535-0505 Fax: (858) 535-0738		Shimmick Construction Company 8201 Edgewater Drive Oakland, CA 92618 Phone: (949) 333-1500 Fax: (949) 333-1510		Sully-Miller Contracting Company 135 E. State College Blvd #400 Brea, CA 92821 Phone: (714) 578-9600 Fax: (714) 449-8775		The Ryan Company 15 Commerce Way Norton, MA 02766 Phone: (508) 742-2500 Fax: (508) 742-2540		Griffith/Rosendin JV 12200 Bloomfield Avenue Santa Fe Springs, CA 90670 Phone: (562) 928-1128 Fax: (562) 864-7938	
ITEM	ESTIMATED QUANTITIES	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT
ITEM NO. 36 - Conductors for Berth J266 (SPO 10, SPO 11, SPO 12, SPO 13, SPO 14, SPO 15): Provide all labor, material, equipment, and incidentals required to furnish, install, and test the conductor(s) as part of a complete... for the lump sum price of -	Lump Sum	500,000.00	500,000.00	800,000.00	800,000.00	887,968.00	887,968.00	813,159.00	813,159.00	756,811.00	756,811.00
ITEM NO. 37 - Conductors for Berth J270 (SPO 16, SPO 17, SPO 18, SPO 19, SPO 20): Provide all labor, material, equipment, and incidentals required to furnish, install, and test the conductor(s) as part of a complete system... for the lump sum price of -	Lump Sum	400,000.00	400,000.00	650,000.00	650,000.00	852,670.00	852,670.00	798,445.00	798,445.00	631,086.00	631,086.00
ITEM NO. 38 - SPO Assemblies for Berth J245 (SPO 1, SPO 2, SPO 3, SPO 4, SPO 5): Provide all labor, material, equipment, and incidentals required to furnish, install, and test the SPO assemblies as part of a complete system... for the lump sum price of -	Lump Sum	150,000.00	150,000.00	175,000.00	175,000.00	138,722.00	138,722.00	442,719.00	442,719.00	390,978.00	390,978.00
ITEM NO. 39 - SPO Assemblies for Berth J247 (SPO 6, SPO 7, SPO 8, SPO 9): Provide all labor, material, equipment, and incidentals required to furnish, install, and test the SPO assemblies as part of a complete system as... for the lump sum price of -	Lump Sum	100,000.00	100,000.00	175,000.00	175,000.00	173,403.00	173,403.00	354,175.00	354,175.00	475,401.00	475,401.00
ITEM NO. 40 - SPO Assemblies for Berth J266 (SPO 10, SPO 11, SPO 12, SPO 13, SPO 14, SPO 15): Provide all labor, material, equipment, and incidentals required to furnish, install, and test the SPO assemblies as part of a... for the lump sum price of -	Lump Sum	170,000.00	170,000.00	175,000.00	175,000.00	208,083.00	208,083.00	531,262.00	531,262.00	559,717.00	559,717.00
TOTAL:											
CERTIFIED CHECK OR BOND:											

Helix Electric, Inc.
LOWEST RESPONSIBLE BIDDER

483309/Exp.11/30/2013
LICENSE NUMBER

$25,200,000.00
AMOUNT

AUTHORIZED SIGNATURE

Port of LONG BEACH
The Green Port

ANALYSIS OF BIDS
CITY OF LONG BEACH, HARBOR DEPARTMENT

SPECIFICATIONS FOR: Shore to Ship Power Retrofit at Pier J, Berths J245-J247 and J266-J270

NO. HD-S2341

DATE OPENED: February 7, 2012

		Helix Electric, Inc. 5250 Camino Santa Fe #A San Diego, CA 92121 Phone: (858) 535-0505 Fax: (858) 535-0738		Shimmick Construction Company 8201 Edgewater Drive Oakland, CA 92518 Phone: (949) 333-1500 Fax: (949) 333-1510		Sully-Miller Contracting Company 135 E. State College Blvd #400 Brea, CA 92821 Phone: (714) 578-9600 Fax: (714) 449-8775		The Ryan Company 15 Commerce Way Norton, MA 02766 Phone: (508) 742-2500 Fax: (508) 742-2540		Griffith/Rosendin JV 12200 Bloomfield Avenue Santa Fe Springs, CA 90670 Phone: (562) 929-1128 Fax: (562) 864-7938	
ITEM	ESTIMATED QUANTITIES	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT
ITEM NO. 41 - SPO Assemblies for Berth J270 (SPO 16, SPO 17, SPO 18, SPO 19, SPO 20): Provide all labor, material, equipment, and incidentals required to furnish, install, and test the SPO assemblies as part of a complete... for the lump sum price of -	Lump Sum	150,000.00	150,000.00	175,000.00	175,000.00	173,403.00	173,403.00	442,719.00	442,719.00	475,401.00	475,401.00
ITEM NO. 42 - All Other Electrical Work for Berth J245 (SPO 1, SPO 2, SPO 3, SPO 4, SPO 5): Provide all labor, material, equipment, and incidentals required to furnish, install, and test all other electrical work for Berth... for the lump sum price of -	Lump Sum	150,000.00	150,000.00	300,000.00	300,000.00	197,589.00	197,589.00	127,695.00	127,695.00	1.00	1.00
ITEM NO. 43 - All Other Electrical Work for Berth J247 (SPO 6, SPO 7, SPO 8, SPO 9): Provide all labor, material, equipment, and incidentals required to furnish, install, and test all other electrical work for Berth J247 as... for the lump sum price of -	Lump Sum	150,000.00	150,000.00	250,000.00	250,000.00	167,008.00	167,008.00	220,414.00	220,414.00	1.00	1.00
ITEM NO. 44 - All Other Electrical Work for Berth J266 (SPO 10, SPO 11, SPO 12, SPO 13, SPO 14, SPO 15): Provide all labor, material, equipment, and incidentals required to furnish, install, and test all other electrical work... for the lump sum price of -	Lump Sum	150,000.00	150,000.00	275,000.00	275,000.00	195,201.00	195,201.00	247,649.00	247,649.00	1.00	1.00
ITEM NO. 45 - All Other Electrical Work for Berth J270 (SPO 16, SPO 17, SPO 18, SPO 19, SPO 20): Provide all labor, material, equipment, and incidentals required to furnish, install, and test all other electrical work for... for the lump sum price of -	Lump Sum	150,000.00	150,000.00	250,000.00	250,000.00	167,008.00	167,008.00	127,695.00	127,695.00	1.00	1.00
TOTAL:											
CERTIFIED CHECK OR BOND:											

Helix Electric, Inc.
LOWEST RESPONSIBLE BIDDER

483309/Exp.11/30/2013
LICENSE NUMBER

$25,200,000.00
AMOUNT

AUTHORIZED SIGNATURE

Port of LONG BEACH
The Green Port

ANALYSIS OF BIDS
CITY OF LONG BEACH, HARBOR DEPARTMENT

SPECIFICATIONS FOR: Shore to Ship Power Retrofit at Pier J, Berths J245-J247 and J266-J270 | **NO.** HD-S2341 | **DATE OPENED:** February 7, 2012

		Helix Electric, Inc. 8260 Camino Santa Fe #A San Diego, CA 92121 Phone: (858) 535-0505 Fax: (858) 535-0738		Shimmick Construction Company 8201 Edgewater Drive Oakland, CA 92618 Phone: (949) 333-1500 Fax: (949) 333-1510		Sully-Miller Contracting Company 135 E. State College Blvd #400 Brea, CA 92821 Phone: (714) 578-9600 Fax: (714) 449-8775		The Ryan Company 15 Commerce Way Norton, MA 02766 Phone: (508) 742-2500 Fax: (508) 742-2540		Griffith/Rosendin JV 12200 Bloomfield Avenue Santa Fe Springs, CA 90670 Phone: (562) 929-1128 Fax: (562) 864-7938	
ITEM	ESTIMATED QUANTITIES	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT
ITEM NO. 46 - All Other Work: Furnish all labor, materials, tools, equipment, and incidentals necessary to perform all other work not included in the other Bid items as indicated in Paragraph SC-22 of the Special Conditions for the lump sum price of -	Lump Sum	200,000.00	200,000.00	0	0	530,999.00	530,999.00	3,142,993.00	3,142,993.00	4,310,000.00	4,310,000.00
ITEM NO. 47 - Extended Contractor Overhead: Furnish all labor, material, tools, equipment, and incidentals necessary to complete the work beyond the Initial Contract Time due to Excusable Compensable Delays as indicated... for the unit price per day of -	Unit Price	1,000.00	60,000.00	1,500.00	90,000.00	144.00	8,640.00	3,137.70	188,262.00	1,145.00	68,700.00
ITEM NO. 48 - Standby Time: Period of time during which work is interrupted and the Contractor shall hold Contractor's labor personnel and equipment in a state of readiness as indicated in Paragraph SC-30 of the... for the unit price per man hour of -	Unit Price	60.00	240,000.00	60.00	240,000.00	172.00	688,000.00	80.50	322,000.00	72.50	290,000.00
ITEM NO. 49 - Commissioning for Berths J245-J247: Furnish all labor, materials, tools, equipment, and incidentals necessary to commission Berths J245-J247 complete as specified in Section 16999 "Commissioning" for the unit price per man hour of -	Unit Price	200.00	200,000.00	400.00	400,000.00	358.00	358,000.00	132.54	132,540.00	237.91	237,910.00
ITEM NO. 50 - Commissioning for Berths J266-J270: Furnish all labor, materials, tools, equipment, and incidentals necessary to commission Berths J266-J270 complete as specified in Section 16999 "Commissioning" for the unit price per man hour of -	Unit Price	200.00	200,000.00	400.00	400,000.00	358.00	358,000.00	132.54	132,540.00	237.91	237,910.00
TOTAL:		$25,200,000.00		$28,485,050.00		$28,891,481.00		$29,290,225.10		$31,333,185.00	
CERTIFIED CHECK OR BOND:		10% Bond		10% Bond		10% Bond		10% Bond		10% Bond	

Helix Electric, Inc.
LOWEST RESPONSIBLE BIDDER

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LICENSE NUMBER

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Port of LONG BEACH
The Green Port

ANALYSIS OF BIDS
CITY OF LONG BEACH, HARBOR DEPARTMENT

SPECIFICATIONS FOR: Shore to Ship Power Retrofit at Pier J, Berths J245-J247 and J266-J270

NO. HD-S2341

DATE OPENED: February 7, 2012

		Dynalectric 4462 Corporate Center Drive Los Alamitos, CA 90720 Phone: (714) 828-7000 Fax: (714) 484-2385		Comet Electric, Inc. 7760 Deering Avenue Canoga Park, CA 91304 Phone: (818) 340-0965 Fax: (818) 340-4033							
ITEM	ESTIMATED QUANTITIES	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT
ITEM NO. 1 - Progress Schedules: Furnish all labor, materials, tools, equipment, and incidentals necessary to prepare, furnish, update, revise and maintain the cost and resource loaded scheduling... for the lump sum price (minimum amount of $25,000) of -	Lump Sum	192,500.00	192,500.00	93,324.00	93,324.00						
ITEM NO. 2 - Site Specific Safety Plan: Furnish all labor, materials, tools, equipment, and incidentals necessary to develop, submit, implement and maintain a Site Specific Safety Plan, including... for the lump sum price (minimum amount of $30,000) of -	Lump Sum	34,000.00	34,000.00	33,330.00	33,330.00						
ITEM NO. 3 - Furnish and Place Temporary K-Rail and Chain Link Fence: Furnish all labor, materials, tools, equipment, and incidentals necessary to furnish, place, move, relocate, store, remove and dispose of temporary K-Rail... for the lump sum price of -	Lump Sum	309,500.00	309,500.00	77,770.00	77,770.00						
ITEM NO. 4 - Mobilization/Demobilization: Furnish all labor, materials, tools, equipment, and incidentals necessary for Mobilization and Demobilization as specified and shown for the lump sum price (fixed amount of $1,200) of -	Lump Sum	1,200,000.00	1,200,000.00	1,200,000.00	1,200,000.00						
ITEM NO. 5 - Interim Demobilization/Remobilization: Furnish all labor, materials, tools, equipment and incidentals necessary to temporarily demobilize from the above-wharf work area, including temporary... for the unit price per each combined event of -	Unit Price	5,000.00	75,000.00	15,000.00	225,000.00						
TOTAL:											
CERTIFIED CHECK OR BOND:											

Helix Electric, Inc.
LOWEST RESPONSIBLE BIDDER

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Port of LONG BEACH
The Green Port

ANALYSIS OF BIDS
CITY OF LONG BEACH, HARBOR DEPARTMENT

SPECIFICATIONS FOR: Shore to Ship Power Retrofit at Pier J, Berths J245-J247 and J266-J270

NO. HD-S2341

DATE OPENED: February 7, 2012

		Dynalectric 4462 Corporate Center Drive Los Alamitos, CA 90720 Phone: (714) 828-7000 Fax: (714) 484-2365		Comet Electric, Inc. 7760 Deering Avenue Canoga Park, CA 91304 Phone: (818) 340-0965 Fax: (818) 340-4033							
ITEM	ESTIMATED QUANTITIES	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT
ITEM NO. 6 - Storm Water Pollution Prevention Plan(s) (SWPPP) Development and Compliance: Furnish all labor, materials, tools, equipment, and incidentals necessary to develop, provide, monitor... for the lump sum price (minimum amount of $150,000) of -	Lump Sum	316,300.00	316,300.00	166,650.00	166,650.00						
ITEM NO. 7 - City Ordinance Construction Waste Management Plan: Furnish all labor, material, tools, equipment, logistics, forms, and incidentals necessary... (exclusive of the maximum $50,000 deposit) for the lump sum price (minimum amount of $5,000) of -	Lump Sum	5,700.00	5,700.00	72,215.00	72,215.00						
ITEM NO. 8 - Soil Handling and Disposal,Non-Hazardous Waste: Furnish all labor, materials, tools, equipment, and incidentals necessary to excavate, stockpile... approximately seventeen-thousand six-hundred (17,600) tons... for the unit price per ton of -	Unit Price	28.15	236,460.00	28.33	237,972.00						
ITEM NO. 9 - Shoring for Excavations: Furnish all labor, materials, tools, equipment, and incidentals necessary to design, place, maintain, move, and remove excavation shoring adequate for worker... for the lump sum price (minimum amount of $30,000) of -	Lump Sum	287,000.00	287,000.00	122,390.00	122,390.00						
ITEM NO. 10 - Import Soil : Furnish all labor, materials, tools, equipment, and incidentals necessary to test, certify, load, transport, stockpile, place... approximately six thousand eight hundred ten (6,810) tons... for the unit price per ton of -	Unit Price	42.78	291,331.80	45.33	308,697.30						
TOTAL:											
CERTIFIED CHECK OR BOND:											

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Port of LONG BEACH
The Green Port

ANALYSIS OF BIDS
CITY OF LONG BEACH, HARBOR DEPARTMENT

SPECIFICATIONS FOR: Shore to Ship Power Retrofit at Pier J, Berths J245-J247 and J266-J270

NO. HD-S2341

DATE OPENED: February 7, 2012

		Dynalectric 4462 Corporate Center Drive Los Alamitos, CA 90720 Phone: (714) 826-7000 Fax: (714) 484-2385		Comet Electric, Inc. 7760 Deering Avenue Canoga Park, CA 91304 Phone: (818) 340-0965 Fax: (818) 340-4033							
ITEM	ESTIMATED QUANTITIES	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT
ITEM NO. 11 - 3/4-inch Crushed Rock: Furnish all labor, materials, tools, equipment, and incidentals necessary to load, transport, stockpile, place, compact and grade approximately two thousand five hundred (2,500) tons... for the unit price per ton of -	Unit Price	90.06	225,150.00	28.33	70,825.00						
ITEM NO. 12 - Disposal of Non-Hazardous Waste: Furnish all labor, materials, tools, equipment, and incidentals necessary to profile, load, transport... approximately thirteen thousand four hundred (13,400) tons... for the unit price per ton of -	Unit Price	93.48	1,252,632.00	65.73	880,782.00						
ITEM NO. 13 - Crushed Miscellaneous Base from Port Crusher Site: Furnish all labor, materials, tools, equipment, and incidentals necessary to load, weigh... approximately five thousand six hundred eighty (5,680) tons.... for the unit price per ton of -	Unit Price	31.51	178,976.80	47.60	270,368.00						
ITEM NO. 14 - Furnish and Place Pavement Striping: Furnish all labor, materials, tools, equipment, and incidentals necessary to furnish and place 4-inch wide pavement striping complete as specified, for the unit price per linear foot of -	Unit Price	3.38	20,280.00	0.57	3,420.00						
ITEM NO. 15 - Furnish and Place Pavement Markings: Furnish all labor, materials, tools, equipment, and incidentals necessary to furnish and place pavement markings, complete as specified, for the unit price per square foot of -	Unit Price	4.50	27,000.00	3.31	19,860.00						
TOTAL:											
CERTIFIED CHECK OR BOND:											

Helix Electric, Inc.
LOWEST RESPONSIBLE BIDDER

483309/Exp.11/30/2013
LICENSE NUMBER

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AMOUNT

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File: Bid Analysis HD-S2341 Bandammeur (acp)[BID ANALYSIS] 2/7/2012 1:23 PM

Port of LONG BEACH
The Green Port

ANALYSIS OF BIDS
CITY OF LONG BEACH, HARBOR DEPARTMENT

SPECIFICATIONS FOR: Shore to Ship Power Retrofit at Pier J, Berths J245-J247 and J266-J270

NO. HD-S2341

DATE OPENED: February 7, 2012

		Dynalectric 4462 Corporate Center Drive Los Alamitos, CA 90720 Phone: (714) 828-7000 Fax: (714) 484-2385		Comet Electric, Inc. 7750 Deering Avenue Canoga Park, CA 91304 Phone: (818) 340-0965 Fax: (818) 340-4033							
ITEM	ESTIMATED QUANTITIES	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT
ITEM NO. 16 - Furnish and Place Chain Link Fence and Gates: Furnish all labor, materials, tools, equipment, and incidentals necessary to furnish and place permanent chain link fence and gates including all footings, chain... for the lump sum price of -	Lump Sum	29,720.00	29,720.00	31,413.00	31,413.00						
ITEM NO. 17 - Steel Guard Posts: Furnish all labor, materials, tools, equipment, and incidentals necessary to furnish and install ninety-five (95) steel guard posts, fixed and removable, including concrete footings... for the unit price per each of -	Unit Price	1,687.47	160,309.65	1,784.82	169,557.90						
ITEM NO. 18 - Shore Power Outlet Vaults for Berth J245 (SPO 1, SPO 2, SPO 3, SPO 4, SPO 5): Provide all labor, material, equipment, and incidentals necessary to perform demolition and construction of shore to ship power... for the lump sum price of -	Lump Sum	557,250.00	557,250.00	879,322.00	879,322.00						
ITEM NO. 19 - Shore Power Outlet Vaults for Berth J247 (SPO 6, SPO 7, SPO 8, SPO 9): Provide all labor, material, equipment, and incidentals necessary to perform demolition and construction of shore to ship power... for the lump sum price of -	Lump Sum	467,200.00	467,200.00	704,410.00	704,410.00						
ITEM NO. 20 - Shore Power Outlet Vaults for Berth J266 (SPO 10, SPO 11, SPO 12, SPO 13, SPO 14, SPO 15): Provide all labor, material, equipment, and incidentals necessary to perform demolition and construction of shore to... for the lump sum price of -	Lump Sum	666,700.00	666,700.00	1,187,501.00	1,187,501.00						
TOTAL:											
CERTIFIED CHECK OR BOND:											

Helix Electric, Inc.
LOWEST RESPONSIBLE BIDDER

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File: Bid Analysis HD-S2341 Bandesmakur (ecp)[BID ANALYSIS] 2/7/2012 1:23 PM

Port of LONG BEACH
The Green Port

ANALYSIS OF BIDS
CITY OF LONG BEACH, HARBOR DEPARTMENT

SPECIFICATIONS FOR: Shore to Ship Power Retrofit at Pier J, Berths J245-J247 and J256-J270

NO. HD-S2341

DATE OPENED: February 7, 2012

		Dynalectric 4462 Corporate Center Drive Los Alamitos, CA 90720 Phone: (714) 828-7000 Fax: (714) 484-2385		Comet Electric, Inc. 7780 Deering Avenue Canoga Park, CA 91304 Phone: (818) 340-0965 Fax: (818) 340-4033							
ITEM	ESTIMATED QUANTITIES	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT
ITEM NO. 21 - Shore Power Outlet Vaults for Berth J270 (SPO 16, SPO 17, SPO 18, SPO 19, SPO 20): Provide all labor, material, equipment, and incidentals necessary to perform demolition and construction of shore to ship power... for the lump sum price of -	Lump Sum	580,000.00	580,000.00	994,741.00	994,741.00						
ITEM NO. 22 - Transformer(s) for Berth J245 (SPO 1, SPO 2, SPO 3, SPO 4, SPO 5): Provide all labor, material, equipment, and incidentals required to furnish, install, and test the transformer(s) as part of a complete system... for the lump sum price of -	Lump Sum	650,000.00	650,000.00	630,000.00	630,000.00						
ITEM NO. 23 - Transformer(s) for Berth J247 (SPO 6, SPO 7, SPO 8, SPO 9): Provide all labor, material, equipment, and incidentals required to furnish, install, and test the transformer(s) as part of a complete system... for the lump sum price of -	Lump Sum	650,000.00	650,000.00	630,000.00	630,000.00						
ITEM NO. 24 - Transformer(s) for Berth J256 (SPO 10, SPO 11, SPO 12, SPO 13, SPO 14, SPO 15): Provide all labor, material, equipment, and incidentals required to furnish, install, and test the transformer(s) as part of a... for the lump sum price of -	Lump Sum	650,000.00	650,000.00	630,000.00	630,000.00						
ITEM NO. 25 - Transformers for Berth J270 (SPO 16, SPO 17, SPO 18, SPO 19, SPO 20): Provide all labor, material, equipment, and incidentals required to furnish, install, and test the transformer(s) as part of a complete... for the lump sum price of -	Lump Sum	650,000.00	650,000.00	630,000.00	630,000.00						
TOTAL:											
CERTIFIED CHECK OR BOND:											

Helix Electric, Inc.
LOWEST RESPONSIBLE BIDDER

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ANALYSIS OF BIDS
CITY OF LONG BEACH, HARBOR DEPARTMENT

SPECIFICATIONS FOR: Shore to Ship Power Retrofit at Pier J, Berths J245-J247 and J266-J270

NO. HD-S2341

DATE OPENED: February 7, 2012

		Dynalectric 4462 Corporate Center Drive Los Alamitos, CA 90720 Phone: (714) 828-7000 Fax: (714) 484-2385		Comet Electric, Inc. 7760 Deering Avenue Canoga Park, CA 91304 Phone: (818) 340-0965 Fax: (818) 340-4033							
ITEM	ESTIMATED QUANTITIES	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT
ITEM NO. 26 - Switchgear Assembly(s) for Berth J245 (SPO 1, SPO 2, SPO 3, SPO 4, SPO 5): Provide all labor, material, equipment, and incidentals required to furnish, install, and test the switchgear assembly as part of a... for the lump sum price of -	Lump Sum	1,992,000.00	1,992,000.00	2,150,000.00	2,150,000.00						
ITEM NO. 27 - Switchgear Assembly(s) for Berth J247 (SPO 6, SPO 7, SPO 8, SPO 9): Provide all labor, material, equipment, and incidentals required to furnish, install, and test the switchgear assembly as part of a complete... for the lump sum price of -	Lump Sum	2,032,000.00	2,032,000.00	2,193,000.00	2,193,000.00						
ITEM NO. 28 - Switchgear Assembly(s) for Berth J266 (SPO 10, SPO 11, SPO 12, SPO 13, SPO 14, SPO 15): Provide all labor, material, equipment, and incidentals required to furnish, install, and test the switchgear assembly as... for the lump sum price of -	Lump Sum	2,045,300.00	2,045,300.00	2,244,000.00	2,244,000.00						
ITEM NO. 29 - Switchgear Assembly(s) for Berth J270 (SPO 16, SPO 17, SPO 18, SPO 19, SPO 20): Provide all labor, material, equipment, and incidentals required to furnish, install, and test the switchgear assembly as part of a... for the lump sum price of -	Lump Sum	2,235,400.00	2,235,400.00	2,519,000.00	2,519,000.00						
ITEM NO. 30 - Ductbank and Raceways for Berth J245 (SPO 1, SPO 2, SPO 3, SPO 4, SPO 5): Provide all labor, material, equipment, and incidentals required to furnish, install and test the ductbanks and raceways as part of a... for the lump sum price of -	Lump Sum	1,920,500.00	1,920,500.00	1,929,000.00	1,929,000.00						
TOTAL:											
CERTIFIED CHECK OR BOND:											

Helix Electric, Inc.
LOWEST RESPONSIBLE BIDDER

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File: Bid Analysis HD-S2341 Bendalmatur (acp)[BID ANALYSIS] 2/7/2012 1:23 PM

Port of LONG BEACH
The Green Port

ANALYSIS OF BIDS
CITY OF LONG BEACH, HARBOR DEPARTMENT

SPECIFICATIONS FOR: Shore to Ship Power Retrofit at Pier J, Berths J245-J247 and J266-J270

NO. HD-S2341

DATE OPENED: February 7, 2012

		Dynalectric 4462 Corporate Center Drive Los Alamitos, CA 90720 Phone: (714) 826-7000 Fax: (714) 484-2385		Comet Electric, Inc. 7760 Deering Avenue Canoga Park, CA 91304 Phone: (818) 340-0965 Fax: (818) 340-4033							
ITEM	ESTIMATED QUANTITIES	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT
ITEM NO. 31 - Ductbank and Raceways for Berth J247 (SPO 6, SPO 7, SPO 8, SPO 9): Provide all labor, material, equipment, and incidentals required to furnish, install, and test the ductbanks and raceways as part of a complete... for the lump sum price of -	Lump Sum	774,500.00	774,500.00	1,723,000.00	1,723,000.00						
ITEM NO. 32 - Ductbank and Raceways for Berth J266 (SPO 10, SPO 11, SPO 12, SPO 13, SPO 14, SPO 15): Provide all labor, material, equipment, and incidentals required to furnish, install, and test the ductbanks and raceways as... for the lump sum price of -	Lump Sum	2,657,600.00	2,657,600.00	3,006,000.00	3,006,000.00						
ITEM NO. 33 - Ductbank and Raceways for Berth J270 (SO 16, SPO 17, SPO 18, SPO 19, SPO 20): Provide all labor, material, equipment, and incidentals required to furnish, install, and test the ductbanks and raceways as part of... for the lump sum price of -	Lump Sum	1,234,500.00	1,234,500.00	2,897,000.00	2,897,000.00						
ITEM NO. 34 - Conductors for Berth J245 (SPO 1, SPO 2, SPO 3, SPO 4, SPO 5): Provide all labor, material, equipment, and incidentals required to furnish, install, and test the conductor(s) as part of a complete system as... for the lump sum price of -	Lump Sum	619,250.00	619,250.00	627,000.00	627,000.00						
ITEM NO. 35 - Conductors for Berth J247 (SPO 6, SPO 7, SPO 8, SPO 9): Provide all labor, material, equipment, and incidentals required to furnish, install, and test the conductor(s) as part of a complete system as specified... for the lump sum price of -	Lump Sum	371,200.00	371,200.00	460,000.00	460,000.00						
TOTAL:											
CERTIFIED CHECK OR BOND:											

Helix Electric, Inc.	483309/Exp.11/30/2013	$25,200,000.00	
LOWEST RESPONSIBLE BIDDER	LICENSE NUMBER	AMOUNT	AUTHORIZED SIGNATURE

File: Bid Analysis HD-S2341 Bendstmaur (scp)[BID ANALYSIS] 2/7/2012 1:23 PM

Port of LONG BEACH
The Green Port

ANALYSIS OF BIDS
CITY OF LONG BEACH, HARBOR DEPARTMENT

SPECIFICATIONS FOR: Shore to Ship Power Retrofit at Pier J, Berths J245-J247 and J266-J270

NO. HD-S2341

DATE OPENED: February 7, 2012

		Dynalectric 4462 Corporate Center Drive Los Alamitos, CA 90720 Phone: (714) 828-7000 Fax: (714) 484-2385		Comet Electric, Inc. 7760 Deering Avenue Canoga Park, CA 91304 Phone: (818) 340-0965 Fax: (818) 340-4033							
ITEM	ESTIMATED QUANTITIES	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT
ITEM NO. 36 - Conductors for Berth J268 (SPO 10, SPO 11, SPO 12, SPO 13, SPO 14, SPO 15): Provide all labor, material, equipment, and incidentals required to furnish, install, and test the conductor(s) as part of a complete... for the lump sum price of -	Lump Sum	766,400.00	766,400.00	977,000.00	977,000.00						
ITEM NO. 37 - Conductors for Berth J270 (SPO 16, SPO 17, SPO 18, SPO 19, SPO 20): Provide all labor, material, equipment, and incidentals required to furnish, install, and test the conductor(s) as part of a complete system... for the lump sum price of -	Lump Sum	633,725.00	633,725.00	822,000.00	822,000.00						
ITEM NO. 38 - SPO Assemblies for Berth J245 (SPO 1, SPO 2, SPO 3, SPO 4, SPO 5): Provide all labor, material, equipment, and incidentals required to furnish, install, and test the SPO assemblies as part of a complete system... for the lump sum price of -	Lump Sum	188,200.00	188,200.00	638,000.00	638,000.00						
ITEM NO. 39 - SPO Assemblies for Berth J247 (SPO 6, SPO 7, SPO 8, SPO 9): Provide all labor, material, equipment, and incidentals required to furnish, install, and test the SPO assemblies as part of a complete system as... for the lump sum price of -	Lump Sum	150,600.00	150,600.00	392,000.00	392,000.00						
ITEM NO. 40 - SPO Assemblies for Berth J266 (SPO 10, SPO 11, SPO 12, SPO 13, SPO 14, SPO 15): Provide all labor, material, equipment, and incidentals required to furnish, install, and test the SPO assemblies as part of a... for the lump sum price of -	Lump Sum	230,800.00	230,800.00	586,000.00	586,000.00						
TOTAL:											
CERTIFIED CHECK OR BOND:											

Helix Electric, Inc.	483309/Exp.11/30/2013	$25,200,000.00	
LOWEST RESPONSIBLE BIDDER	LICENSE NUMBER	AMOUNT	AUTHORIZED SIGNATURE

Port of LONG BEACH
The Green Port

ANALYSIS OF BIDS
CITY OF LONG BEACH, HARBOR DEPARTMENT

SPECIFICATIONS FOR: Shore to Ship Power Retrofit at Pier J, Berths J245-J247 and J266-J270

NO. HD-S2341

DATE OPENED: February 7, 2012

		Dynalectric 4452 Corporate Center Drive Los Alamitos, CA 90720 Phone: (714) 828-7000 Fax: (714) 484-2385		Comet Electric, Inc. 7760 Deering Avenue Canoga Park, CA 91304 Phone: (818) 340-0955 Fax: (818) 340-4033							
ITEM	ESTIMATED QUANTITIES	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT
ITEM NO. 41 - SPO Assemblies for Berth J270 (SPO 16, SPO 17, SPO 18, SPO 19, SPO 20): Provide all labor, material, equipment, and incidentals required to furnish, install, and test the SPO assemblies as part of a complete... for the lump sum price of -	Lump Sum	192,400.00	192,400.00	489,000.00	489,000.00						
ITEM NO. 42 - All Other Electrical Work for Berth J245 (SPO 1, SPO 2, SPO 3, SPO 4, SPO 5): Provide all labor, material, equipment, and incidentals required to furnish, install, and test all other electrical work for Berth... for the lump sum price of -	Lump Sum	265,250.00	265,250.00	162,000.00	162,000.00						
ITEM NO. 43 - All Other Electrical Work for Berth J247 (SPO 6, SPO 7, SPO 8, SPO 9): Provide all labor, material, equipment, and incidentals required to furnish, install, and test all other electrical work for Berth J247 as... for the lump sum price of -	Lump Sum	151,050.00	151,050.00	162,000.00	162,000.00						
ITEM NO. 44 - All Other Electrical Work for Berth J266 (SPO 10, SPO 11, SPO 12, SPO 13, SPO 14, SPO 15): Provide all labor, material, equipment, and incidentals required to furnish, install, and test all other electrical work... for the lump sum price of -	Lump Sum	183,000.00	183,000.00	194,000.00	194,000.00						
ITEM NO. 45 - All Other Electrical Work for Berth J270 (SPO 16, SPO 17, SPO 18, SPO 19, SPO 20): Provide all labor, material, equipment, and incidentals required to furnish, install, and test all other electrical work for... for the lump sum price of -	Lump Sum	158,000.00	158,000.00	176,000.00	176,000.00						
TOTAL:											
CERTIFIED CHECK OR BOND:											

Helix Electric, Inc.
LOWEST RESPONSIBLE BIDDER

483309/Exp.11/30/2013
LICENSE NUMBER

$25,200,000.00
AMOUNT

AUTHORIZED SIGNATURE

Port of LONG BEACH
The Green Port

ANALYSIS OF BIDS
CITY OF LONG BEACH, HARBOR DEPARTMENT

SPECIFICATIONS FOR: Shore to Ship Power Retrofit at Pier J, Berths J245-J247 and J266-J270

NO. HD-S2341

DATE OPENED: February 7, 2012

		Dynaelectric 4462 Corporate Center Drive Los Alamitos, CA 90720 Phone: (714) 828-7000 Fax: (714) 484-2385		Comet Electric, Inc. 7760 Deering Avenue Canoga Park, CA 91304 Phone: (818) 340-0965 Fax: (818) 340-4033							
ITEM	ESTIMATED QUANTITIES	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT
ITEM NO. 46 - All Other Work: Furnish all labor, materials, tools, equipment, and incidentals necessary to perform all other work not included in the other Bid Items as indicated in Paragraph SC-22 of the Special Conditions for the lump sum price of -	Lump Sum	2,928,804.00	2,928,804.00	12,533.00	12,533.00						
ITEM NO. 47 - Extended Contractor Overhead: Furnish all labor, material, tools, equipment, and incidentals necessary to complete the work beyond the initial Contract Time due to Excusable Compensable Delays as indicated... for the unit price per day of -	Unit Price	1,125.67	67,600.20	5,743.00	404,580.00						
ITEM NO. 48 - Standby Time: Period of time during which work is interrupted and the Contractor shall hold Contractor's labor personnel and equipment in a state of readiness as indicated in Paragraph SC-30 of the... for the unit price per man hour of -	Unit Price	305.79	1,227,160.00	800.00	3,200,000.00						
ITEM NO. 49 - Commissioning for Berths J245-J247: Furnish all labor, materials, tools, equipment, and incidentals necessary to commission Berths J245-J247 complete as specified in Section 16999 "Commissioning" for the unit price per man hour of -	Unit Price	268.50	268,500.00	269.00	269,000.00						
ITEM NO. 50 - Commissioning for Berths J266-J270: Furnish all labor, materials, tools, equipment, and incidentals necessary to commission Berths J266-J270 complete as specified in Section 16999 "Commissioning" for the unit price per man hour of -	Unit Price	268.50	268,500.00	269.00	269,000.00						
TOTAL:		$33,295,249.45		$38,770,551.20							
CERTIFIED CHECK OR BOND:		10% Bond		10% Bond							

Helix Electric, Inc.
LOWEST RESPONSIBLE BIDDER

483309/Exp.11/30/2013
LICENSE NUMBER

$25,200,000.00
AMOUNT

AUTHORIZED SIGNATURE

File: Bid Analysis HD-S2341 Bandazmeiur (rep)[BID ANALYSIS] 2/7/2012 1:23 PM

Progress Payment No. 27
Period Ending: 1/15/2015
PAYMENT DUE: 5/6/15
Specification: HD-S2341 - Shore to Ship Power Retrofit at Pier J, Berths J245-J247 and J266 - J270.
Contractor: Helix Electric, Inc.

LBHD Contract No: HD-7972
Original Bid Amt: $25,200,000

Item No.	Item	Unit	Est. Qty.	Unit Price	Bid Amount	Qty This Month	J245 $ Amount This Month	J247 $ Amount This Month	J266 $ Amount This Month	J270 $ Amount This Month	Previous Qty or %	Total % of Item Comp	TOTAL $ Amount to Date
TOTALS	TOTALCHANGE ORDERS			3,103,766.75	25,200,000.00	0%	$ 3,407.00	$ 3,407.00	$ 43,592.73	$ 43,592.73	99.67%	100.00%	$ 28,303,766.75
	NEW CONTRACT AMOUNT				28,303,766.75	WITHOLDS	-	-	-	-	-		
						RETENTION							

THIS IS TO CERTIFY THAT FUNDS ARE APPROVED BY BOARD OF HARBOR COMMISSIONERS.

MB Deepen P. Upadhyay 4/7/15
CM Initials Deepen Upadhyay, Project Manger — Date

4/9/15
Suzanne C. Plezia, P.E., Director of Construction Management — Date

Gross Earnings:	$ 28,303,766.75
Previous Payments:	$ 28,129,694.69
Previous Retention:	$ (80,072.61)
Earned This Period:	$ 93,999.45
Less Retention: E	$ (4,699.97)
AMOUNT DUE THIS ESTIMATE:	$ 89,299.48

DPHA15003141
DPHA15003145 escrow

BPO No.	INDEX CODE	PROJ	PROJ DET			Subobject Code	Amount	Retention	Pay Amount
RPHA12000174	HACACMCN	HA1316	1H2341			210009	$ 93,999.45	$ (4,699.97)	$ 89,299.48

RECEIVED BY DEEPEN UPADHYAY ON 4/6/15.

RECEIVED
P.O.L.B. FINANCE
15 APR 22 AM 11:23
ACCTS PAYABLE

Progress Payment No. 27
Period Ending: 1/15/2015
PAYMENT DUE: 5/6/15
Specification: HD-S2341 - Shore to Ship Power Retrofit at Pier J, Berths J245-J247 and J266 - J270.
Contractor: Helix Electric, Inc.

LBHD Contract No: HD-7972
Original Bid Amt: $25,200,000

Item No.	Item	Unit	Est. Qty.	Unit Price	Bid Amount	Qty This Month	J245 $ Amount This Month	J247 $ Amount This Month	J265 $ Amount This Month	J270 $ Amount This Month	Previous Qty or %	Total % of Item Comp	TOTAL $ Amount to Date
1	Progress Schedules	Lump Sum	1	100,000.00	100,000.00	0%	-	-	-	-	100%	100%	100,000.00
2	Site Specific Safety Plan	Lump Sum	1	150,000.00	150,000.00	0%	-	-	-	-	100%	100%	150,000.00
3	Furnish and Place Temporary K-Rail and Chain Link Fence	Lump Sum	1	1,400,000.00	1,400,000.00	0%	-	-	-	-	100%	100%	1,400,000.00
4	Mobilization/Demobilization	Lump Sum	1	1,200,000.00	1,200,000.00	0%	-	-	-	-	100%	100%	1,200,000.00
5	Interim Demobilization/Remobilization	Unit Price	15	9,000.00	135,000.00	0%	-	-	-	-	100%	100%	135,000.00
6	Storm Water Pollution Prevention Plan(s) (SWPPP) Development and Compliance	Lump Sum	1	300,000.00	300,000.00	0%	-	-	-	-	100%	100%	300,000.00
7	City Ordinance Construction Waste Management Plan	Lump Sum	1	10,000.00	10,000.00	0%	-	-	-	-	100%	100%	10,000.00
8	Soil Handling and Disposal, Non-Hazardous Waste	Unit Price	8,400	12.00	100,800.00	-	-	-	-	-	100%	100%	100,800.00
9	Shoring for Excavations	Lump Sum	1	150,000.00	150,000.00	0%	-	-	-	-	100%	100%	150,000.00
10	Import Soil	Unit Price	6,810	26.00	177,060.00		-	-	-	-	100%	100%	177,060.00
11	3/4-Inch Crushed Rock	Unit Price	2,500	25.00	62,500.00	-	-	-	-	-	100%	100%	62,500.00
12	Disposal of Non-Hazardous Waste	Unit Price	13,400	10.00	134,000.00	-	-	-	-	-	100%	100%	134,000.00
13	Crushed Miscellaneous Base from Port Crusher Site	Unit Price	5,680	40.00	227,200.00	-	-	-	-	-	100%	100%	227,200.00
14	Furnish and Place Pavement Striping	Unit Price	6000	2.00	12,000.00	-	-	-	-	-	100%	100%	12,000.00
15	Furnish and Place Pavement Markings	Unit Price	6000	6.00	36,000.00	-	-	-	-	-	100%	100%	36,000.00
16	Furnish and Place Chain Link Fence and Gates	Lump Sum	1	60,000.00	60,000.00	0%	-	-	-	-	100%	100%	60,000.00
17	Steel Guard Posts	Unit Price	95	1,400.00	133,000.00	-	-	-	-	-	100%	100%	133,000.00
18	Shore Power Outlet Vaults for Berth J245 (SPO 1, SPO 2, SPO 3, SPO 4, SPO 5)	Lump Sum	1	400,000.00	400,000.00	0%	-	N/A	N/A	N/A	100%	100%	400,000.00
19	Shore Power Outlet Vaults for Berth J247 (SPO 6, SPO 7, SPO 8, SPO 9)	Lump Sum	1	500,000.00	500,000.00	0%	N/A	-	N/A	N/A	100%	100%	500,000.00
20	Shore Power Outlet Vaults for Berth J266 (SPO 10, SPO 11, SPO 12, SPO 13, SPO 14, SPO 15)	Lump Sum	1	580,000.00	580,000.00	0%	N/A	N/A	-	N/A	100%	100%	580,000.00
21	Shore Power Outlet Vaults for Berth J270 (SPO 16, SPO 17, SPO 18, SPO 19, SPO 20)	Lump Sum	1	550,000.00	550,000.00	0%	N/A	N/A	N/A	-	100%	100%	550,000.00
22	Transformer(s) for Berth J245 (SPO 1, SPO 2, SPO 3, SPO 4, SPO 5)	Lump Sum	1	600,000.00	600,000.00	0%	-	N/A	N/A	N/A	100%	100%	600,000.00
23	Transformer(s) for Berth J247 (SPO 6, SPO 7, SPO 8, SPO 9)	Lump Sum	1	600,000.00	600,000.00	0%	N/A	-	N/A	N/A	100%	100%	600,000.00

Progress Payment No. 27
Period Ending: 1/15/2015
PAYMENT DUE: 5/6/15
Specification: HD-S2341 - Shore to Ship Power Retrofit at Pier J, Berths J245-J247 and J266 - J270.
Contractor: Helix Electric, Inc.

LBHD Contract No: HD-7972
Original Bid Amt: $25,200,000

Item No.	Item	Unit	Est. Qty.	Unit Price	Bid Amount	Qty This Month	J245 $ Amount This Month	J247 $ Amount This Month	J266 $ Amount This Month	J270 $ Amount This Month	Previous Qty or %	Total % of Item Comp	TOTAL $ Amount to Date
24	Transformer(s) for Berth J266 (SPO 10, SPO 11, SPO 12, SPO 13, SPO 14, SPO 15)	Lump Sum	1	600,000.00	600,000.00	0%	N/A	N/A	-	N/A	100%	100%	600,000.00
25	Transformers for Berth J270 (SPO 16, SPO 17, SPO 18, SPO 19, SPO 20)	Lump Sum	1	600,000.00	600,000.00	0%	N/A	N/A	N/A	-	100%	100%	600,000.00
26	Switchgear Assembly(s) for Berth J245 (SPO 1, SPO 2, SPO 3, SPO 4, SPO 5)	Lump Sum	1	1,112,440.00	1,112,440.00	0%	-	N/A	N/A	N/A	100%	100%	1,112,440.00
27	Switchgear Assembly(s) for Berth J247 (SPO 6, SPO 7, SPO 8, SPO 9)	Lump Sum	1	1,000,000.00	1,000,000.00	0%	N/A	-	N/A	N/A	100%	100%	1,000,000.00
28	Switchgear Assembly(s) for Berth J266 (SPO 10, SPO 11, SPO 12, SPO 13, SPO 14, SPO 15)	Lump Sum	1	2,000,000.00	2,000,000.00	0%	N/A	N/A	-	N/A	100%	100%	2,000,000.00
29	Switchgear Assembly(s) for Berth J270 (SPO 16, SPO 17, SPO 18, SPO 19, SPO 20)	Lump Sum	1	2,200,000.00	2,200,000.00	0%	N/A	N/A	N/A	-	100%	100%	2,200,000.00
30	Ductbank and Raceways for Berth J245 (SPO 1, SPO 2, SPO 3, SPO 4, SPO 5)	Lump Sum	1	1,500,000.00	1,500,000.00	0%	-	N/A	N/A	N/A	100%	100%	1,500,000.00
31	Ductbank and Raceways for Berth J247 (SPO 6, SPO 7, SPO 8, SPO 9)	Lump Sum	1	1,500,000.00	1,500,000.00	0%	N/A	-	N/A	N/A	100%	100%	1,500,000.00
32	Ductbank and Raceways for Berth J266 (SPO 10, SPO 11, SPO 12, SPO 13, SPO 14, SPO 15)	Lump Sum	1	2,000,000.00	2,000,000.00	0%	N/A	N/A	-	N/A	100%	100%	2,000,000.00
33	Ductbank and Raceways for Berth J270 (SO 16, SPO 17, SPO 18, SPO 19, SPO 20)	Lump Sum	1	1,500,000.00	1,500,000.00	0%	N/A	N/A	N/A	-	100%	100%	1,500,000.00
34	Conductors for Berth J245 (SPO 1, SPO 2, SPO 3, SPO 4, SPO 5)	Lump Sum	1	400,000.00	400,000.00	0%	-	N/A	N/A	N/A	100%	100%	400,000.00
35	Conductors for Berth J247 (SPO 6, SPO 7, SPO 8, SPO 9)	Lump Sum	1	200,000.00	200,000.00	0%	N/A	-	N/A	N/A	100%	100%	200,000.00
36	Conductors for Berth J266 (SPO 10, SPO 11, SPO 12, SPO 13, SPO 14, SPO 15)	Lump Sum	1	500,000.00	500,000.00	0%	N/A	N/A	-	N/A	100%	100%	500,000.00
37	Conductors for Berth J270 (SPO 16, SPO 17, SPO 18, SPO 19, SPO 20)	Lump Sum	1	400,000.00	400,000.00	0%	N/A	N/A	-	-	100%	100%	400,000.00
38	SPO Assemblies for Berth J245 (SPO 1, SPO 2, SPO 3, SPO 4, SPO 5)	Lump Sum	1	150,000.00	150,000.00	0%	-	N/A	N/A	N/A	100%	100%	150,000.00
39	SPO Assemblies for Berth J247 (SPO 6, SPO 7, SPO 8, SPO 9)	Lump Sum	1	100,000.00	100,000.00	0%	N/A	-	N/A	N/A	100%	100%	100,000.00
40	SPO Assemblies for Berth J266 (SPO 10, SPO 11, SPO 12, SPO 13, SPO 14, SPO 15)	Lump Sum	1	170,000.00	170,000.00	0%	N/A	N/A	-	N/A	100%	100%	170,000.00
41	SPO Assemblies for Berth J270 (SPO 16, SPO 17, SPO 18, SPO 19, SPO 20)	Lump Sum	1	150,000.00	150,000.00	0%	N/A	N/A	N/A	-	100%	100%	150,000.00
42	All Other Electrical Work for Berth J245 (SPO 1, SPO 2, SPO 3, SPO 4, SPO 5)	Lump Sum	1	150,000.00	150,000.00	0%	-	N/A	N/A	N/A	100%	100%	150,000.00
43	All Other Electrical Work for Berth J247 (SPO 6, SPO 7, SPO 8, SPO 9)	Lump Sum	1	150,000.00	150,000.00	0%	N/A	-	N/A	N/A	100%	100%	150,000.00
44	All Other Electrical Work for Berth J266 (SPO 10, SPO 11, SPO 12, SPO 13, SPO 14, SPO 15)	Lump Sum	1	150,000.00	150,000.00	0%	N/A	N/A	-	N/A	100%	100%	150,000.00
45	All Other Electrical Work for Berth J270 (SPO 16, SPO 17, SPO 18, SPO 19, SPO 20)	Lump Sum	1	150,000.00	150,000.00	0%	N/A	N/A	N/A	-	100%	100%	150,000.00

Progress Payment No. 27
Period Ending: 1/15/2015
PAYMENT DUE: 5/6/15
Specification: HD-S2341 - Shore to Ship Power Retrofit at Pier J, Berths J245-J247 and J266 - J270.
Contractor: Helix Electric, Inc.

LBHD Contract No: HD-7972
Original Bid Amt: $25,200,000

Item No.	Item	Unit	Est. Qty.	Unit Price	Bid Amount	Qty This Month	J245 $ Amount This Month	J247 $ Amount This Month	J266 $ Amount This Month	J270 $ Amount This Month	Previous Qty or %	Total % of Item Comp	TOTAL $ Amount to Date
46	All Other Work	Lump Sum	1	200,000.00	200,000.00	0%	-	-	-	-	100%	100%	200,000.00
47	Extended Contractor Overhead	Unit Price	60	1,000.00	60,000.00	-	-	-	-	-	100%	100%	60,000.00
48	Standby Time	Unit Price	4000	60.00	240,000.00	-	-	-	-	-	100%	100%	240,000.00
49	Commissioning for Berths J245-J247	Unit Price	1000	200.00	200,000.00	-	88,850.00	88,850.00	N/A	N/A	100%	100%	200,000.00
50	Commissioning for Berths J266-J270	Unit Price	1000	200.00	200,000.00	843	N/A	N/A	84,300.00	84,300.00	100%	100%	200,000.00
	CHANGE ORDER #1 - TIME EXT												
	CHANGE ORDER #2- R14A - ACCELERATION	Lump Sum	1	60,000.00		0%	-	-	-	-	100%	100%	60,000.00
	CHANGE ORDER # 2 - SCE GROUNDING	Lump Sum	1	10,427.00		0%	-	-	-	-	100%	100%	10,427.00
	CHANGE ORDER # 3	Lump Sum	1	61,497.00		0%	-	-	-	-	100%	100%	61,497.00
	CHANGE ORDER # 4	Lump Sum	1	1,371,684.00		0%	-	-	-	-	100%	100%	1,371,684.00
	CHANGE ORDER #5	Lump Sum	1	(11,053.00)		0%	-	-	-	-	100%	100%	(11,053.00)
	CHANGE ORDER # 6	Lump Sum	1	75,000.00		0%	-	-	-	-	100%	100%	75,000.00
	CHANGE ORDER # 7	Lump Sum	1	88,932.00		0%	N/A	N/A	-	-	100%	100%	88,932.00
	CHANGE ORDER # 8	Lump Sum	1	58,720.00		0%			N/A	N/A	100%	100%	58,719.98
	CHANGE ORDER # 9	Lump Sum	1	59,147.00		0%	-	-	-	-	100%	100%	59,147.00
	CHANGE ORDER # 10	Lump Sum	1	57,179.00		0%	-	-	-	-	100%	100%	57,179.00
	CHANGE ORDER #11	Lump Sum	1	24,752.00		0%	-	-	-	-	100%	100%	24,752.00
	CHANGE ORDER #12	Lump Sum	1	1,621,113.00		5%	-		40,185.73	40,185.73	95%	100%	1,621,113.06
	CHANGE ORDER #13	Lump Sum	1	(38,959.25)		0%	-	-		-	100%	100%	(38,959.29)
	CHANGE ORDER #14	Lump Sum	1	(332,672.00)		100%	(85,443.00)	(85,443.00)	(80,893.00)	(80,893.00)	100%	100%	(332,672.00)

Project & Grant Revenue/Expenditure Financial Summary

Criteria: As Of = 3/21/2019 (47% of Year Elapsed)

Vendor	Title	ITD Adjusted Budget	Month-To-Date Actual Activity	Quarter-To-Date Actual Activity	ITD Actual	ITD Encumbrance Incl Pre-Encumb	ITD Adjusted Budget - Actuals	ITD % Actuals to Adjusted Budget
Project HA1316 - CLOSED- NCK-PIER J 243-270 SHORE TO SHIP								
1B2341 -- 1B2341/ENV PLANNING/SHORE TO SHIP PWR								
(None)	(None)	755.27	0.00	0.00	239.31	0.00	515.96	31.7%
V046804	SOUTH COAST AIR QUALITY MANAGEMENT	0.00	0.00	0.00	515.96	0.00	(515.96)	0.0%
Total Project Detail 1B2341/ENV PLANNING/SHORE TO SHIP PWR		755.27	0.00	0.00	755.27	0.00	0.00	100.0%
1C2341 -- 1C2341/DESIGN/SHORE TO SHIP POWER								
(None)	(None)	5,780,229.59	0.00	0.00	597,829.78	0.00	5,182,399.81	10.3%
V051095	AMERICAN REPROGRAPHICS COMPANY	0.00	0.00	0.00	4,141.89	0.00	(4,141.89)	0.0%
V054954	BIGGS CARDOSA ASSOCIATES INC	0.00	0.00	0.00	50,735.00	0.00	(50,735.00)	0.0%
V054853	C BELOW INC	0.00	0.00	0.00	5,500.00	0.00	(5,500.00)	0.0%
V005746	CADSTAR INC	0.00	0.00	0.00	6,820.00	0.00	(6,820.00)	0.0%
V047448	EASTERN GROUP PUBLICATION INC	0.00	0.00	0.00	1,168.50	0.00	(1,168.50)	0.0%
V046782	JOHNSON-FRANK & ASSOC INC	0.00	0.00	0.00	26,604.56	0.00	(26,604.56)	0.0%
V041706	KPFF CONSULTING ENGINEERS	0.00	0.00	0.00	97,429.59	0.00	(97,429.59)	0.0%
V021514	LONG BEACH PUBLISHING COMPANY	0.00	0.00	0.00	2,945.70	0.00	(2,945.70)	0.0%
V002113	LONG BEACH TIMES NEWSPAPER INC	0.00	0.00	0.00	4,286.08	0.00	(4,286.08)	0.0%
V030466	OUR WEEKLY LLC	0.00	0.00	0.00	1,000.00	0.00	(1,000.00)	0.0%
V025229	P2S INC	0.00	0.00	0.00	4,306,690.08	0.00	(4,306,690.08)	0.0%
V012651	PIRNIE, MALCOLM INC	0.00	0.00	0.00	72,104.52	0.00	(72,104.52)	0.0%
V025943	SAF-R-DIG UTILITY SURVEYS, INC	0.00	0.00	0.00	37,823.08	0.00	(37,823.08)	0.0%
V045271	TMAD TAYLOR & GAINES ENGINEERS	0.00	0.00	0.00	106,154.00	0.00	(106,154.00)	0.0%
V043513	URS CORPORATION	0.00	0.00	0.00	461,953.91	0.00	(461,953.91)	0.0%
Total Project Detail 1C2341/DESIGN/SHORE TO SHIP POWER		5,780,229.59	0.00	0.00	5,783,186.69	0.00	(2,957.10)	100.1%
1H2341 -- FUNDING FOR S.C.E.								
(None)	(None)	43,929,507.56	0.00	0.00	1,768,774.28	0.00	42,160,733.28	4.0%
V051095	AMERICAN REPROGRAPHICS COMPANY	0.00	0.00	0.00	23,325.95	0.00	(23,325.95)	0.0%
V035098	ARCADIS US INC	0.00	0.00	0.00	1,015.00	0.00	(1,015.00)	0.0%
V054954	BIGGS CARDOSA ASSOCIATES INC	0.00	0.00	0.00	7,000.00	0.00	(7,000.00)	0.0%
V046257	BUBALO, STEVE CONSTRUCTION COMPANY	0.00	0.00	0.00	77,220.84	0.00	(77,220.84)	0.0%
V050028	COMPUTER 1 PRODUCTS OF AMERICA INC	0.00	0.00	0.00	4,087.90	0.00	(4,087.90)	0.0%
V060783	CRISP ENTERPRISES	0.00	0.00	0.00	81.75	0.00	(81.75)	0.0%
V042936	CUTTING EDGE CONCRETE SERVICES INC	0.00	0.00	0.00	1,598.94	0.00	(1,598.94)	0.0%
V037752	D WOOLLEY & ASSOCIATES INC	0.00	0.00	0.00	9,577.50	0.00	(9,577.50)	0.0%
V045696	EDISON ESI	0.00	0.00	0.00	7,490,000.00	0.00	(7,490,000.00)	0.0%
V044431	GRIFFITH COMPANY	0.00	0.00	0.00	516,058.52	0.00	(516,058.52)	0.0%
V024035	HELIX ELECTRIC INC	0.00	0.00	0.00	28,303,766.78	0.00	(28,303,766.78)	0.0%
V006703	IMPREST - HA ADMIN CKG ACCT	0.00	0.00	0.00	138.84	0.00	(138.84)	0.0%
V062479	KCEI CONSTRUCTION INC	0.00	0.00	0.00	90,000.00	0.00	(90,000.00)	0.0%
V025942	KOURY ENGINEERING & TESTING INC	0.00	0.00	0.00	180,342.50	0.00	(180,342.50)	0.0%
V024652	LOVCO CONSTRUCTION INC	0.00	0.00	0.00	227.69	0.00	(227.69)	0.0%
V053486	NETWORK INTEGRATION COMPANY PARTNERS	0.00	0.00	0.00	372.14	0.00	(372.14)	0.0%
V025229	P2S INC	0.00	0.00	0.00	1,061,424.53	0.00	(1,061,424.53)	0.0%
V039001	PACIFIC EH&S SERVICES INC	0.00	0.00	0.00	30,293.78	0.00	(30,293.78)	0.0%

Criteria: Revenue/Expenditure = E; Project = HA1316; Project Detail = !90

Project & Grant Revenue/Expenditure Financial Summary

Criteria: As Of = 3/21/2019 (47% of Year Elapsed)

Vendor	Title	ITD Adjusted Budget	Month-To-Date Actual Activity	Quarter-To-Date Actual Activity	ITD Actual	ITD Encumbrance incl Pre-Encumb	ITD Adjusted Budget - Actuals	ITD % Actuals to Adjusted Budget
Project HA1316 - CLOSED- NCK-PIER J 243-270 SHORE TO SHIP								
1H2341 -- FUNDING FOR S.C.E.								
V053796	PACIFIC PRODUCTS & SERVICES INC	0.00	0.00	0.00	1,075.06	0.00	(1,075.06)	0.0%
V048468	PC SPECIALISTS INC	0.00	0.00	0.00	4,804.59	0.00	(4,804.59)	0.0%
V021557	SHI INTERNATIONAL CORPORATION	0.00	0.00	0.00	222.08	0.00	(222.08)	0.0%
V026541	SIMPLUS MANAGEMENT COMPANY, LLC	0.00	0.00	0.00	52,852.80	0.00	(52,852.80)	0.0%
V044553	SMITH EMERY CORP	0.00	0.00	0.00	1,923.40	0.00	(1,923.40)	0.0%
V046804	SOUTH COAST AIR QUALITY MANAGEMENT	0.00	0.00	0.00	1,058.94	0.00	(1,058.94)	0.0%
V044555	SOUTHERN CALIFORNIA EDISON COMPANY	0.00	0.00	0.00	1,500,000.00	0.00	(1,500,000.00)	0.0%
V045074	TWINING INC	0.00	0.00	0.00	5,527.50	0.00	(5,527.50)	0.0%
V043513	URS CORPORATION	0.00	0.00	0.00	4,893.75	0.00	(4,893.75)	0.0%
V047884	VANIR CONSTRUCTION MANAGEMENT INC	0.00	0.00	0.00	2,788,885.09	0.00	(2,788,885.09)	0.0%
V012285	WSP USA INC	0.00	0.00	0.00	3,062.60	0.00	(3,062.60)	0.0%
Total Project Detail FUNDING FOR S.C.E.		43,929,507.56	0.00	0.00	43,929,612.75	0.00	(105.19)	100.0%
Total Project HA1316		49,710,492.42	0.00	0.00	49,713,554.71	0.00	(3,062.29)	100.0%
Total		49,710,492.42	0.00	0.00	49,713,554.71	0.00	(3,062.29)	100.0%

Port of LONG BEACH
The Green Port

ANALYSIS OF BIDS
CITY OF LONG BEACH, HARBOR DEPARTMENT

SPECIFICATIONS FOR: Shore to Ship Power Project at Pier T, Berths T132-T140 | **NO. HD-S2348** | **DATE OPENED: February 14, 2012**

		The Ryan Company 15 Commerce Way Norton, MA 02766 Phone: (508) 742-2500 Fax: (508) 742-2540		Minako dba Minco Construction 522 E. Airline Way Gardena, CA 90248 Phone: (310) 516-8100 Fax: (310) 516-7404		Veliutini Corp dba Royal Electric 8481 Carbide Ct Sacramento, CA 95828 Phone: (916) 226-2100 Fax: (916) 226-2150		KDC, Inc. dba Dynalectric 4462 Corporate Center Drive Los Alamitos, CA 90720 Phone: (714) 828-7000 Fax: (714) 484-2384		Sully-Miller Contracting Company 135 S. State College Blvd #400 Brea, CA 92821 Phone: (714) 578-9600 Fax: (714) 449-8775	
ITEM	ESTIMATED QUANTITIES	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT
ITEM NO. 1 - Mobilization and Demobilization: Furnish all labor, materials, power, equipment, tools, transportation and supervision necessary to perform mobilization and demobilization, as shown and specified (including, but... for the lump sum price of -	Lump Sum	1,161,050.43	1,161,050.43	70,000.00	70,000.00	320,000.00	320,000.00	600,000.00	600,000.00	663,864.00	663,864.00
ITEM NO. 2 - Excavation Support Systems: Per Section 6707 of the California Labor Code, furnish all labor, materials, power, equipment, tools, transportation and supervision necessary to provide bracing... for the lump sum price of (not less than $10,000)	Lump Sum	18,240.49	18,240.49	15,000.00	15,000.00	52,000.00	52,000.00	11,000.00	11,000.00	106,001.00	106,001.00
ITEM NO. 3 - SWPPP Development and Compliance: Furnish all labor, materials, power, equipment, tools, transportation and supervision necessary to develop the Stormwater Pollution Prevention Plan and... for the lump sum price of (not less than $10,000)	Lump Sum	16,772.86	16,772.86	50,000.00	50,000.00	68,000.00	68,000.00	60,000.00	60,000.00	12,878.00	12,878.00
ITEM NO. 4 - Demolition of Chain Link Fence and Gates, Bollards, and Paving: Furnish all labor, materials, power, equipment, tools, transportation and supervision necessary to remove existing 8-foot chain link fence and... for the lump sum price of -	Lump Sum	33,632.23	33,632.23	177,000.00	177,000.00	66,000.00	66,000.00	187,000.00	187,000.00	179,589.00	179,589.00
ITEM NO. 5 - Soil Handling and Disposal, Non-Hazardous Waste: Furnish all labor, materials, power, equipment, tools, transportation and supervision necessary to handle and dispose of approximately the estimated... for the unit price per ton of -	Unit Price	40.26	106,085.10	50.00	131,750.00	48.00	126,480.00	83.61	220,312.35	28.60	75,361.00
TOTAL:											
CERTIFIED CHECK OR BOND:											

The Ryan Company
LOWEST RESPONSIBLE BIDDER

774698/Exp. 02/28/2014
LICENSE NUMBER

$20,559,112.22
AMOUNT

AUTHORIZED SIGNATURE

Port of LONG BEACH
The Green Port

ANALYSIS OF BIDS
CITY OF LONG BEACH, HARBOR DEPARTMENT

SPECIFICATIONS FOR: Shore to Ship Power Project at Pier T, Berths T132-T140

NO. HD-S2348

DATE OPENED: February 14, 2012

		The Ryan Company 15 Commerce Way Norton, MA 02766 Phone: (508) 742-2500 Fax: (508) 742-2540		Minako dba Minco Construction 522 E. Airline Way Gardena, CA 90248 Phone: (310) 516-8100 Fax: (310) 516-7404		Vellutini Corp dba Royal Electric 8481 Carbide Ct Sacramento, CA 95828 Phone: (916) 226-2100 Fax: (916) 226-2150		KDC, Inc. dba Dynalectric 4462 Corporate Center Drive Los Alamitos, CA 90720 Phone: (714) 828-7000 Fax: (714) 484-2384		Sully-Miller Contracting Company 135 S. State College Blvd #400 Brea, CA 92821 Phone: (714) 578-9600 Fax: (714) 449-8775	
ITEM	ESTIMATED QUANTITIES	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT
ITEM NO. 6 - Soil Handling and Reuse, Fill Material: Furnish all labor, materials, power, equipment, tools, transportation and supervision necessary to handle and dispose as backfill approximately the... for the unit price per cubic yard of -	Unit Price	22.36	136,843.20	50.00	306,000.00	44.00	269,280.00	45.66	279,439.20	45.20	276,624.00
ITEM NO. 7 - Import Material: Furnish all labor, materials, power, equipment, tools, transportation and supervision necessary to load, haul, place and compact as backfill approximately the estimated quantity of import... for the unit price per ton of -	Unit Price	15.66	9,396.00	20.00	12,000.00	29.00	17,400.00	38.51	23,106.00	39.16	23,496.00
ITEM NO. 8 - 8-Foot Chain Link Fence with Barbed Wire: Furnish all labor, materials, power, equipment, tools, transportation and supervision necessary to furnish and install approximately the estimated quantity of... for unit price per linear foot of -	Unit Price	44.73	33,547.50	100.00	75,000.00	50.00	37,500.00	55.01	41,257.50	49.20	36,900.00
ITEM NO. 9 - Chain Link Single Gate with Barbed Wire: Furnish all labor, materials, power, equipment, tools, transportation and supervision necessary to provide and install approximately the estimated quantity of chain... for the unit price per each of -	Unit Price	670.92	7,380.12	1,000.00	11,000.00	930.00	10,230.00	990.18	10,891.98	1,455.00	16,005.00
ITEM NO. 10 - Chain Link Double Gates with Barbed Wire: Furnish all labor, materials, power, equipment, tools, transportation and supervision necessary to provide and install approximately the estimated quantity of chain... for the unit price per each of -	Unit Price	1,677.29	6,709.16	1,000.00	4,000.00	2,130.00	8,520.00	2,750.50	11,002.00	2,909.00	11,636.00
TOTAL:											
CERTIFIED CHECK OR BOND:											

The Ryan Company	**774698/Exp. 02/28/2014**	**$20,559,112.22**	
LOWEST RESPONSIBLE BIDDER	LICENSE NUMBER	AMOUNT	AUTHORIZED SIGNATURE

Port of LONG BEACH
The Green Port

ANALYSIS OF BIDS
CITY OF LONG BEACH, HARBOR DEPARTMENT

SPECIFICATIONS FOR: Shore to Ship Power Project at Pier T, Berths T132-T140

NO. HD-S2348

DATE OPENED: February 14, 2012

		The Ryan Company 15 Commerce Way Norton, MA 02766 Phone: (508) 742-2500 Fax: (508) 742-2540		Minako dba Minco Construction 522 E. Airline Way Gardena, CA 90248 Phone: (310) 516-8100 Fax: (310) 516-7404		Vellutini Corp dba Royal Electric 8481 Carbide Ct Sacramento, CA 95828 Phone: (916) 226-2100 Fax: (916) 226-2150		KDC, Inc. dba Dynalectric 4452 Corporate Center Drive Los Alamitos, CA 90720 Phone: (714) 828-7000 Fax: (714) 484-2384		Sully-Miller Contracting Company 135 S. State College Blvd #400 Brea, CA 92821 Phone: (714) 578-9600 Fax: (714) 449-8775	
ITEM	ESTIMATED QUANTITIES	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT
ITEM NO. 11 - Pipe Bollards, 12-Inch: Furnish all labor, materials, power, equipment, tools, transportation and supervision necessary to provide and install approximately the estimated quantity of 12-inch diameter pipe... for the unit price per each of -	Unit Price	1,341.83	183,630.71	1,770.00	242,490.00	1,570.00	215,090.00	2,090.31	286,372.47	2,338.00	320,306.00
ITEM NO. 12 - Removable Pipe Bollards, 12-Inch: Furnish all labor, materials, power, equipment, tools, transportation and supervision necessary to provide and install approximately the estimated quantity of 12-inch... for the unit price per each of -	Unit Price	1,677.29	41,932.25	3,700.00	92,500.00	1,410.00	35,250.00	3,502.52	87,563.00	3,435.00	85,875.00
ITEM NO. 13 - Shallow Pipe Bollards, 12-Inch: Furnish all labor, materials, power, equipment, tools, transportation and supervision necessary to provide and install approximately the estimated quantity of 12-inch... for the unit price per each of -	Unit Price	1,341.83	42,938.56	1,770.00	56,640.00	1,570.00	50,240.00	3,190.47	102,095.04	3,172.00	101,504.00
ITEM NO. 14 - New Pavement Striping and Markings: Furnish all labor, materials, power, equipment, tools, transportation and supervision necessary to install new paint striping and markings, complete as shown and specified and... for the lump sum price of -	Lump Sum	8,386.43	8,386.43	7,000.00	7,000.00	6,600.00	6,600.00	14,000.00	14,000.00	3,133.00	3,133.00
ITEM NO. 15 - Replacement of Existing Pavement Striping: Furnish all labor, materials, power, equipment, tools, transportation and supervision necessary to replace approximately the estimated quantity of existing... for the unit price per linear foot of -	Unit Price	0.95	3,325.00	1.00	3,500.00	0.85	2,975.00	1.10	3,850.00	0.73	2,555.00
TOTAL:											
CERTIFIED CHECK OR BOND:											

The Ryan Company
LOWEST RESPONSIBLE BIDDER

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Port of LONG BEACH
The Green Port

ANALYSIS OF BIDS
CITY OF LONG BEACH, HARBOR DEPARTMENT

SPECIFICATIONS FOR: Shore to Ship Power Project at Pier T, Berths T132-T140

NO. HD-S2348

DATE OPENED: February 14, 2012

		The Ryan Company 15 Commerce Way Norton, MA 02766 Phone: (508) 742-2500 Fax: (508) 742-2540		Minako dba Minco Construction 522 E. Airline Way Gardena, CA 90248 Phone: (310) 516-8100 Fax: (310) 516-7404		Vellutini Corp dba Royal Electric 8481 Carbide Ct Sacramento, CA 95828 Phone: (916) 226-2100 Fax: (916) 226-2150		KDC, Inc. dba Dynalectric 4462 Corporate Center Drive Los Alamitos, CA 90720 Phone: (714) 828-7000 Fax: (714) 484-2384		Sully-Miller Contracting Company 135 S. State College Blvd #400 Brea, CA 92821 Phone: (714) 578-9600 Fax: (714) 449-8775	
ITEM	ESTIMATED QUANTITIES	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT
ITEM NO. 16 - Removal of Existing Pavement Striping: Furnish all labor, materials, power, equipment, tools, transportation and supervision necessary to replace and remove approximately the estimated quantity of... for the unit price per linear foot of -	Unit Price	9.51	1,141.20	10.00	1,200.00	8.90	1,068.00	55.01	6,601.20	16.80	2,016.00
ITEM NO. 17 - Relocation of Water Lines and Power/Telephone/Water ("PTW") Vaults: Furnish all labor, materials, power, equipment, tools, transportation and supervision necessary to relocate water lines and PTW vaults... for the lump sum price of -	Lump Sum	26,836.58	26,836.58	70,000.00	70,000.00	76,000.00	76,000.00	48,000.00	48,000.00	81,692.00	81,692.00
ITEM NO. 18 - Transformers (for Berth 140 as noted in Special Condition SC-25): Furnish all labor, materials, power, equipment, tools, transportation and supervision necessary to provide, install and connect one (1) medium... for the lump sum price of -	Lump Sum	709,593.23	709,593.23	677,000.00	677,000.00	680,000.00	680,000.00	694,000.00	694,000.00	728,653.00	728,653.00
ITEM NO. 19 - Transformers (for Berth 138 as noted in Special Condition SC-25): Furnish all labor, materials, power, equipment, tools, transportation and supervision necessary to provide, install and connect one (1) medium... for the lump sum price of -	Lump Sum	709,593.23	709,593.23	677,000.00	677,000.00	680,000.00	680,000.00	694,000.00	694,000.00	728,653.00	728,653.00
ITEM NO. 20 - Transformers (for Berth 136 as noted in Special Condition SC-25): Furnish all labor, materials, power, equipment, tools, transportation and supervision necessary to provide, install and connect one (1) medium... for the lump sum price of -	Lump Sum	709,593.23	709,593.23	677,000.00	677,000.00	680,000.00	680,000.00	694,000.00	694,000.00	728,653.00	728,653.00
TOTAL:											
CERTIFIED CHECK OR BOND:											

The Ryan Company
LOWEST RESPONSIBLE BIDDER

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Port of LONG BEACH
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ANALYSIS OF BIDS
CITY OF LONG BEACH, HARBOR DEPARTMENT

SPECIFICATIONS FOR: Shore to Ship Power Project at Pier T, Berths T132-T140

NO. HD-S2348

DATE OPENED: February 14, 2012

		The Ryan Company 15 Commerce Way Norton, MA 02766 Phone: (508) 742-2500 Fax: (508) 742-2540		Minako dba Minco Construction 522 E. Airline Way Gardena, CA 90248 Phone: (310) 516-8100 Fax: (310) 516-7404		Vellutini Corp dba Royal Electric 8481 Carbide Ct Sacramento, CA 95828 Phone: (916) 226-2100 Fax: (916) 226-2150		KDC, Inc. dba Dynalectric 4462 Corporate Center Drive Los Alamitos, CA 90720 Phone: (714) 828-7000 Fax: (714) 484-2384		Sully-Miller Contracting Company 135 S. State College Blvd #400 Brea, CA 92821 Phone: (714) 578-9600 Fax: (714) 449-8775	
ITEM	ESTIMATED QUANTITIES	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT
ITEM NO. 21 - Transformers (for Berth 132-134 as noted in Special Condition SC-25): Furnish all labor, materials, power, equipment, tools, transportation and supervision necessary to provide, install and connect one (1)... for the lump sum price of -	Lump Sum	709,593.23	709,593.23	677,000.00	677,000.00	680,000.00	680,000.00	694,000.00	694,000.00	728,653.00	728,653.00
ITEM NO. 22 - Switchgear Assembly(s) (for Berth 140 as noted in Special Condition SC-25): Furnish all labor, materials, power, equipment, tools, transportation and supervision necessary to provide, install and connect two (2)... for the lump sum price of -	Lump Sum	3,939,255.79	3,939,255.79	3,777,000.00	3,777,000.00	4,125,000.00	4,125,000.00	3,876,000.00	3,876,000.00	3,975,075.00	3,975,075.00
ITEM NO. 23 - Switchgear Assembly(s) (for Berth 138 as noted in Special Condition SC-25): Furnish all labor, materials, power, equipment, tools, transportation and supervision necessary to provide, install and connect one (1)... for the lump sum price of -	Lump Sum	1,921,221.76	1,921,221.76	2,077,700.00	2,077,700.00	1,830,000.00	1,830,000.00	1,890,000.00	1,890,000.00	2,019,779.00	2,019,779.00
ITEM NO. 24 - Switchgear Assembly(s) (for Berth 136 as noted in Special Condition SC-25): Furnish all labor, materials, power, equipment, tools, transportation and supervision necessary to provide, install and connect one (1)... for the lump sum price of -	Lump Sum	1,779,834.87	1,779,834.87	1,777,000.00	1,777,000.00	1,694,000.00	1,694,000.00	1,750,000.00	1,750,000.00	1,851,000.00	1,851,000.00
ITEM NO. 25 - Switchgear Assembly(s) (for Berth 132-134 as noted in Special Condition SC-25): Furnish all labor, materials, power, equipment, tools, transportation and supervision necessary to provide, install and connect one... for the lump sum price of -	Lump Sum	2,105,417.86	2,105,417.86	2,100,000.00	2,100,000.00	2,007,000.00	2,007,000.00	2,073,220.00	2,073,220.00	2,202,840.00	2,202,840.00
TOTAL:											
CERTIFIED CHECK OR BOND:											

The Ryan Company
LOWEST RESPONSIBLE BIDDER

774698/Exp. 02/28/2014
LICENSE NUMBER

$20,559,112.22
AMOUNT

AUTHORIZED SIGNATURE

Port of LONG BEACH
The Green Port

ANALYSIS OF BIDS
CITY OF LONG BEACH, HARBOR DEPARTMENT

SPECIFICATIONS FOR: Shore to Ship Power Project at Pier T, Berths T132-T140

NO. HD-S2348

DATE OPENED: February 14, 2012

		The Ryan Company 15 Commerce Way Norton, MA 02766 Phone: (508) 742-2500 Fax: (508) 742-2540		Minako dba Minco Construction 522 E. Airline Way Gardena, CA 90248 Phone: (310) 516-8100 Fax: (310) 516-7404		Vellutini Corp dba Royal Electric 8481 Carbide Ct Sacramento, CA 95828 Phone: (916) 226-2100 Fax: (916) 226-2150		KDC, Inc. dba Dynalectric 4462 Corporate Center Drive Los Alamitos, CA 90720 Phone: (714) 828-7000 Fax: (714) 484-2384		Sully-Miller Contracting Company 135 S. State College Blvd #400 Brea, CA 92821 Phone: (714) 578-9600 Fax: (714) 449-8775	
ITEM	ESTIMATED QUANTITIES	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT
ITEM NO. 26 - Ductbanks and Raceways (for Berth 140 as noted in Special Condition SC-25): Furnish all labor, materials, power, equipment, tools, transportation and supervision necessary to construct a complete and functioning... for the lump sum price of -	Lump Sum	349,501.65	349,501.65	717,000.00	717,000.00	645,000.00	645,000.00	621,000.00	621,000.00	491,569.00	491,569.00
ITEM NO. 27 - Ductbanks and Raceways (for Berth 138 as noted in Special Condition SC-25): Furnish all labor, materials, power, equipment, tools, transportation and supervision necessary to construct a complete and functioning... for the lump sum price of -	Lump Sum	599,461.62	599,461.62	337,000.00	337,000.00	710,000.00	710,000.00	590,000.00	590,000.00	707,185.00	707,185.00
ITEM NO. 28 - Ductbanks and Raceways (for Berth 136 as noted in Special Condition SC-25): Furnish all labor, materials, power, equipment, tools, transportation and supervision necessary to construct a complete and functioning... for the lump sum price of -	Lump Sum	394,105.50	394,105.50	437,000.00	437,000.00	492,000.00	492,000.00	471,000.00	471,000.00	532,209.00	532,209.00
ITEM NO. 29 - Ductbanks and Raceways (for Berth 132-134 as noted in Special Condition SC-25): Furnish all labor, materials, power, equipment, tools, transportation and supervision necessary to construct a complete and... for the lump sum price of -	Lump Sum	765,573.51	765,573.51	737,000.00	737,000.00	833,000.00	833,000.00	845,621.00	845,621.00	999,980.00	999,980.00
ITEM NO. 30 - Conductors (for Berth 140 as noted in Special Condition SC-25): Furnish all labor, materials, power, equipment, tools, transportation and supervision necessary to provide, install and connect all conductors and... for the lump sum price of -	Lump Sum	413,138.96	413,138.96	277,000.00	277,000.00	1,312,000.00	1,312,000.00	1,045,000.00	1,045,000.00	769,437.00	769,437.00
TOTAL:											
CERTIFIED CHECK OR BOND:											

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The Green Port

ANALYSIS OF BIDS
CITY OF LONG BEACH, HARBOR DEPARTMENT

SPECIFICATIONS FOR: Shore to Ship Power Project at Pier T, Berths T132-T140

NO. HD-S2348

DATE OPENED: February 14, 2012

		The Ryan Company 15 Commerce Way Norton, MA 02766 Phone: (508) 742-2500 Fax: (508) 742-2540		Minako dba Minco Construction 522 E. Airline Way Gardena, CA 90248 Phone: (310) 516-8100 Fax: (310) 516-7404		Vellutini Corp dba Royal Electric 8481 Carbide Ct Sacramento, CA 95828 Phone: (916) 226-2100 Fax: (916) 226-2150		KDC, Inc. dba Dynalectric 4462 Corporate Center Drive Los Alamitos, CA 90720 Phone: (714) 828-7000 Fax: (714) 484-2384		Sully-Miller Contracting Company 135 S. State College Blvd #400 Brea, CA 92821 Phone: (714) 578-9600 Fax: (714) 449-8775	
ITEM	ESTIMATED QUANTITIES	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT
ITEM NO. 31 - Conductors (for Berth 138 as noted in Special Condition SC-25): Furnish all labor, materials, power, equipment, tools, transportation and supervision necessary to provide, install and connect all conductors and... for the lump sum price of -	Lump Sum	518,338.89	518,338.89	777,000.00	777,000.00	324,000.00	324,000.00	450,000.00	450,000.00	378,954.00	378,954.00
ITEM NO. 32 - Conductors (for Berth 136 as noted in Special Condition SC-25): Furnish all labor, materials, power, equipment, tools, transportation and supervision necessary to provide, install and connect all conductors and... for the lump sum price of -	Lump Sum	471,591.80	471,591.80	277,000.00	277,000.00	247,000.00	247,000.00	300,000.00	300,000.00	555,850.00	555,850.00
ITEM NO. 33 - Conductors (for Berth 132-134 as noted in Special Condition SC-25): Furnish all labor, materials, power, equipment, tools, transportation and supervision necessary to provide, install and connect all conductors... for the lump sum price of -	Lump Sum	692,948.22	692,948.22	277,000.00	277,000.00	507,000.00	507,000.00	610,000.00	610,000.00	708,920.00	708,920.00
ITEM NO. 34 - SPO Receptacles (for Berth 140 as noted in Special Condition SC-25): Furnish all labor, materials, power, equipment, tools, transportation and supervision necessary to perform demolition and construction of two... for the lump sum price of -	Lump Sum	226,959.75	226,959.75	477,000.00	477,000.00	238,000.00	238,000.00	300,000.00	300,000.00	191,099.00	191,099.00
ITEM NO. 35 - SPO Receptacles (for Berth 138 as noted in Special Conditon SC-25): Furnish all labor, materials, power, equipment, tools, transportation and supervision necessary to perform demolition and construction of three... for the lump sum price of -	Lump Sum	340,439.63	340,439.63	637,000.00	637,000.00	356,000.00	356,000.00	475,000.00	475,000.00	317,068.00	317,068.00
TOTAL:											
CERTIFIED CHECK OR BOND:											

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The Green Port

ANALYSIS OF BIDS
CITY OF LONG BEACH, HARBOR DEPARTMENT

SPECIFICATIONS FOR: Shore to Ship Power Project at Pier T, Berths T132-T140

NO. HD-S2348

DATE OPENED: February 14, 2012

		The Ryan Company 15 Commerce Way Norton, MA 02766 Phone: (508) 742-2500 Fax: (508) 742-2540		Minako dba Minco Construction 522 E. Airline Way Gardena, CA 90248 Phone: (310) 516-8100 Fax: (310) 516-7404		Vellutini Corp dba Royal Electric 8481 Carbide Ct Sacramento, CA 95828 Phone: (916) 226-2100 Fax: (916) 226-2150		KDC, Inc. dba Dynalectric 4462 Corporate Center Drive Los Alamitos, CA 90720 Phone: (714) 828-7000 Fax: (714) 484-2384		Sully-Miller Contracting Company 135 S. State College Blvd #400 Brea, CA 92821 Phone: (714) 578-9500 Fax: (714) 449-8775	
ITEM	ESTIMATED QUANTITIES	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT
ITEM NO. 36 - SPO Receptacles (for Berth 136 as noted in Special Conditions SC-25): Furnish all labor, materials, power, equipment, tools, transportation and supervision necessary to perform demolition and construction of two... for the lump sum price of -	Lump Sum	226,959.75	226,959.75	477,000.00	477,000.00	238,000.00	238,000.00	300,000.00	300,000.00	191,099.00	191,099.00
ITEM NO. 37 - SPO Receptacles (for Berth 132-134 as noted in Special Condition SC-25): Furnish all labor, materials, power, equipment, tools, transportation and supervision necessary to perform demolition and construction of... for the lump sum price of -	Lump Sum	453,919.50	453,919.50	877,000.00	877,000.00	475,000.00	475,000.00	550,000.00	550,000.00	443,067.00	443,067.00
ITEM NO. 38 - All Other Electrical Work (for Berth 140 as noted in Special Condition SC-25): Furnish all labor, materials, power, equipment, tools, transportation and supervision necessary to construct reinforced concrete... for the lump sum price of -	Lump Sum	86,714.11	86,714.11	177,000.00	177,000.00	313,000.00	313,000.00	200,000.00	200,000.00	100,715.00	100,715.00
ITEM NO. 39 - All Other Electrical Work (for Berth 138 as noted in Special Condition SC-25): Furnish all labor, materials, power, equipment, tools, transportation and supervision necessary to construct reinforced concrete... for the lump sum price of -	Lump Sum	81,156.80	81,156.80	77,000.00	77,000.00	76,000.00	76,000.00	102,002.00	102,002.00	50,865.00	50,865.00
ITEM NO. 40 - All Other Electrical Work (for Berth 136 as noted in Special Condition SC-25): Furnish all labor, materials, power, equipment, tools, transportation and supervision necessary to construct reinforced concrete... for the lump sum price of -	Lump Sum	79,665.13	79,665.13	77,000.00	77,000.00	77,000.00	77,000.00	95,000.00	95,000.00	48,770.00	48,770.00
TOTAL:											
CERTIFIED CHECK OR BOND:											

The Ryan Company
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Port of LONG BEACH
The Green Port

ANALYSIS OF BIDS
CITY OF LONG BEACH, HARBOR DEPARTMENT

SPECIFICATIONS FOR: Shore to Ship Power Project at Pier T, Berths T132-T140 | **NO. HD-S2348** | **DATE OPENED: February 14, 2012**

		The Ryan Company 15 Commerce Way Norton, MA 02766 Phone: (508) 742-2500 Fax: (508) 742-2540		Minako dba Minco Construction 522 E. Airline Way Gardena, CA 90248 Phone: (310) 516-8100 Fax: (310) 516-7404		Vellutini Corp dba Royal Electric 8481 Carbide Ct Sacramento, CA 95828 Phone: (916) 226-2100 Fax: (916) 226-2150		KDC, Inc. dba Dynalectric 4462 Corporate Center Drive Los Alamitos, CA 90720 Phone: (714) 828-7000 Fax: (714) 484-2384		Sully-Miller Contracting Company 135 S. State College Blvd #400 Brea, CA 92821 Phone: (714) 578-9600 Fax: (714) 449-8775	
ITEM	ESTIMATED QUANTITIES	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT
ITEM NO. 41 - All Other Electrical Work (for Berth 132-134 as noted in Special Condition SC-25): Furnish all labor, materials, power, equipment, tools, transportation and supervision necessary to construct reinforced concrete... for the lump sum price of -	Lump Sum	89,190.97	89,190.97	137,000.00	137,000.00	82,000.00	82,000.00	130,000.00	130,000.00	45,652.00	45,652.00
ITEM NO. 42 - Paving at Switchgear MTS4 and MTS5 and at SSP Substations: Furnish all labor, materials, power, equipment, tools, transportation and supervision necessary to construct paving at the Switchgear MTS4 and MTS5... for the lump sum price of -	Lump Sum	135,862.43	135,862.43	177,000.00	177,000.00	94,000.00	94,000.00	135,000.00	135,000.00	201,168.00	201,168.00
ITEM NO. 43 - Standby Time: Furnish all labor, materials, power, equipment, tools, transportation and supervision necessary to provide approximately the estimated hours of standby time for crew, land-based equipment and... for the unit price per hour of -	Unit Price	377.42	37,742.00	250.00	25,000.00	1,400.00	140,000.00	750.00	75,000.00	1,334.00	133,400.00
ITEM NO. 44 - Scheduling: Furnish all labor, materials, power, equipment, tools, transportation and supervision necessary to develop and update all schedules, complete as specified and as directed... for the lump sum price of (not less than $20,000) -	Lump Sum	22,363.82	22,363.82	77,000.00	77,000.00	166,000.00	166,000.00	35,000.00	35,000.00	20,923.00	20,923.00
ITEM NO. 45 - Ship Commissioning: Furnish all labor, materials, equipment, tools, transportation and personnel necessary to provide approximately the estimated crew hours for ship commissioning for work in all phases... for the unit price per cew hour of -	Unit Price	767.63	101,327.16	250.00	33,000.00	235.00	31,020.00	227.27	29,999.64	722.00	95,304.00
TOTAL:											
CERTIFIED CHECK OR BOND:											

The Ryan Company
LOWEST RESPONSIBLE BIDDER

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Port of LONG BEACH
The Green Port

ANALYSIS OF BIDS
CITY OF LONG BEACH, HARBOR DEPARTMENT

SPECIFICATIONS FOR: Shore to Ship Power Project at Pier T, Berths T132-T140

NO. HD-S2348

DATE OPENED: February 14, 2012

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ITEM	ESTIMATED QUANTITIES	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT
ITEM NO. 46 - Power for Acceptance Testing: Reimburse the Tenant for the cost of all electrical power used by the Contractor for all specified acceptance testing -	Allowance	50,000.00	50,000.00	50,000.00	50,000.00	50,000.00	50,000.00	50,000.00	50,000.00	50,000.00	50,000.00
TOTAL:		$20,559,112.22		$20,898,780.00		$21,144,553.00		$21,767,333.38		$21,995,975.00	
CERTIFIED CHECK OR BOND:		10% Bond		10% Bond		10% Bond		10% Bond		10% Bond	

The Ryan Company	774698/Exp. 02/28/2014	$20,559,112.22	
LOWEST RESPONSIBLE BIDDER	LICENSE NUMBER	AMOUNT	AUTHORIZED SIGNATURE

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The Green Port

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CITY OF LONG BEACH, HARBOR DEPARTMENT

SPECIFICATIONS FOR: Shore to Ship Power Project at Pier T, Berths T132-T140 | **NO. HD-S2348** | **DATE OPENED: February 14, 2012**

		Shimmick Construction Company 8201 Edgewater Drive #202 Oakland, CA 94612 Phone: (949) 333-1500 Fax: (949) 333-1510		Helix Electric 8260 Camino Santa Fe #A San Diego, CA 92121 Phone: (858) 535-0505 Fax: (858) 535-0738		Griffith/Comet JV 12200 Bloomfield Avenue Santa Fe Springs, CA 90670 Phone: (562) 929-1128 Fax: (562) 864-7938					
ITEM	ESTIMATED QUANTITIES	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT
ITEM NO. 1 - Mobilization and Demobilization: Furnish all labor, materials, power, equipment, tools, transportation and supervision necessary to perform mobilization and demobilization, as shown and specified (including, but... for the lump sum price of -	Lump Sum	300,000.00	300,000.00	1,253,000.00	1,253,000.00	1,068,000.00	1,068,000.00				
ITEM NO. 2 - Excavation Support Systems: Per Section 6707 of the California Labor Code, furnish all labor, materials, power, equipment, tools, transportation and supervision necessary to provide bracing... for the lump sum price of (not less than $10,000)	Lump Sum	150,000.00	150,000.00	70,000.00	70,000.00	350,000.00	350,000.00				
ITEM NO. 3 - SWPPP Development and Compliance: Furnish all labor, materials, power, equipment, tools, transportation and supervision necessary to develop the Stormwater Pollution Prevention Plan and... for the lump sum price of (not less than $10,000)	Lump Sum	10,000.00	10,000.00	50,000.00	50,000.00	12,000.00	12,000.00				
ITEM NO. 4 - Demolition of Chain Link Fence and Gates, Bollards, and Paving: Furnish all labor, materials, power, equipment, tools, transportation and supervision necessary to remove existing 8-foot chain link fence and... for the lump sum price of -	Lump Sum	100,000.00	100,000.00	150,000.00	150,000.00	112,000.00	112,000.00				
ITEM NO. 5 - Soil Handling and Disposal, Non-Hazardous Waste: Furnish all labor, materials, power, equipment, tools, transportation and supervision necessary to handle and dispose of approximately the estimated... for the unit price per ton of -	Unit Price	50.00	131,750.00	42.00	110,670.00	75.00	197,625.00				
TOTAL:											
CERTIFIED CHECK OR BOND:											

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ITEM	ESTIMATED QUANTITIES	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT
ITEM NO. 6 - Soil Handling and Reuse, Fill Material: Furnish all labor, materials, power, equipment, tools, transportation and supervision necessary to handle and dispose as backfill approximately the... for the unit price per cubic yard of -	Unit Price	35.00	214,200.00	5.00	30,600.00	25.00	153,000.00				
ITEM NO. 7 - Import Material: Furnish all labor, materials, power, equipment, tools, transportation and supervision necessary to load, haul, place and compact as backfill approximately the estimated quantity of import... for the unit price per ton of -	Unit Price	35.00	21,000.00	48.00	28,800.00	35.00	21,000.00				
ITEM NO. 8 - 8-Foot Chain Link Fence with Barbed Wire: Furnish all labor, materials, power, equipment, tools, transportation and supervision necessary to furnish and install approximately the estimated quantity of... for unit price per linear foot of -	Unit Price	50.00	37,500.00	55.00	41,250.00	56.00	42,000.00				
ITEM NO. 9 - Chain Link Single Gate with Barbed Wire: Furnish all labor, materials, power, equipment, tools, transportation and supervision necessary to provide and install approximately the estimated quantity of chain... for the unit price per each of -	Unit Price	1,000.00	11,000.00	1,050.00	11,550.00	1,300.00	14,300.00				
ITEM NO. 10 - Chain Link Double Gates with Barbed Wire: Furnish all labor, materials, power, equipment, tools, transportation and supervision necessary to provide and install approximately the estimated quantity of chain... for the unit price per each of -	Unit Price	2,500.00	10,000.00	2,300.00	9,200.00	2,300.00	9,200.00				
TOTAL:											
CERTIFIED CHECK OR BOND:											

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NO. HD-S2348

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ITEM	ESTIMATED QUANTITIES	Shimmick Construction Company 8201 Edgewater Drive #202 Oakland, CA 94612 Phone: (949) 333-1500 Fax: (949) 333-1510		Helix Electric 8260 Camino Santa Fe #A San Diego, CA 92121 Phone: (858) 535-0505 Fax: (858) 535-0738		Griffith/Comet JV 12200 Bloomfield Avenue Santa Fe Springs, CA 90670 Phone: (562) 929-1128 Fax: (562) 864-7938					
		RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT
ITEM NO. 11 - Pipe Bollards, 12-Inch: Furnish all labor, materials, power, equipment, tools, transportation and supervision necessary to provide and install approximately the estimated quantity of 12-inch diameter pipe... for the unit price per each of -	Unit Price	2,500.00	342,500.00	1,900.00	260,300.00	2,200.00	301,400.00				
ITEM NO. 12 - Removable Pipe Bollards, 12-Inch: Furnish all labor, materials, power, equipment, tools, transportation and supervision necessary to provide and install approximately the estimated quantity of 12-inch... for the unit price per each of -	Unit Price	4,000.00	100,000.00	2,800.00	70,000.00	3,250.00	81,250.00				
ITEM NO. 13 - Shallow Pipe Bollards, 12-Inch: Furnish all labor, materials, power, equipment, tools, transportation and supervision necessary to provide and install approximately the estimated quantity of 12-inch... for the unit price per each of -	Unit Price	2,500.00	80,000.00	3,000.00	96,000.00	3,660.00	117,120.00				
ITEM NO. 14 - New Pavement Striping and Markings: Furnish all labor, materials, power, equipment, tools, transportation and supervision necessary to install new paint striping and markings, complete as shown and specified and... for the lump sum price of -	Lump Sum	6,500.00	6,500.00	7,000.00	7,000.00	5,230.00	5,230.00				
ITEM NO. 15 - Replacement of Existing Pavement Striping: Furnish all labor, materials, power, equipment, tools, transportation and supervision necessary to replace approximately the estimated quantity of existing... for the unit price per linear foot of -	Unit Price	1.00	3,500.00	2.00	7,000.00	1.10	3,850.00				
TOTAL:											
CERTIFIED CHECK OR BOND:											

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ITEM	ESTIMATED QUANTITIES	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT
ITEM NO. 16 - Removal of Existing Pavement Striping: Furnish all labor, materials, power, equipment, tools, transportation and supervision necessary to replace and remove approximately the estimated quantity of... for the unit price per linear foot of -	Unit Price	10.00	1,200.00	14.00	1,680.00	35.00	4,200.00				
ITEM NO. 17 - Relocation of Water Lines and Power/Telephone/Water ("PTW") Vaults: Furnish all labor, materials, power, equipment, tools, transportation and supervision necessary to relocate water lines and PTW vaults... for the lump sum price of -	Lump Sum	100,000.00	100,000.00	100,000.00	100,000.00	300,000.00	300,000.00				
ITEM NO. 18 - Transformers (for Berth 140 as noted in Special Condition SC-25): Furnish all labor, materials, power, equipment, tools, transportation and supervision necessary to provide, install and connect one (1) medium... for the lump sum price of -	Lump Sum	625,000.00	625,000.00	640,000.00	640,000.00	715,585.00	715,585.00				
ITEM NO. 19 - Transformers (for Berth 138 as noted in Special Condition SC-25): Furnish all labor, materials, power, equipment, tools, transportation and supervision necessary to provide, install and connect one (1) medium... for the lump sum price of -	Lump Sum	625,000.00	625,000.00	640,000.00	640,000.00	715,585.00	715,585.00				
ITEM NO. 20 - Transformers (for Berth 136 as noted in Special Condition SC-25): Furnish all labor, materials, power, equipment, tools, transportation and supervision necessary to provide, install and connect one (1) medium... for the lump sum price of -	Lump Sum	625,000.00	625,000.00	640,000.00	640,000.00	715,585.00	715,585.00				
TOTAL:											
CERTIFIED CHECK OR BOND:											

The Ryan Company — LOWEST RESPONSIBLE BIDDER

774698/Exp. 02/28/2014 — LICENSE NUMBER

$20,559,112.22 — AMOUNT

AUTHORIZED SIGNATURE

Port of LONG BEACH
The Green Port

ANALYSIS OF BIDS
CITY OF LONG BEACH, HARBOR DEPARTMENT

SPECIFICATIONS FOR: Shore to Ship Power Project at Pier T, Berths T132-T140

NO. HD-S2348

DATE OPENED: February 14, 2012

		Shimmick Construction Company 8201 Edgewater Drive #202 Oakland, CA 94612 Phone: (949) 333-1500 Fax: (949) 333-1510		Helix Electric 8260 Camino Santa Fe #A San Diego, CA 92121 Phone: (858) 535-0505 Fax: (858) 535-0738		Griffith/Comet JV 12200 Bloomfield Avenue Santa Fe Springs, CA 90670 Phone: (562) 929-1128 Fax: (562) 864-7938					
ITEM	ESTIMATED QUANTITIES	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT
ITEM NO. 21 - Transformers (for Berth 132-134 as noted in Special Condition SC-25): Furnish all labor, materials, power, equipment, tools, transportation and supervision necessary to provide, install and connect one (1)... for the lump sum price of -	Lump Sum	625,000.00	625,000.00	640,000.00	640,000.00	715,585.00	715,585.00				
ITEM NO. 22 - Switchgear Assembly(s) (for Berth 140 as noted in Special Condition SC-25): Furnish all labor, materials, power, equipment, tools, transportation and supervision necessary to provide, install and connect two (2)... for the lump sum price of -	Lump Sum	3,250,000.00	3,250,000.00	3,600,000.00	3,600,000.00	4,038,100.00	4,038,100.00				
ITEM NO. 23 - Switchgear Assembly(s) (for Berth 138 as noted in Special Condition SC-25): Furnish all labor, materials, power, equipment, tools, transportation and supervision necessary to provide, install and connect one (1)... for the lump sum price of -	Lump Sum	1,750,000.00	1,750,000.00	1,800,000.00	1,800,000.00	1,938,685.00	1,938,685.00				
ITEM NO. 24 - Switchgear Assembly(s) (for Berth 136 as noted in Special Condition SC-25): Furnish all labor, materials, power, equipment, tools, transportation and supervision necessary to provide, install and connect one (1)... for the lump sum price of -	Lump Sum	1,650,000.00	1,650,000.00	1,700,000.00	1,700,000.00	1,783,458.00	1,783,458.00				
ITEM NO. 25 - Switchgear Assembly(s) (for Berth 132-134 as noted in Special Condition SC-25): Furnish all labor, materials, power, equipment, tools, transportation and supervision necessary to provide, install and connect one... for the lump sum price of -	Lump Sum	1,950,000.00	1,950,000.00	1,900,000.00	1,900,000.00	2,130,242.00	2,130,242.00				
TOTAL:											
CERTIFIED CHECK OR BOND:											

The Ryan Company
LOWEST RESPONSIBLE BIDDER

774698/Exp. 02/28/2014
LICENSE NUMBER

$20,559,112.22
AMOUNT

AUTHORIZED SIGNATURE

Port of LONG BEACH
The Green Port

ANALYSIS OF BIDS
CITY OF LONG BEACH, HARBOR DEPARTMENT

SPECIFICATIONS FOR: Shore to Ship Power Project at Pier T, Berths T132-T140 | **NO. HD-S2348** | **DATE OPENED: February 14, 2012**

		Shimmick Construction Company 8201 Edgewater Drive #202 Oakland, CA 94612 Phone: (949) 333-1500 Fax: (949) 333-1510		Helix Electric 8260 Camino Santa Fe #A San Diego, CA 92121 Phone: (858) 535-0505 Fax: (858) 535-0738		Griffith/Comet JV 12200 Bloomfield Avenue Santa Fe Springs, CA 90670 Phone: (562) 929-1128 Fax: (562) 864-7938					
ITEM	ESTIMATED QUANTITIES	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT
ITEM NO. 26 - Ductbanks and Raceways (for Berth 140 as noted in Special Condition SC-25): Furnish all labor, materials, power, equipment, tools, transportation and supervision necessary to construct a complete and functioning... for the lump sum price of -	Lump Sum	700,000.00	700,000.00	847,000.00	847,000.00	750,000.00	750,000.00				
ITEM NO. 27 - Ductbanks and Raceways (for Berth 138 as noted in Special Condition SC-25): Furnish all labor, materials, power, equipment, tools, transportation and supervision necessary to construct a complete and functioning... for the lump sum price of -	Lump Sum	700,000.00	700,000.00	1,346,000.00	1,346,000.00	890,000.00	890,000.00				
ITEM NO. 28 - Ductbanks and Raceways (for Berth 136 as noted in Special Condition SC-25): Furnish all labor, materials, power, equipment, tools, transportation and supervision necessary to construct a complete and functioning... for the lump sum price of -	Lump Sum	600,000.00	600,000.00	1,195,000.00	1,195,000.00	550,000.00	550,000.00				
ITEM NO. 29 - Ductbanks and Raceways (for Berth 132-134 as noted in Special Condition SC-25): Furnish all labor, materials, power, equipment, tools, transportation and supervision necessary to construct a complete and... for the lump sum price of -	Lump Sum	1,050,000.00	1,050,000.00	2,092,000.00	2,092,000.00	1,165,000.00	1,165,000.00				
ITEM NO. 30 - Conductors (for Berth 140 as noted in Special Condition SC-25): Furnish all labor, materials, power, equipment, tools, transportation and supervision necessary to provide, install and connect all conductors and... for the lump sum price of -	Lump Sum	600,000.00	600,000.00	300,000.00	300,000.00	1,286,952.00	1,286,952.00				
TOTAL:											
CERTIFIED CHECK OR BOND:											

The Ryan Company	774698/Exp. 02/28/2014	$20,559,112.22	
LOWEST RESPONSIBLE BIDDER	LICENSE NUMBER	AMOUNT	AUTHORIZED SIGNATURE

Port of LONG BEACH
The Green Port

ANALYSIS OF BIDS
CITY OF LONG BEACH, HARBOR DEPARTMENT

SPECIFICATIONS FOR: Shore to Ship Power Project at Pier T, Berths T132-T140

NO. HD-S2348

DATE OPENED: February 14, 2012

		Shimmick Construction Company 8201 Edgewater Drive #202 Oakland, CA 94612 Phone: (949) 333-1500 Fax: (949) 333-1510		Helix Electric 8260 Camino Santa Fe #A San Diego, CA 92121 Phone: (858) 535-0505 Fax: (858) 535-0738		Griffith/Comet JV 12200 Bloomfield Avenue Santa Fe Springs, CA 90670 Phone: (562) 929-1128 Fax: (562) 864-7938					
ITEM	ESTIMATED QUANTITIES	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT
ITEM NO. 31 - Conductors (for Berth 138 as noted in Special Condition SC-25): Furnish all labor, materials, power, equipment, tools, transportation and supervision necessary to provide, install and connect all conductors and... for the lump sum price of -	Lump Sum	650,000.00	650,000.00	400,000.00	400,000.00	449,167.00	449,167.00				
ITEM NO. 32 - Conductors (for Berth 136 as noted in Special Condition SC-25): Furnish all labor, materials, power, equipment, tools, transportation and supervision necessary to provide, install and connect all conductors and... for the lump sum price of -	Lump Sum	400,000.00	400,000.00	300,000.00	300,000.00	369,902.00	369,902.00				
ITEM NO. 33 - Conductors (for Berth 132-134 as noted in Special Condition SC-25): Furnish all labor, materials, power, equipment, tools, transportation and supervision necessary to provide, install and connect all conductors... for the lump sum price of -	Lump Sum	1,025,000.00	1,025,000.00	500,000.00	500,000.00	790,446.00	790,446.00				
ITEM NO. 34 - SPO Receptacles (for Berth 140 as noted in Special Condition SC-25): Furnish all labor, materials, power, equipment, tools, transportation and supervision necessary to perform demolition and construction of two... for the lump sum price of -	Lump Sum	350,000.00	350,000.00	180,000.00	180,000.00	320,714.00	320,714.00				
ITEM NO. 35 - SPO Receptacles (for Berth 138 as noted in Special Conditon SC-25): Furnish all labor, materials, power, equipment, tools, transportation and supervision necessary to perform demolition and construction of three... for the lump sum price of -	Lump Sum	450,000.00	450,000.00	270,000.00	270,000.00	489,653.00	489,653.00				
TOTAL:											
CERTIFIED CHECK OR BOND:											

The Ryan Company	774698/Exp. 02/28/2014	$20,559,112.22	
LOWEST RESPONSIBLE BIDDER	LICENSE NUMBER	AMOUNT	AUTHORIZED SIGNATURE

Port of LONG BEACH
The Green Port

ANALYSIS OF BIDS
CITY OF LONG BEACH, HARBOR DEPARTMENT

SPECIFICATIONS FOR: Shore to Ship Power Project at Pier T, Berths T132-T140 | **NO. HD-S2348** | **DATE OPENED: February 14, 2012**

		Shimmick Construction Company 8201 Edgewater Drive #202 Oakland, CA 94612 Phone: (949) 333-1500 Fax: (949) 333-1510		Helix Electric 8260 Camino Santa Fe #A San Diego, CA 92121 Phone: (858) 535-0505 Fax: (858) 535-0738		Griffith/Comet JV 12200 Bloomfield Avenue Santa Fe Springs, CA 90670 Phone: (562) 929-1128 Fax: (562) 864-7938					
ITEM	ESTIMATED QUANTITIES	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT
ITEM NO. 36 - SPO Receptacles (for Berth 136 as noted in Special Conditions SC-25): Furnish all labor, materials, power, equipment, tools, transportation and supervision necessary to perform demolition and construction of two... for the lump sum price of -	Lump Sum	350,000.00	350,000.00	180,000.00	180,000.00	322,894.00	322,894.00				
ITEM NO. 37 - SPO Receptacles (for Berth 132-134 as noted in Special Condition SC-25): Furnish all labor, materials, power, equipment, tools, transportation and supervision necessary to perform demolition and construction of... for the lump sum price of -	Lump Sum	525,000.00	525,000.00	360,000.00	360,000.00	646,189.00	646,189.00				
ITEM NO. 38 - All Other Electrical Work (for Berth 140 as noted in Special Condition SC-25): Furnish all labor, materials, power, equipment, tools, transportation and supervision necessary to construct reinforced concrete... for the lump sum price of -	Lump Sum	400,000.00	400,000.00	300,000.00	300,000.00	80,000.00	80,000.00				
ITEM NO. 39 - All Other Electrical Work (for Berth 138 as noted in Special Condition SC-25): Furnish all labor, materials, power, equipment, tools, transportation and supervision necessary to construct reinforced concrete... for the lump sum price of -	Lump Sum	350,000.00	350,000.00	333,000.00	333,000.00	50,000.00	50,000.00				
ITEM NO. 40 - All Other Electrical Work (for Berth 136 as noted in Special Condition SC-25): Furnish all labor, materials, power, equipment, tools, transportation and supervision necessary to construct reinforced concrete... for the lump sum price of -	Lump Sum	350,000.00	350,000.00	326,000.00	326,000.00	52,000.00	52,000.00				
TOTAL:											
CERTIFIED CHECK OR BOND:											

The Ryan Company	774698/Exp. 02/28/2014	$20,559,112.22	
LOWEST RESPONSIBLE BIDDER	LICENSE NUMBER	AMOUNT	AUTHORIZED SIGNATURE

Port of LONG BEACH
The Green Port

ANALYSIS OF BIDS
CITY OF LONG BEACH, HARBOR DEPARTMENT

SPECIFICATIONS FOR: Shore to Ship Power Project at Pier T, Berths T132-T140 | **NO. HD-S2348** | **DATE OPENED: February 14, 2012**

ITEM	ESTIMATED QUANTITIES	Shimmick Construction Company 8201 Edgewater Drive #202 Oakland, CA 94612 Phone: (949) 333-1500 Fax: (949) 333-1510		Helix Electric 8260 Camino Santa Fe #A San Diego, CA 92121 Phone: (858) 535-0505 Fax: (858) 535-0738		Griffith/Comet JV 12200 Bloomfield Avenue Santa Fe Springs, CA 90670 Phone: (562) 929-1128 Fax: (562) 864-7938					
		RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT
ITEM NO. 41 - All Other Electrical Work (for Berth 132-134 as noted in Special Condition SC-25): Furnish all labor, materials, power, equipment, tools, transportation and supervision necessary to construct reinforced concrete... for the lump sum price of -	Lump Sum	600,000.00	600,000.00	396,000.00	396,000.00	80,000.00	80,000.00				
ITEM NO. 42 - Paving at Switchgear MTS4 and MTS5 and at SSP Substations: Furnish all labor, materials, power, equipment, tools, transportation and supervision necessary to construct paving at the Switchgear MTS4 and MTS5... for the lump sum price of -	Lump Sum	100,000.00	100,000.00	20,000.00	20,000.00	250,000.00	250,000.00				
ITEM NO. 43 - Standby Time: Furnish all labor, materials, power, equipment, tools, transportation and supervision necessary to provide approximately the estimated hours of standby time for crew, land-based equipment and... for the unit price per hour of -	Unit Price	350.00	35,000.00	500.00	50,000.00	200.00	20,000.00				
ITEM NO. 44 - Scheduling: Furnish all labor, materials, power, equipment, tools, transportation and supervision necessary to develop and update all schedules, complete as specified and as directed... for the lump sum price of (not less than $20,000) -	Lump Sum	20,000.00	20,000.00	40,000.00	40,000.00	20,000.00	20,000.00				
ITEM NO. 45 - Ship Commissioning: Furnish all labor, materials, equipment, tools, transportation and personnel necessary to provide approximately the estimated crew hours for ship commissioning for work in all phases... for the unit price per cew hour of -	Unit Price	315.00	41,580.00	900.00	118,800.00	272.50	35,970.00				
TOTAL:											
CERTIFIED CHECK OR BOND:											

The Ryan Company
LOWEST RESPONSIBLE BIDDER

774698/Exp. 02/28/2014
LICENSE NUMBER

$20,559,112.22
AMOUNT

AUTHORIZED SIGNATURE

File: Bid Analysis HD-S2348 Gordon[BID ANALYSIS] 2/14/2012 12:48 PM

Port of LONG BEACH
The Green Port

ANALYSIS OF BIDS
CITY OF LONG BEACH, HARBOR DEPARTMENT

SPECIFICATIONS FOR: Shore to Ship Power Project at Pier T, Berths T132-T140 | **NO. HD-S2348** | **DATE OPENED: February 14, 2012**

		Shimmick Construction Company 8201 Edgewater Drive #202 Oakland, CA 94612 Phone: (949) 333-1500 Fax: (949) 333-1510		Helix Electric 8260 Camino Santa Fe #A San Diego, CA 92121 Phone: (858) 535-0505 Fax: (858) 535-0738		Griffith/Comet JV 12200 Bloomfield Avenue Santa Fe Springs, CA 90670 Phone: (562) 929-1128 Fax: (562) 864-7938					
ITEM	ESTIMATED QUANTITIES	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT
ITEM NO. 46 - Power for Acceptance Testing: Reimburse the Tenant for the cost of all electrical power used by the Contractor for all specified acceptance testing -	Allowance	50,000.00	50,000.00	50,000.00	50,000.00	50,000.00	50,000.00				
TOTAL:		$22,065,730.00		$23,460,850.00		$24,213,887.00					
CERTIFIED CHECK OR BOND:		10% Bond		10% Bond		10% Bond					

The Ryan Company	774698/Exp. 02/28/2014	$20,559,112.22	
LOWEST RESPONSIBLE BIDDER	LICENSE NUMBER	AMOUNT	AUTHORIZED SIGNATURE

Progress Payment No. 19
Period Ending : 11/30/14
PAYMENT DUE: 3/3/2015
Specification: HD-S2348 Shore to Ship Power Project at Pier T, Berths 132-140
Contractor: The Ryan Company

LBHD Contract No: HD-7928
Original Bid Amt: $20,559,112.22

Item No.	Item	Unit	Est. Qty.	Unit Price	Bid Amount	Qty This Month	T140 $ Amount This Month	T138 $ Amount This Month	T136 $ Amount This Month	T132 $ Amount This Month	Previous Qty or %	Total % of Item Comp	TOTAL $ Amount to Date
1	Mobilization and Demobilization	Lump Sum	1	1,161,050.43	1,161,050.43	-	-	-	-	-	100%	100%	1,161,050.43
2	Excavation Support Systems	Lump Sum	1	18,240.49	18,240.49	0%	-	-	0	0	100%	100%	18,240.49
3	SWPPP Development and Compliance	Lump Sum	1	16,772.86	16,772.86	-	-	0	0	0	100%	100%	16,772.86
4	Demolition of Chain Link Fence and Gates, Bollards, and Paving	Lump Sum	1	33,632.23	33,632.23	0.00%	-	-	-	-	100%	100%	33,632.23
5	Soil Handling and Disposal, Non-Hazardous Waste	Unit Price	2,635	40.26	106,085.10	-	-	-	-	-	6,430.43	244%	258,889.12
6	Soil Handling and Reuse, Fill Material	Unit Price	6,120	22.36	136,843.20	-	-	-	-	-	2,265.00	37%	50,645.40
7	Import Material	Unit Price	600	15.66	9,396.00						0%	0%	-
8	8-Foot Chain Link Fence with Barbed Wire	Unit Price	750	44.73	33,547.50	-	-	-	-	-	100%	100%	33,547.50
9	Chain Link Single Gate with Barbed Wire	Unit Price	11	670.92	7,380.12	-	0	0	0	-	100%	100%	7,380.12
10	Chain Link Double Gates with Barbed Wire	Unit Price	4	1,677.29	6,709.16	-	0	0	0	-	100%	100%	6,709.16
11	Pipe Bollards, 12-Inch	Unit Price	137	1,341.83	183,830.71	-	-	-	-	-	100%	100%	183,830.71
12	Removable Pipe Bollards, 12-Inch	Unit Price	25	1,677.29	41,932.25	-	-	-	-	-	100%	100%	41,932.25
13	Shallow Pipe Bollards, 12-Inch	Unit Price	32	1,341.83	42,938.56	-	-	-	-	-	100%	100%	42,938.56
14	New Pavement Striping and Markings	Lump Sum	1	8,386.43	8,386.43	0%	0	0	0	0	100%	20%	8,386.43
15	Replacement of Existing Pavement Striping	Unit Price	3500	0.95	3,325.00	-	-	-	-	-	7,665.00	219%	7,281.75
16	Removal of Existing Pavement Striping	Unit Price	120	9.51	1,141.20								-
17	Relocation of Water Lines and Power/Telephone/Water ("PTW") Vaults	Lump Sum	1	26,836.58	26,836.58	0.00%	0	-	0	-	100%	100%	26,836.58
18	Transformers (for Berth 140 as noted in Special Condition SC-25)	Lump Sum	1	709,593.23	709,593.23	-	-	N/A	N/A	N/A	100%	100%	709,593.23
19	Transformers (for Berth 138 as noted in Special Condition SC-25)	Lump Sum	1	709,593.23	709,593.23	0%	N/A	-	N/A	N/A	100%	100%	709,593.23
20	Transformers (for Berth 136 as noted in Special Condition SC-25)	Lump Sum	1	709,593.23	709,593.23	0%	N/A	N/A	-	N/A	100%	100%	709,593.23
21	Transformers (for Berth 132-134 as noted in Special Condition SC-25)	Lump Sum	1	709,593.23	709,593.23	0%	N/A	N/A	N/A	-	100%	100%	709,593.23
22	Switchgear Assembly(s) (for Berth 140 as noted in Special Condition SC-25)	Lump Sum	1	3,939,255.79	3,939,255.79	-	-	N/A	N/A	N/A	100%	100%	3,939,255.79
23	Switchgear Assembly(s) (for Berth 138 as noted in Special Condition SC-25)	Lump Sum	1	1,921,221.76	1,921,221.76	-	N/A	-	-	N/A	100%	100%	1,921,221.76
24	Switchgear Assembly(s) (for Berth 136 as noted in Special Condition SC-25)	Lump Sum	1	1,779,834.87	1,779,834.87	0%	N/A	N/A	-	N/A	100%	100%	1,779,834.87
25	Switchgear Assembly(s) (for Berth 132-134 as noted in Special Condition SC-25)	Lump Sum	1	2,105,417.86	2,105,417.86	0%	N/A	N/A	N/A	-	100%	100%	2,105,417.86
26	Ductbanks and Raceways (for Berth 140 as noted in Special Condition SC-25)	Lump Sum	1	349,501.65	349,501.65	0%	-	N/A	N/A	N/A	100%	100%	349,501.65

Progress Payment No. 19
Period Ending : 11/30/14
PAYMENT DUE: 3/3/2015
Specification: HD-S2348 Shore to Ship Power Project at Pier T, Berths 132-140
Contractor: The Ryan Company

LBHD Contract No: HD-7928
Original Bid Amt: $20,559,112.22

Item No.	Item	Unit	Est. Qty.	Unit Price	Bid Amount	Qty This Month	T140 $ Amount This Month	T138 $ Amount This Month	T136 $ Amount This Month	T132 $ Amount This Month	Previous Qty or %	Total % of Item Comp	TOTAL $ Amount to Date
27	Ductbanks and Raceways (for Berth 138 as noted in Special Condition SC-25)	Lump Sum	1	599,461.62	599,461.62	0%	N/A	-	N/A	N/A	100%	100%	599,461.62
28	Ductbanks and Raceways (for Berth 136 as noted in Special Condition SC-25)	Lump Sum	1	394,105.50	394,105.50	0%	N/A	N/A	-	N/A	100%	100%	394,105.50
29	Ductbanks and Raceways (for Berth 132-134 as noted in Special Condition SC-25)	Lump Sum	1	765,573.51	765,573.51	0%	N/A	N/A	N/A	-	100%	100%	765,573.51
30	Conductors (for Berth 140 as noted in Special Condition SC-25)	Lump Sum	1	413,138.96	413,138.96	0%	-	N/A	N/A	N/A	100%	100%	413,138.96
31	Conductors (for Berth 138 as noted in Special Condition SC-25)	Lump Sum	1	518,338.89	518,338.89	0%	N/A	-	N/A	N/A	100%	100%	518,338.89
32	Conductors (for Berth 136 as noted in Special Condition SC-25)	Lump Sum	1	471,591.80	471,591.80	0%	N/A	N/A	-	N/A	100%	100%	471,591.80
33	Conductors (for Berth 132-134 as noted in Special Condition SC-25)	Lump Sum	1	692,948.22	692,948.22	0%		N/A	N/A	-	100%	100%	692,948.22
34	SPO Receptacles (for Berth 140 as noted in Special Condition SC-25)	Lump Sum	1	226,959.75	226,959.75	0%	-	N/A	N/A	N/A	100%	100%	226,959.75
35	SPO Receptacles (for Berth 138 as noted in Special Conditon SC-25)	Lump Sum	1	340,439.63	340,439.63	0%	N/A	-	N/A	N/A	100%	100%	340,439.63
36	SPO Receptacles (for Berth 136 as noted in Special Conditions SC-25)	Lump Sum	1	226,959.75	226,959.75	0%	N/A		-	N/A	100%	100%	226,959.75
37	SPO Receptacles (for Berth 132-134 as noted in Special Condition SC-25)	Lump Sum	1	453,919.50	453,919.50	0%		N/A	N/A	-	100%	100%	453,919.50
38	All Other Electrical Work (for Berth 140 as noted in Special Condition SC-25)	Lump Sum	1	86,714.11	86,714.11	0%	-	N/A	N/A	N/A	100%	100%	86,714.11
39	All Other Electrical Work (for Berth 138 as noted in Special Condition SC-25)	Lump Sum	1	81,156.80	81,156.80	0%	N/A	-	N/A	N/A	100%	100%	81,156.80
40	All Other Electrical Work (for Berth 136 as noted in Special Condition SC-25)	Lump Sum	1	79,665.13	79,665.13	0%	N/A	N/A	-	-	100%	100%	79,665.13
41	All Other Electrical Work (for Berth 132-134 as noted in Special Condition SC-25)	Lump Sum	1	89,190.97	89,190.97	0%		N/A	N/A	-	100%	100%	89,190.97
42	Paving at Switchgear MTS4 and MTS5 and at SSP Substations	Lump Sum	1	135,862.43	135,862.43	0%	-	0			100%	100%	135,862.43
43	Standby Time	Unit Price	100	377.42	37,742.00	48.34	-	9,123.10	9,123.10	-	48%	96%	36,362.37
44	Scheduling	Lump Sum	1	22,363.82	22,363.82	0%	-	-	-	-	100%	100%	22,363.82
45	Ship Commissioning	Unit Price	132	767.63	101,327.16			-		16143.63	25%	41%	41,475.42
46	Power for Acceptance Testing	Allowance	1	50,000.00	50,000.00	0%	-	-	-	-	18.00%	18%	9,000.00
CO 1	CHANGE ORDER #1	Lump Sum	1	2,160,000.00		0%	-	-	-	-	100%	100%	2,160,000.00
CO 2	CHANGE ORDER #2	Lump Sum	1	38,008.63			-	-	-	-	100%	100%	38,008.63
CO 3	CHANGE ORDER #3	Lump Sum	1	(2,155.00)							100%	100%	(2,155.00)
CO 4	CHANGE ORDER #4	Lump Sum	1	26,737.00			-	-	-	-	100%	100%	26,737.00
CO 5	CHANGE ORDER #5	Lump Sum	1	2,290,790.00		38%	767,776.70	53,400.33	57,235.47	-	61.65%	100%	2,290,790.00
CO 6	CHANGE ORDER #6	Lump Sum	1	4,949.00		0%	-	-	-	-	100.00%	100%	4,949.00

Progress Payment No. 19
Period Ending : 11/30/14
PAYMENT DUE: 3/3/2015
Specification: HD-S2348 Shore to Ship Power Project at Pier T, Berths 132-140
Contractor: The Ryan Company

LBHD Contract No: HD-7928
Original Bid Amt: $20,559,112.22

Item	Unit	Est. Qty.	Unit Price	Bid Amount	Qty This Month	T140 $ Amount This Month	T138 $ Amount This Month	T136 $ Amount This Month	T132 $ Amount This Month	Previous Qty or %	Total % of Item Comp	TOTAL $ Amount to Date
CHANGE ORDER #7	Lump Sum	1	70,000.00		100%	17,500.00	17,500.00	17,500.00	17,500.00	0.00%	100%	70,000.00
			4,588,329.63									
TOTALS				20,559,112.22	4%	$ 785,276.70	$ 80,023.43	$ 83,858.58	$ 33,643.63	96%	100%	$ 25,105,236.25
NEW CONTRACT AMOUNT			25,147,441.85									

SIGN HERE

CM Initials

George Gordon
Project Manager

Date

SIGN HERE

SIGN HERE

Suzanne C. Plezia, P.E.
Director of Construction

Date

Gross Earnings:	$ 25,105,236.25
Previous Payments:	$ 23,906,498.34
Previous Retention:	$ (72,220.53)
STOP NOTICE HARDY & HARPER,INC. $23,750 + 25%	$ (29,687.50)
STOP NOTICE HAMPTON TEDDER TECHNICAL SERVICES, INC. $91,221.02 + 25%	$ (114,027.51)
Earned This Period:	$ 982,802.35
Less Retention: ESCROW #2	$ (49,140.12)
STOP NOTICE ROBERTSON'S $1,885.99 + 25%	$ (2,357.49)
STOP NOTICE ABC RESOURCES INC $8,000.00 + 25%	$ (10,000.00)
AMOUNT DUE THIS ESTIMATE:	$ 921,304.75

BPO No.	INDEX CODE	PROJ	PROJ DET	Subobject Code
BPHA12000127	HACDCMCN	HA1317	1H2348	210009

Project & Grant Revenue/Expenditure Financial Summary

Criteria: As Of = 3/26/2019 (48% of Year Elapsed)

Project Detail	Title	ITD Adjusted Budget	Month-To-Date Actual Activity	Quarter-To-Date Actual Activity	ITD Actual	ITD Encumbrance incl Pre-Encumb	ITD Adjusted Budget - Actuals	ITD % Actuals to Adjusted Budget
Revenue								
Project HA1314 - CLOSED-PIER A SHORE TO SHP PWR RETROFIT								
1H2342	CONSTRUCTION, PROGRAM-WIDE	0.00	0.00	0.00	6,207,535.72	0.00	(6,207,535.72)	0.0%
Total Project HA1314		0.00	0.00	0.00	6,207,535.72	0.00	(6,207,535.72)	0.0%
Project HA1317 - CLS-PIER T,T132-T140 SHORE TO SHIP POWER								
1H2348	1H2348/CONST/ELECTRICAL INFRA	0.00	0.00	0.00	10,000,000.00	0.00	(10,000,000.00)	0.0%
Total Project HA1317		0.00	0.00	0.00	10,000,000.00	0.00	(10,000,000.00)	0.0%
Total		0.00	0.00	0.00	16,207,535.72	0.00	(16,207,535.72)	0.0%
Total Revenue		0.00	0.00	0.00	16,207,535.72	0.00	(16,207,535.72)	0.0%
Expenditures								
Project HA1314 - CLOSED-PIER A SHORE TO SHP PWR RETROFIT								
1B2342	ENVIRONMENTAL, PROGRAM-WIDE	76,955.40	0.00	0.00	76,955.40	0.00	0.00	100.0%
1C2342	DESIGN, PROGRAM-WIDE	2,313,600.40	0.00	0.00	2,313,600.40	0.00	0.00	100.0%
1H2342	CONSTRUCTION, PROGRAM-WIDE	16,162,985.63	0.00	0.00	16,163,251.75	0.00	(266.12)	100.0%
Total Project HA1314		18,553,541.43	0.00	0.00	18,553,807.55	0.00	(266.12)	100.0%
Project HA1317 - CLS-PIER T,T132-T140 SHORE TO SHIP POWER								
1B2348	1B2348/PERMITTING/ELECT INFRASTRUCTURE	291,851.12	0.00	0.00	291,851.12	0.00	0.00	100.0%
1C2348	1C2348/DESIGN/ELECTRICAL INFRASTRUCTURE	4,709,456.06	0.00	0.00	4,709,456.06	0.00	0.00	100.0%
1H2348	1H2348/CONST/ELECTRICAL INFRA	29,415,926.69	0.00	0.00	29,416,228.51	0.00	(301.82)	100.0%
Total Project HA1317		34,417,233.87	0.00	0.00	34,417,535.69	0.00	(301.82)	100.0%
Total		52,970,775.30	0.00	0.00	52,971,343.24	0.00	(567.94)	100.0%
Total Expenditures		52,970,775.30	0.00	0.00	52,971,343.24	0.00	(567.94)	100.0%

Criteria: Project = HA1314, HA1317; Project Detail = !9*

Run: 3/27/2019 8:20 AM Includes transactions posted through: 3/26/2019

Port of LONG BEACH
The Green Port

ANALYSIS OF BIDS
CITY OF LONG BEACH, HARBOR DEPARTMENT

SPECIFICATIONS FOR: Pier A, Berths A88-A96, Shore to Ship Power Retrofit at Pier A Container Terminal

NO. HD-S2342A

DATE OPENED: January 31, 2012

		Shimmick Construction Company 8201 Edgewater Drive #202 Oakland, Ca 94612 Phone: (949) 333-1500 Fax: (949) 333-1510		KDC, Inc. dba Dynalectric 4462 Corporate Center Drive Los Alamitos, CA 90720 Phone: (714) 828-7000 Fax: (714) 484-2385		Griffith/Neubauer JV 12200 Bloomfield Avenue Santa Fe Springs, CA 90670 Phone: (562) 929-1128 Fax: (562) 864-7938		Minako America Corporation 522 E. Airline Way Gardena, CA 90248 Phone: (310) 516-8100 Fax: (310) 516-7404		Sully-Miller Contracting Company 135 S. State College Blvd #400 Brea, CA 92821 Phone: (714) 578-9600 Fax: (714) 449-8775	
ITEM	ESTIMATED QUANTITIES	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT
ITEM NO. 1 - Mobilization and Demobilization: Furnish all labor, materials, tools, equipment, incidentals and supervision necessary to perform... as specified and shown for the lump sum price (of which only 50% may be applied to mobilization) of -	Lump Sum	130,000.00	130,000.00	100,000.00	100,000.00	670,000.00	670,000.00	377,000.00	377,000.00	1,250,000.00	1,250,000.00
ITEM NO. 2 - Site Specific Safety Plan: Provide and implement an approved Site Specific Safety Plan for the lump sum price of -	Lump Sum	15,000.00	15,000.00	10,000.00	10,000.00	10,000.00	10,000.00	17,000.00	17,000.00	22,106.00	22,106.00
ITEM NO. 3 - Asphalt Concrete Pavement Demolition: Provide all labor, equipment, materials and incidentals necessary to perform demolition, removal and disposal of existing asphalt pavement and... as shown and specified for the lump sum price of -	Lump Sum	150,000.00	150,000.00	105,000.00	105,000.00	100,000.00	100,000.00	107,000.00	107,000.00	201,857.00	201,857.00
ITEM NO. 4 - Soil Handling and Disposal of Surplus Soil: Provide all labor, equipment, materials and incidentals necessary to stockpile... approximately one thousand one hundred (1,100) tons... as specified and shown for the unit price per ton of -	Unit Price	10.00	11,000.00	33.00	36,300.00	19.50	21,450.00	33.64	37,004.00	66.82	73,502.00
ITEM NO. 5 - Soil Handling and Disposal of Non-Hazardous Waste: Provide all labor, equipment, materials and incidentals necessary to... approximately six hundred fifty (650) tons of Non-Hazardous... as specified and shown for the unit price per ton of -	Unit Price	80.00	52,000.00	71.00	46,150.00	58.00	37,700.00	56.92	36,998.00	78.34	50,921.00
TOTAL:											
CERTIFIED CHECK OR BOND:											

Shimmick Construction Company
LOWEST RESPONSIBLE BIDDER

594575/Exp. 05/31/2012
LICENSE NUMBER

$11,513,850.00
AMOUNT

AUTHORIZED SIGNATURE

Port of LONG BEACH
The Green Port

ANALYSIS OF BIDS
CITY OF LONG BEACH, HARBOR DEPARTMENT

SPECIFICATIONS FOR: Pier A, Berths A88-A96, Shore to Ship Power Retrofit at Pier A Container Terminal | **NO. HD-S2342A** | **DATE OPENED: January 31, 2012**

		Shimmick Construction Company 8201 Edgewater Drive #202 Oakland, Ca 94612 Phone: (949) 333-1500 Fax: (949) 333-1510		KDC, Inc. dba Dynalectric 4462 Corporate Center Drive Los Alamitos, CA 90720 Phone: (714) 828-7000 Fax: (714) 484-2385		Griffith/Neubauer JV 12200 Bloomfield Avenue Santa Fe Springs, CA 90670 Phone: (562) 929-1128 Fax: (562) 864-7938		Minako America Corporation 522 E. Airline Way Gardena, CA 90248 Phone: (310) 516-8100 Fax: (310) 516-7404		Sully-Miller Contracting Company 135 S. State College Blvd #400 Brea, CA 92821 Phone: (714) 578-9600 Fax: (714) 449-8775	
ITEM	ESTIMATED QUANTITIES	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT
ITEM NO. 6 - Port Furnished Crushed Miscellaneous Base: Provide all labor, equipment, materials and incidentals necessary to mix, load... approximately two thousand six hundred fifty (2,650) tons... as specified and shown for the unit price per ton of -	Unit Price	15.00	39,750.00	42.00	111,300.00	40.00	106,000.00	40.38	107,007.00	34.14	90,471.00
ITEM NO. 7 - Asphalt Concrete Pavement: Provide all labor, equipment, materials and incidentals necessary to construct approximately two thousand five hundred fifty (2,550) tons of asphalt... as specified and shown for the unit price per ton of -	Unit Price	89.00	226,950.00	213.00	543,150.00	108.00	275,400.00	108.63	277,006.50	118.60	302,430.00
ITEM NO. 8 - 8-Foot Chain Link Fence with Barbed Wire: Provide all labor, material, equipment and incidentals... approx four hundred eighty (480) linear feet of 8-foot chain link... as specified and shown for the unit price per linear foot of -	Unit Price	40.00	19,200.00	71.00	34,080.00	41.00	19,680.00	77.09	37,003.20	44.70	21,456.00
ITEM NO. 9 - Chain Link Gates: Provide all labor, material, equipment and incidentals necessary to furnish and install all chain link gates as specified and shown for the lump sum price of -	Lump Sum	15,000.00	15,000.00	10,000.00	10,000.00	14,200.00	14,200.00	17,000.00	17,000.00	10,301.00	10,301.00
ITEM NO. 10 - Pipe Bollards, 12-Inch: Provide all labor, equipment, materials and incidentals necessary to furnish, install, and coat fifty seven (57) 12-inch diameter pipe bollards, as specified and shown for the unit price per each of -	Unit Price	1,200.00	68,400.00	1,700.00	96,900.00	1,320.00	75,240.00	1,877.20	107,000.40	1,707.00	97,299.00
TOTAL:											
CERTIFIED CHECK OR BOND:											

Shimmick Construction Company
LOWEST RESPONSIBLE BIDDER

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The Green Port

ANALYSIS OF BIDS
CITY OF LONG BEACH, HARBOR DEPARTMENT

SPECIFICATIONS FOR: Pier A, Berths A88-A96, Shore to Ship Power Retrofit at Pier A Container Terminal

NO. HD-S2342A

DATE OPENED: January 31, 2012

		Shimmick Construction Company 8201 Edgewater Drive #202 Oakland, Ca 94612 Phone: (949) 333-1500 Fax: (949) 333-1510		KDC, Inc. dba Dynalectric 4462 Corporate Center Drive Los Alamitos, CA 90720 Phone: (714) 828-7000 Fax: (714) 484-2385		Griffith/Neubauer JV 12200 Bloomfield Avenue Santa Fe Springs, CA 90670 Phone: (562) 929-1128 Fax: (562) 864-7938		Minako America Corporation 522 E. Airline Way Gardena, CA 90248 Phone: (310) 516-8100 Fax: (310) 516-7404		Sully-Miller Contracting Company 135 S. State College Blvd #400 Brea, CA 92821 Phone: (714) 578-9600 Fax: (714) 449-8775	
ITEM	**ESTIMATED QUANTITIES**	**RATE**	**AMOUNT**	**RATE**	**AMOUNT**	**RATE**	**AMOUNT**	**RATE**	**AMOUNT**	**RATE**	**AMOUNT**
ITEM NO. 11 - Bid Item Removed: Bid item removed per Addendum No. 1 issued January 4, 2012.	Lump Sum	0	0	0	0	0	0	0	0	0	0
ITEM NO. 12 - Repair of Existing Striping: Provide all labor, equipment, materials and incidentals necessary to repair approximately three thousand eight hundred (3,800) linear feet of... as specified and required for the unit price per linear foot of -	Unit Pricie	1.00	3,800.00	2.50	9,500.00	1.15	4,370.00	1.85	7,030.00	1.12	4,256.00
ITEM NO. 13 - Repair of Existing Pavement Markings: Provide all labor, equipment, materials and incidentals necessary to repair approximately one hundred fifty five (155) existing markings, as specified and required for the unit price per each of -	Unit Pricie	50.00	7,750.00	142.00	22,010.00	46.00	7,130.00	109.68	17,000.40	45.00	6,975.00
ITEM NO. 14 - Shore Power Outlet Vaults for Berth 90 (SPO 7, SPO 8 & SPO 9): Provide all labor, material, equipment and incidentals necessary to perform demolition and construction of shore to ship... as specified and shown for the lump sum price of -	Lump Sum	250,000.00	250,000.00	365,000.00	365,000.00	340,000.00	340,000.00	377,000.00	377,000.00	343,615.00	343,615.00
ITEM NO. 15 - Shore Power Outlet Vaults for Berth 92 (SPO 4, SPO 5 & SPO 6): Provide all labor, material, equipment and incidentals necessary to perform demolition and construction of shore to ship... as specified and shown for the lump sum price of -	Lump Sum	250,000.00	250,000.00	365,000.00	365,000.00	340,000.00	340,000.00	377,000.00	377,000.00	343,615.00	343,615.00
TOTAL:											
CERTIFIED CHECK OR BOND:											

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The Green Port

ANALYSIS OF BIDS
CITY OF LONG BEACH, HARBOR DEPARTMENT

SPECIFICATIONS FOR: Pier A, Berths A88-A96, Shore to Ship Power Retrofit at Pier A Container Terminal | **NO. HD-S2342A** | **DATE OPENED: January 31, 2012**

ITEM	ESTIMATED QUANTITIES	Shimmick Construction Company 8201 Edgewater Drive #202 Oakland, Ca 94612 Phone: (949) 333-1500 Fax: (949) 333-1510		KDC, Inc. dba Dynalectric 4462 Corporate Center Drive Los Alamitos, CA 90720 Phone: (714) 828-7000 Fax: (714) 484-2385		Griffith/Neubauer JV 12200 Bloomfield Avenue Santa Fe Springs, CA 90670 Phone: (562) 929-1128 Fax: (562) 864-7936		Minako America Corporation 522 E. Airline Way Gardena, CA 90248 Phone: (310) 516-8100 Fax: (310) 516-7404		Sully-Miller Contracting Company 135 S. State College Blvd #400 Brea, CA 92821 Phone: (714) 578-9600 Fax: (714) 449-8775	
		RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT
ITEM NO. 16 - Shore Power Outlet Vaults for Berth 94 (SPO 1, SPO 2 & SPO 3): Povide all labor, material, equipment and incidentals necessary to perform demolition and construction of shore to ship... as specified and shown for the lump sum price of -	Lump Sum	250,000.00	250,000.00	365,000.00	365,000.00	340,000.00	340,000.00	377,000.00	377,000.00	343,615.00	343,615.00
ITEM NO. 17 - Cut-Off Wall Plug/Penetrations: Provide all labor, material, equipment and incidentals necessary to perform demolition, coring and construction of four (4) cut-off wall plug... as specified and shown for the unit price per each of -	Unit Price	7,000.00	28,000.00	6,000.00	24,000.00	5,400.00	21,600.00	4,250.00	17,000.00	9,300.00	37,200.00
ITEM NO. 18 - SPO "Dry Run" Cable Connection Support: Provide all labor, materials, tools, equipment and incidentals necessary to support approximately four (4) ship-side "dry... as specified and directed by the Engineer for the unit price per each of -	Unit Price	3,000.00	12,000.00	1,500.00	6,000.00	2,180.00	8,720.00	1,750.00	7,000.00	2,122.00	8,488.00
ITEM NO. 19 - Ship Testing and Commissioning: Provide all labor, materials, tools, equipment and incidentals necessary to support approximately four (4) ship-side commissioning... as specified and directed by the Engineer for the unit price per each of -	Unit Price	15,000.00	60,000.00	17,500.00	70,000.00	20,437.50	81,750.00	17,500.00	70,000.00	18,392.00	73,568.00
ITEM NO. 20 - Transformer for Berth 90: Provide al labor, material, equipment, and incidentals required to furnish, install, test and commission the transformer(s) as part of a complete system as specified and shown for the lump sum price of -	Lump Sum	650,000.00	650,000.00	600,000.00	600,000.00	654,000.00	654,000.00	477,000.00	477,000.00	599,982.00	599,982.00
TOTAL:											
CERTIFIED CHECK OR BOND:											

Shimmick Construction Company
LOWEST RESPONSIBLE BIDDER

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CITY OF LONG BEACH, HARBOR DEPARTMENT

SPECIFICATIONS FOR: Pier A, Berths A88-A96, Shore to Ship Power Retrofit at Pier A Container Terminal

NO. HD-S2342A

DATE OPENED: January 31, 2012

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ITEM	ESTIMATED QUANTITIES	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT
ITEM NO. 21 - Transformer for Berth 92: Provide al labor, material, equipment, and incidentals required to furnish, install, test and commission the transformer(s) as part of a complete system as specified and shown for the lump sum price of -	Lump Sum	650,000.00	650,000.00	600,000.00	600,000.00	654,000.00	654,000.00	477,000.00	477,000.00	599,982.00	599,982.00
ITEM NO. 22 - Transformer for Berth 94: Provide al labor, material, equipment, and incidentals required to furnish, install, test and commission the transformer(s) as part of a complete system as specified and shown for the lump sum price of -	Lump Sum	650,000.00	650,000.00	600,000.00	600,000.00	654,000.00	654,000.00	477,000.00	477,000.00	599,982.00	599,982.00
ITEM NO. 23 - Switchgear Assembly for Berth 90: Provide all labor, material, equipment and incidentals required to furnish, install, test and commission the switchgear assembly as part of a complete... as specified and shown for the lump sum price of -	Lump Sum	1,750,000.00	1,750,000.00	1,690,000.00	1,690,000.00	1,744,000.00	1,744,000.00	1,777,000.00	1,777,000.00	1,582,989.00	1,582,989.00
ITEM NO. 24 - Switchgear Assembly for Berth 92: Provide all labor, material, equipment and incidentals required to furnish, install, test and commission the switchgear assembly as part of a complete... as specified and shown for the lump sum price of -	Lump Sum	1,475,000.00	1,475,000.00	1,510,000.00	1,510,000.00	1,417,000.00	1,417,000.00	1,777,000.00	1,777,000.00	1,448,485.00	1,448,485.00
ITEM NO. 25 - Switchgear Assembly for Berth 94: Provide all labor, material, equipment and incidentals required to furnish, install, test and commission the switchgear assembly as part of a complete... as specified and shown for the lump sum price of -	Lump Sum	1,500,000.00	1,500,000.00	1,600,000.00	1,600,000.00	1,471,500.00	1,471,500.00	1,377,000.00	1,377,000.00	1,469,022.00	1,469,022.00
TOTAL:											
CERTIFIED CHECK OR BOND:											

Shimmick Construction Company
LOWEST RESPONSIBLE BIDDER

594575/Exp. 05/31/2012
LICENSE NUMBER

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AMOUNT

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CITY OF LONG BEACH, HARBOR DEPARTMENT

SPECIFICATIONS FOR: Pier A, Berths A88-A96, Shore to Ship Power Retrofit at Pier A Container Terminal

NO. HD-S2342A

DATE OPENED: January 31, 2012

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ITEM	ESTIMATED QUANTITIES	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT
ITEM NO. 26 - Ductbanks and Raceways for Berth 90: Provide all labor, material, equipment and incidentals required to furnish and install the ductbanks and raceways as part of a complete system as specified and shown for the lump sum price of -	Lump Sum	500,000.00	500,000.00	581,000.00	581,000.00	435,000.00	435,000.00	577,000.00	577,000.00	384,754.00	384,754.00
ITEM NO. 27 - Ductbanks and Raceways for Berth 92: Provide all labor, material, equipment and incidentals required to furnish and install the ductbanks and raceways as part of a complete system as specified and shown for the lump sum price of -	Lump Sum	450,000.00	450,000.00	537,000.00	537,000.00	435,000.00	435,000.00	577,000.00	577,000.00	374,855.00	374,855.00
ITEM NO. 28 - Ductbanks and Raceways for Berth 94: Provide all labor, material, equipment and incidentals required to furnish and install the ductbanks and raceways as part of a complete system as specified and shown for the lump sum price of -	Lump Sum	325,000.00	325,000.00	436,000.00	436,000.00	355,000.00	355,000.00	477,000.00	477,000.00	342,606.00	342,606.00
ITEM NO. 29 - Conductors for Berth 90: Provide all labor, material, equipment and incidentals required to furnish, install and test the conductors as part of a complete system as specified and shown for the lump sum price of -	Lump Sum	300,000.00	300,000.00	250,000.00	250,000.00	332,450.00	332,450.00	377,000.00	377,000.00	331,972.00	331,972.00
ITEM NO. 30 - Conductors for Berth 92: Provide all labor, material, equipment and incidentals required to furnish, install and test the conductors as part of a complete system as specified and shown for the lump sum price of -	Lump Sum	300,000.00	300,000.00	260,000.00	260,000.00	332,450.00	332,450.00	277,000.00	277,000.00	345,359.00	345,359.00
TOTAL:											
CERTIFIED CHECK OR BOND:											

Shimmick Construction Company
LOWEST RESPONSIBLE BIDDER

594575/Exp. 05/31/2012
LICENSE NUMBER

$11,513,850.00
AMOUNT

AUTHORIZED SIGNATURE

Port of LONG BEACH
The Green Port

ANALYSIS OF BIDS
CITY OF LONG BEACH, HARBOR DEPARTMENT

SPECIFICATIONS FOR: Pier A, Berths A88-A96, Shore to Ship Power Retrofit at Pier A Container Terminal | **NO. HD-S2342A** | **DATE OPENED: January 31, 2012**

		Shimmick Construction Company 6201 Edgewater Drive #202 Oakland, Ca 94612 Phone: (949) 333-1500 Fax: (949) 333-1510		KDC, Inc. dba Dynalectric 4462 Corporate Center Drive Los Alamitos, CA 90720 Phone: (714) 828-7000 Fax: (714) 484-2385		Griffith/Neubauer JV 12200 Bloomfield Avenue Santa Fe Springs, CA 90670 Phone: (562) 929-1128 Fax: (562) 864-7938		Minako America Corporation 522 E. Airline Way Gardena, CA 90248 Phone: (310) 516-8100 Fax: (310) 516-7404		Sully-Miller Contracting Company 135 S. State College Blvd #400 Brea, CA 92821 Phone: (714) 578-9600 Fax: (714) 449-8775	
ITEM	ESTIMATED QUANTITIES	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT
ITEM NO. 31 - Conductors for Berth 94: Provide all labor, material, equipment and incidentals required to furnish, install and test the conductors as part of a complete system as specified and shown for the lump sum price of -	Lump Sum	325,000.00	325,000.00	180,000.00	180,000.00	332,450.00	332,450.00	377,000.00	377,000.00	400,643.00	400,643.00
ITEM NO. 32 - SPO Receptacles for Berth 90: Provide all labor, material, equipment and incidentals required to furnish, install, test and commission the SPO receptacles as part of a complete system as specified and shown for the lump sum price of -	Lump Sum	100,000.00	100,000.00	110,000.00	110,000.00	88,000.00	88,000.00	177,000.00	177,000.00	108,398.00	108,398.00
ITEM NO. 33 - SPO Receptacles for Berth 92: Provide all labor, material, equipment and incidentals required to furnish, install, test and commission the SPO receptacles as part of a complete system as specified and shown for the lump sum price of -	Lump Sum	100,000.00	100,000.00	110,000.00	110,000.00	88,000.00	88,000.00	177,000.00	177,000.00	108,158.00	108,158.00
ITEM NO. 34 - SPO Receptacles for Berth 94: Provide all labor, material, equipment and incidentals required to furnish, install, test and commission the SPO receptacles as part of a complete system as specified and shown for the lump sum price of -	Lump Sum	100,000.00	100,000.00	110,000.00	110,000.00	88,000.00	88,000.00	177,000.00	177,000.00	108,158.00	108,158.00
ITEM NO. 35 - All Other Electrical Work for Berth 90: Provide all labor, material, equipment and incidentals required to furnish, install, test and commission all other electrical work for Berth 90 ... as specified and shown for the lump sum price of -	Lump Sum	475,000.00	475,000.00	230,750.00	230,750.00	456,000.00	456,000.00	177,000.00	177,000.00	433,504.00	433,504.00
TOTAL:											
CERTIFIED CHECK OR BOND:											

Shimmick Construction Company
LOWEST RESPONSIBLE BIDDER

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LICENSE NUMBER

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Port of LONG BEACH
The Green Port

ANALYSIS OF BIDS
CITY OF LONG BEACH, HARBOR DEPARTMENT

SPECIFICATIONS FOR: Pier A, Berths A88-A96, Shore to Ship Power Retrofit at Pier A Container Terminal

NO. HD-S2342A

DATE OPENED: January 31, 2012

		Shimmick Construction Company 8201 Edgewater Drive #202 Oakland, Ca 94612 Phone: (949) 333-1500 Fax: (949) 333-1510		KDC, Inc. dba Dynalectric 4462 Corporate Center Drive Los Alamitos, CA 90720 Phone: (714) 828-7000 Fax: (714) 484-2385		Griffith/Neubauer JV 12200 Bloomfield Avenue Santa Fe Springs, CA 90670 Phone: (562) 929-1128 Fax: (562) 864-7938		Minako America Corporation 522 E. Airline Way Gardena, CA 90248 Phone: (310) 516-8100 Fax: (310) 516-7404		Sully-Miller Contracting Company 135 S. State College Blvd #400 Brea, CA 92821 Phone: (714) 578-9600 Fax: (714) 449-8775	
ITEM	ESTIMATED QUANTITIES	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT
ITEM NO. 36 - All Other Electrical Work for Berth 92: Provide all labor, material, equipment and incidentals required to furnish, install, test and commission all other electrical work for Berth 92 ... as specified and shown for the lump sum price of -	Lump Sum	70,000.00	70,000.00	100,000.00	100,000.00	107,000.00	107,000.00	177,000.00	177,000.00	47,341.00	47,341.00
ITEM NO. 37 - All Other Electrical Work for Berth 94: Provide all labor, material, equipment and incidentals required to furnish, install, test and commission all other electrical work for Berth 94 ... as specified and shown for the lump sum price of -	Lump Sum	105,000.00	105,000.00	150,000.00	150,000.00	126,000.00	126,000.00	177,000.00	177,000.00	50,750.00	50,750.00
ITEM NO. 38 - Allowance for Load Bank Test Energy Usage: Provide all labor, materials, tools, equipment and incidentals necessary to reimburse the Tenant for energy... The limits and use of the Allowance shall be solely as directed by the Engineer -	Allowance	50,000.00	50,000.00	50,000.00	50,000.00	50,000.00	50,000.00	50,000.00	50,000.00	50,000.00	50,000.00
ITEM NO. 39 - Stand-by Time: Provide all labor, equipment, materials and incidentals necessary to provide approximately twenty-five (25) hours of stand-by time for personnel and equipment, including, but not limited to... for the unit price per hour of -	Unit Price	1,000.00	25,000.00	720.00	18,000.00	2,100.00	52,500.00	680.00	17,000.00	1,268.00	31,700.00
ITEM NO. 40 - Environmental Protection Plan (E.P.P) Compliance: Provide all labor, equipment, materials and incidentals necessary to develop Environmental Protection Plan, including SWPPP (see Appendix... as specified and shown for the lump sum price of -	Lump Sum	20,000.00	20,000.00	72,000.00	72,000.00	34,500.00	34,500.00	77,000.00	77,000.00	22,106.00	22,106.00
TOTAL:											
CERTIFIED CHECK OR BOND:											

Shimmick Construction Company
LOWEST RESPONSIBLE BIDDER

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Port of LONG BEACH
The Green Port

ANALYSIS OF BIDS
CITY OF LONG BEACH, HARBOR DEPARTMENT

SPECIFICATIONS FOR: Pier A, Berths A88-A96, Shore to Ship Power Retrofit at Pier A Container Terminal | **NO. HD-S2342A** | **DATE OPENED: January 31, 2012**

		Shimmick Construction Company 8201 Edgewater Drive #202 Oakland, Ca 94612 Phone: (949) 333-1500 Fax: (949) 333-1510		KDC, Inc. dba Dynalectric 4462 Corporate Center Drive Los Alamitos, CA 90720 Phone: (714) 828-7000 Fax: (714) 484-2385		Griffith/Neubauer JV 12200 Bloomfield Avenue Santa Fe Springs, CA 90670 Phone: (562) 929-1128 Fax: (562) 864-7938		Minako America Corporation 522 E. Airline Way Gardena, CA 90248 Phone: (310) 516-8100 Fax: (310) 516-7404		Sully-Miller Contracting Company 135 S. State College Blvd #400 Brea, CA 92821 Phone: (714) 578-9600 Fax: (714) 449-8775	
ITEM	ESTIMATED QUANTITIES	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT
ITEM NO. 41 - Schedule: Provide all labor, equipment, materials and incidentals necessary to develop and update all schedules complete as specified for the lump sum price of -	Lump Sum	5,000.00	5,000.00	50,000.00	50,000.00	15,000.00	15,000.00	7,000.00	7,000.00	50,363.00	50,363.00
TOTAL:		$11,513,850.00		$12,164,140.00		$12,395,090.00		$12,606,049.50		$12,772,784.00	
CERTIFIED CHECK OR BOND:		10% Bond		10% Bond		10% Bond		10% Bond		10% Bond	

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CITY OF LONG BEACH, HARBOR DEPARTMENT

SPECIFICATIONS FOR: Pier A, Berths A88-A96, Shore to Ship Power Retrofit at Pier A Container Terminal

NO. HD-S2342A

DATE OPENED: January 31, 2012

		Cupertino Electric, Inc. 1132 N. Seventh Street San Jose, CA 95112 Phone: (562) 641-2400 Fax: (562) 946-9988		Vellutini Corp dba Royal Electric 8481 Carbide Ct Sacramento, CA 95828 Phone: (916) 226-2100 Fax: (916) 226-2150		Comet Electric 7760 Deering Avenue Canoga Park, CA 91304 Phone: (818) 340-0965 Fax: (818) 340-4033		The Ryan Company 15 Commerce Way Norton, MA 02766 Phone: (508) 742-2500 Fax: (508) 742-2540		Marathon Construction Company 10108 Riverford Road Lakeside, CA 92040 Phone: (619) 276-4401 Fax: (619) 276-0717	
ITEM	ESTIMATED QUANTITIES	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT
ITEM NO. 1 - Mobilization and Demobilization: Furnish all labor, materials, tools, equipment, incidentals and supervision necessary to perform... as specified and shown for the lump sum price (of which only 50% may be applied to mobilization) of -	Lump Sum	150,000.00	150,000.00	150,000.00	150,000.00	651,217.00	651,217.00	1,472,000.00	1,472,000.00	511,322.00	511,322.00
ITEM NO. 2 - Site Specific Safety Plan: Provide and implement an approved Site Specific Safety Plan for the lump sum price of -	Lump Sum	60,000.00	60,000.00	50,000.00	50,000.00	175,982.00	175,982.00	12,000.00	12,000.00	15,000.00	15,000.00
ITEM NO. 3 - Asphalt Concrete Pavement Demolition: Provide all labor, equipment, materials and incidentals necessary to perform demolition, removal and disposal of existing asphalt pavement and... as shown and specified for the lump sum price of -	Lump Sum	113,156.00	113,156.00	101,000.00	101,000.00	351,965.00	351,965.00	54,000.00	54,000.00	215,000.00	215,000.00
ITEM NO. 4 - Soil Handling and Disposal of Surplus Soil: Provide all labor, equipment, materials and incidentals necessary to stockpile... approximately one thousand one hundred (1,100) tons... as specified and shown for the unit price per ton of -	Unit Price	34.91	38,401.00	20.10	22,110.00	44.00	48,400.00	66.30	72,930.00	40.00	44,000.00
ITEM NO. 5 - Soil Handling and Disposal of Non-Hazardous Waste: Provide all labor, equipment, materials and incidentals necessary to... approximately six hundred fifty (650) tons of Non-Hazardous... as specified and shown for the unit price per ton of -	Unit Price	53.00	34,450.00	110.00	71,500.00	57.00	37,050.00	42.20	27,430.00	75.00	48,750.00
TOTAL:											
CERTIFIED CHECK OR BOND:											

Shimmick Construction Company
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Port of LONG BEACH
The Green Port

ANALYSIS OF BIDS
CITY OF LONG BEACH, HARBOR DEPARTMENT

SPECIFICATIONS FOR: Pier A, Berths A88-A96, Shore to Ship Power Retrofit at Pier A Container Terminal | **NO. HD-S2342A** | **DATE OPENED: January 31, 2012**

		Cupertino Electric, Inc. 1132 N. Seventh Street San Jose, CA 95112 Phone: (562) 641-2400 Fax: (562) 946-9988		Vellutini Corp dba Royal Electric 8481 Carbide Ct Sacramento, CA 95828 Phone: (916) 226-2100 Fax: (916) 226-2150		Comet Electric 7760 Deering Avenue Canoga Park, CA 91304 Phone: (818) 340-0965 Fax: (818) 340-4033		The Ryan Company 15 Commerce Way Norton, MA 02766 Phone: (508) 742-2500 Fax: (508) 742-2540		Marathon Construction Company 10108 Riverford Road Lakeside, CA 92040 Phone: (619) 276-4401 Fax: (619) 276-0717	
ITEM	ESTIMATED QUANTITIES	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT
ITEM NO. 6 - Port Furnished Crushed Miscellaneous Base: Provide all labor, equipment, materials and incidentals necessary to mix, load... approximately two thousand six hundred fifty (2,650) tons... as specified and shown for the unit price per ton of -	Unit Price	42.00	111,300.00	42.00	111,300.00	42.00	111,300.00	36.15	95,797.50	40.00	106,000.00
ITEM NO. 7 - Asphalt Concrete Pavement: Provide all labor, equipment, materials and incidentals necessary to construct approximately two thousand five hundred fifty (2,550) tons of asphalt... as specified and shown for the unit price per ton of -	Unit Price	204.50	521,475.00	124.00	316,200.00	106.00	270,300.00	112.00	285,600.00	130.00	331,500.00
ITEM NO. 8 - 8-Foot Chain Link Fence with Barbed Wire: Provide all labor, material, equipment and incidentals... approx four hundred eighty (480) linear feet of 8-foot chain link... as specified and shown for the unit price per linear foot of -	Unit Price	77.00	36,960.00	42.00	20,160.00	36.00	17,280.00	41.00	19,680.00	50.00	24,000.00
ITEM NO. 9 - Chain Link Gates: Provide all labor, material, equipment and incidentals necessary to furnish and install all chain link gates as specified and shown for the lump sum price of -	Lump Sum	11,436.00	11,436.00	14,600.00	14,600.00	12,318.00	12,318.00	3,455.00	3,455.00	15,000.00	15,000.00
ITEM NO. 10 - Pipe Bollards, 12-inch: Provide all labor, equipment, materials and incidentals necessary to furnish, install, and coat fifty seven (57) 12-inch diameter pipe bollards, as specified and shown for the unit price per each of -	Unit Price	1,800.00	102,600.00	1,360.00	77,520.00	1,161.00	66,177.00	1,579.00	90,003.00	2,000.00	114,000.00
TOTAL:											
CERTIFIED CHECK OR BOND:											

Shimmick Construction Company — LOWEST RESPONSIBLE BIDDER

594575/Exp. 05/31/2012 — LICENSE NUMBER

$11,513,850.00 — AMOUNT

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Port of LONG BEACH
The Green Port

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CITY OF LONG BEACH, HARBOR DEPARTMENT

SPECIFICATIONS FOR: Pier A, Berths A88-A96, Shore to Ship Power Retrofit at Pier A Container Terminal

NO. HD-S2342A

DATE OPENED: January 31, 2012

ITEM	ESTIMATED QUANTITIES	Cupertino Electric, Inc. 1132 N. Seventh Street San Jose, CA 95112 Phone: (562) 641-2400 Fax: (562) 946-9988		Vellutini Corp dba Royal Electric 8481 Carbide Ct Sacramento, CA 95828 Phone: (916) 226-2100 Fax: (916) 226-2150		Comet Electric 7760 Deering Avenue Canoga Park, CA 91304 Phone: (818) 340-0965 Fax: (818) 340-4033		The Ryan Company 15 Commerce Way Norton, MA 02766 Phone: (508) 742-2500 Fax: (508) 742-2540		Marathon Construction Company 10108 Riverford Road Lakeside, CA 92040 Phone: (619) 276-4401 Fax: (619) 276-0717	
		RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT
ITEM NO. 11 - Bid Item Removed: Bid item removed per Addendum No. 1 issued January 4, 2012.	Lump Sum	0	0	0	0	0	0	0	0	0	0
ITEM NO. 12 - Repair of Existing Striping: Provide all labor, equipment, materials and incidentals necessary to repair approximately three thousand eight hundred (3,800) linear feet of... as specified and required for the unit price per linear foot of -	Unit Pricie	2.40	9,120.00	3.40	12,920.00	2.25	8,550.00	3.65	13,870.00	2.00	7,600.00
ITEM NO. 13 - Repair of Existing Pavement Markings: Provide all labor, equipment, materials and incidentals necessary to repair approximately one hundred fifty five (155) existing markings, as specified and required for the unit price per each of -	Unit Pricie	120.00	18,600.00	90.00	13,950.00	315.00	48,825.00	18.10	2,805.50	71.00	11,005.00
ITEM NO. 14 - Shore Power Outlet Vaults for Berth 90 (SPO 7, SPO 8 & SPO 9): Provide all labor, material, equipment and incidentals necessary to perform demolition and construction of shore to ship... as specified and shown for the lump sum price of -	Lump Sum	463,458.00	463,458.00	353,666.00	353,666.00	389,124.00	389,124.00	232,000.00	232,000.00	600,000.00	600,000.00
ITEM NO. 15 - Shore Power Outlet Vaults for Berth 92 (SPO 4, SPO 5 & SPO 6): Provide all labor, material, equipment and incidentals necessary to perform demolition and construction of shore to ship... as specified and shown for the lump sum price of -	Lump Sum	463,458.00	463,458.00	353,666.00	353,666.00	389,124.00	389,124.00	142,000.00	142,000.00	600,000.00	600,000.00
TOTAL:											
CERTIFIED CHECK OR BOND:											

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SPECIFICATIONS FOR: Pier A, Berths A88-A96, Shore to Ship Power Retrofit at Pier A Container Terminal

NO. HD-S2342A

DATE OPENED: January 31, 2012

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ITEM	ESTIMATED QUANTITIES	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT
ITEM NO. 16 - Shore Power Outlet Vaults for Berth 94 (SPO 1, SPO 2 & SPO 3): Povide all labor, material, equipment and incidentals necessary to perform demolition and construction of shore to ship... as specified and shown for the lump sum price of -	Lump Sum	463,458.00	463,458.00	353,666.00	353,666.00	389,124.00	389,124.00	142,000.00	142,000.00	600,000.00	600,000.00
ITEM NO. 17 - Cut-Off Wall Plug/Penetrations: Provide all labor, material, equipment and incidentals necessary to perform demolition, coring and construction of four (4) cut-off wall plug... as specified and shown for the unit price per each of -	Unit Price	7,223.00	28,892.00	6,200.00	24,800.00	4,180.00	16,720.00	14,500.00	58,000.00	12,000.00	48,000.00
ITEM NO. 18 - SPO "Dry Run" Cable Connection Support: Provide all labor, materials, tools, equipment and incidentals necessary to support approximately four (4) ship-side "dry... as specified and directed by the Engineer for the unit price per each of -	Unit Price	621.00	2,484.00	640.00	2,560.00	519.00	2,076.00	775.00	3,100.00	1,400.00	5,600.00
ITEM NO. 19 - Ship Testing and Commissioning: Provide all labor, materials, tools, equipment and incidentals necessary to support approximately four (4) ship-side commissioning... as specified and directed by the Engineer for the unit price per each of -	Unit Price	17,915.00	71,660.00	14,000.00	56,000.00	3,754.00	15,016.00	61,400.00	245,600.00	20,000.00	80,000.00
ITEM NO. 20 - Transformer for Berth 90: Provide al labor, material, equipment, and incidentals required to furnish, install, test and commission the transformer(s) as part of a complete system as specified and shown for the lump sum price of -	Lump Sum	625,700.00	625,700.00	609,000.00	609,000.00	1,208,972.00	1,208,972.00	662,000.00	662,000.00	740,000.00	740,000.00
TOTAL:											
CERTIFIED CHECK OR BOND:											

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SPECIFICATIONS FOR: Pier A, Berths A88-A96, Shore to Ship Power Retrofit at Pier A Container Terminal | **NO. HD-S2342A** | **DATE OPENED: January 31, 2012**

ITEM	ESTIMATED QUANTITIES	Cupertino Electric, Inc. 1132 N. Seventh Street San Jose, CA 95112 Phone: (562) 641-2400 Fax: (562) 946-9988		Vellutini Corp dba Royal Electric 8481 Carbide Ct Sacramento, CA 95828 Phone: (916) 226-2100 Fax: (916) 226-2150		Comet Electric 7760 Deering Avenue Canoga Park, CA 91304 Phone: (818) 340-0965 Fax: (818) 340-4033		The Ryan Company 15 Commerce Way Norton, MA 02766 Phone: (508) 742-2500 Fax: (508) 742-2540		Marathon Construction Company 10108 Riverford Road Lakeside, CA 92040 Phone: (619) 276-4401 Fax: (619) 276-0717	
		RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT
ITEM NO. 21 - Transformer for Berth 92: Provide al labor, material, equipment, and incidentals required to furnish, install, test and commission the transformer(s) as part of a complete system as specified and shown for the lump sum price of -	Lump Sum	625,700.00	625,700.00	609,000.00	609,000.00	1,211,997.00	1,211,997.00	662,000.00	662,000.00	665,000.00	665,000.00
ITEM NO. 22 - Transformer for Berth 94: Provide al labor, material, equipment, and incidentals required to furnish, install, test and commission the transformer(s) as part of a complete system as specified and shown for the lump sum price of -	Lump Sum	625,700.00	625,700.00	609,000.00	609,000.00	1,215,296.00	1,215,296.00	662,000.00	662,000.00	710,000.00	710,000.00
ITEM NO. 23 - Switchgear Assembly for Berth 90: Provide all labor, material, equipment and incidentals required to furnish, install, test and commission the switchgear assembly as part of a complete... as specified and shown for the lump sum price of -	Lump Sum	1,648,325.00	1,648,325.00	1,655,000.00	1,655,000.00	1,232,346.00	1,232,346.00	2,008,000.00	2,008,000.00	1,790,000.00	1,790,000.00
ITEM NO. 24 - Switchgear Assembly for Berth 92: Provide all labor, material, equipment and incidentals required to furnish, install, test and commission the switchgear assembly as part of a complete... as specified and shown for the lump sum price of -	Lump Sum	1,384,637.00	1,384,637.00	1,396,000.00	1,396,000.00	1,232,346.00	1,232,346.00	1,475,000.00	1,475,000.00	1,600,000.00	1,600,000.00
ITEM NO. 25 - Switchgear Assembly for Berth 94: Provide all labor, material, equipment and incidentals required to furnish, install, test and commission the switchgear assembly as part of a complete... as specified and shown for the lump sum price of -	Lump Sum	1,418,089.00	1,418,089.00	1,439,000.00	1,439,000.00	1,237,462.00	1,237,462.00	1,507,000.00	1,507,000.00	1,635,000.00	1,635,000.00
TOTAL:											
CERTIFIED CHECK OR BOND:											

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ANALYSIS OF BIDS
CITY OF LONG BEACH, HARBOR DEPARTMENT

SPECIFICATIONS FOR: Pier A, Berths A88-A96, Shore to Ship Power Retrofit at Pier A Container Terminal | **NO. HD-S2342A** | **DATE OPENED: January 31, 2012**

		Cupertino Electric, Inc. 1132 N. Seventh Street San Jose, CA 95112 Phone: (562) 641-2400 Fax: (562) 946-9988		Vellutini Corp dba Royal Electric 8481 Carbide Ct Sacramento, CA 95828 Phone: (916) 226-2100 Fax: (916) 226-2150		Comet Electric 7760 Deering Avenue Canoga Park, CA 91304 Phone: (818) 340-0965 Fax: (818) 340-4033		The Ryan Company 15 Commerce Way Norton, MA 02766 Phone: (508) 742-2500 Fax: (508) 742-2540		Marathon Construction Company 10108 Riverford Road Lakeside, CA 92040 Phone: (619) 276-4401 Fax: (619) 276-0717	
ITEM	ESTIMATED QUANTITIES	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT
ITEM NO. 26 - Ductbanks and Raceways for Berth 90: Provide all labor, material, equipment and incidentals required to furnish and install the ductbanks and raceways as part of a complete system as specified and shown for the lump sum price of -	Lump Sum	762,606.00	762,606.00	750,000.00	750,000.00	507,835.00	507,835.00	578,000.00	578,000.00	745,000.00	745,000.00
ITEM NO. 27 - Ductbanks and Raceways for Berth 92: Provide all labor, material, equipment and incidentals required to furnish and install the ductbanks and raceways as part of a complete system as specified and shown for the lump sum price of -	Lump Sum	678,099.00	678,099.00	576,000.00	576,000.00	505,492.00	505,492.00	449,000.00	449,000.00	660,000.00	660,000.00
ITEM NO. 28 - Ductbanks and Raceways for Berth 94: Provide all labor, material, equipment and incidentals required to furnish and install the ductbanks and raceways as part of a complete system as specified and shown for the lump sum price of -	Lump Sum	559,890.00	559,890.00	443,000.00	443,000.00	473,340.00	473,340.00	353,000.00	353,000.00	540,000.00	540,000.00
ITEM NO. 29 - Conductors for Berth 90: Provide all labor, material, equipment and incidentals required to furnish, install and test the conductors as part of a complete system as specified and shown for the lump sum price of -	Lump Sum	376,811.00	376,811.00	372,000.00	372,000.00	318,573.00	318,573.00	374,000.00	374,000.00	340,000.00	340,000.00
ITEM NO. 30 - Conductors for Berth 92: Provide all labor, material, equipment and incidentals required to furnish, install and test the conductors as part of a complete system as specified and shown for the lump sum price of -	Lump Sum	381,578.00	381,578.00	369,000.00	369,000.00	304,540.00	304,540.00	425,000.00	425,000.00	310,000.00	310,000.00
TOTAL:											
CERTIFIED CHECK OR BOND:											

Shimmick Construction Company
LOWEST RESPONSIBLE BIDDER

594575/Exp. 05/31/2012
LICENSE NUMBER

$11,513,850.00
AMOUNT

AUTHORIZED SIGNATURE

Port of LONG BEACH
The Green Port

ANALYSIS OF BIDS
CITY OF LONG BEACH, HARBOR DEPARTMENT

SPECIFICATIONS FOR: Pier A, Berths A88-A96, Shore to Ship Power Retrofit at Pier A Container Terminal | **NO. HD-S2342A** | **DATE OPENED: January 31, 2012**

		Cupertino Electric, Inc. 1132 N. Seventh Street San Jose, CA 95112 Phone: (562) 641-2400 Fax: (562) 946-9988		Vellutini Corp dba Royal Electric 8481 Carbide Ct Sacramento, CA 95828 Phone: (916) 226-2100 Fax: (916) 226-2150		Comet Electric 7760 Deering Avenue Canoga Park, CA 91304 Phone: (818) 340-0965 Fax: (818) 340-4033		The Ryan Company 15 Commerce Way Norton, MA 02766 Phone: (508) 742-2500 Fax: (508) 742-2540		Marathon Construction Company 10108 Riverford Road Lakeside, CA 92040 Phone: (619) 276-4401 Fax: (619) 276-0717	
ITEM	ESTIMATED QUANTITIES	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT
ITEM NO. 31 - Conductors for Berth 94: Provide all labor, material, equipment and incidentals required to furnish, install and test the conductors as part of a complete system as specified and shown for the lump sum price of -	Lump Sum	385,757.00	385,757.00	431,000.00	431,000.00	359,649.00	359,649.00	336,000.00	336,000.00	340,000.00	340,000.00
ITEM NO. 32 - SPO Receptacles for Berth 90: Provide all labor, material, equipment and incidentals required to furnish, install, test and commission the SPO receptacles as part of a complete system as specified and shown for the lump sum price of -	Lump Sum	114,664.00	114,664.00	102,000.00	102,000.00	243,810.00	243,810.00	257,000.00	257,000.00	160,000.00	160,000.00
ITEM NO. 33 - SPO Receptacles for Berth 92: Provide all labor, material, equipment and incidentals required to furnish, install, test and commission the SPO receptacles as part of a complete system as specified and shown for the lump sum price of -	Lump Sum	114,664.00	114,664.00	102,000.00	102,000.00	269,943.00	269,943.00	257,000.00	257,000.00	160,000.00	160,000.00
ITEM NO. 34 - SPO Receptacles for Berth 94: Provide all labor, material, equipment and incidentals required to furnish, install, test and commission the SPO receptacles as part of a complete system as specified and shown for the lump sum price of -	Lump Sum	117,737.00	117,737.00	102,000.00	102,000.00	243,880.00	243,880.00	257,000.00	257,000.00	160,000.00	160,000.00
ITEM NO. 35 - All Other Electrical Work for Berth 90: Provide all labor, material, equipment and incidentals required to furnish, install, test and commission all other electrical work for Berth 90 ... as specified and shown for the lump sum price of -	Lump Sum	204,842.00	204,842.00	883,000.00	883,000.00	128,770.00	128,770.00	510,000.00	510,000.00	525,000.00	525,000.00
TOTAL:											
CERTIFIED CHECK OR BOND:											

Shimmick Construction Company
LOWEST RESPONSIBLE BIDDER

594575/Exp. 05/31/2012
LICENSE NUMBER

$11,513,850.00
AMOUNT

AUTHORIZED SIGNATURE

Port of LONG BEACH
The Green Port

ANALYSIS OF BIDS
CITY OF LONG BEACH, HARBOR DEPARTMENT

SPECIFICATIONS FOR: Pier A, Berths A88-A96, Shore to Ship Power Retrofit at Pier A Container Terminal | **NO. HD-S2342A** | **DATE OPENED: January 31, 2012**

ITEM	ESTIMATED QUANTITIES	Cupertino Electric, Inc. 1132 N. Seventh Street San Jose, CA 95112 Phone: (562) 641-2400 Fax: (562) 946-9988		Vellutini Corp dba Royal Electric 8481 Carbide Ct Sacramento, CA 95828 Phone: (916) 226-2100 Fax: (916) 226-2150		Comet Electric 7760 Deering Avenue Canoga Park, CA 91304 Phone: (818) 340-0965 Fax: (818) 340-4033		The Ryan Company 15 Commerce Way Norton, MA 02766 Phone: (508) 742-2500 Fax: (508) 742-2540		Marathon Construction Company 10108 Riverford Road Lakeside, CA 92040 Phone: (619) 276-4401 Fax: (619) 276-0717	
		RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT
ITEM NO. 36 - All Other Electrical Work for Berth 92: Provide all labor, material, equipment and incidentals required to furnish, install, test and commission all other electrical work for Berth 92 ... as specified and shown for the lump sum price of -	Lump Sum	108,225.00	108,225.00	91,000.00	91,000.00	51,957.00	51,957.00	272,000.00	272,000.00	68,000.00	68,000.00
ITEM NO. 37 - All Other Electrical Work for Berth 94: Provide all labor, material, equipment and incidentals required to furnish, install, test and commission all other electrical work for Berth 94 ... as specified and shown for the lump sum price of -	Lump Sum	130,900.00	130,900.00	64,000.00	64,000.00	59,268.00	59,268.00	155,000.00	155,000.00	100,000.00	100,000.00
ITEM NO. 38 - Allowance for Load Bank Test Energy Usage: Provide all labor, materials, tools, equipment and incidentals necessary to reimburse the Tenant for energy... The limits and use of the Allowance shall be solely as directed by the Engineer -	Allowance	50,000.00	50,000.00	50,000.00	50,000.00	50,000.00	50,000.00	50,000.00	50,000.00	50,000.00	50,000.00
ITEM NO. 39 - Stand-by Time: Provide all labor, equipment, materials and incidentals necessary to provide approximately twenty-five (25) hours of stand-by time for personnel and equipment, including, but not limited to... for the unit price per hour of -	Unit Price	725.00	18,125.00	1,350.00	33,750.00	855.00	21,375.00	760.00	19,000.00	1,000.00	25,000.00
ITEM NO. 40 - Environmental Protection Plan (E.P.P) Compliance: Provide all labor, equipment, materials and incidentals necessary to develop Environmental Protection Plan, including SWPPP (see Appendix... as specified and shown for the lump sum price of -	Lump Sum	77,042.00	77,042.00	53,000.00	53,000.00	70,394.00	70,394.00	25,000.00	25,000.00	50,000.00	50,000.00
TOTAL:											
CERTIFIED CHECK OR BOND:											

Shimmick Construction Company
LOWEST RESPONSIBLE BIDDER

594575/Exp. 05/31/2012
LICENSE NUMBER

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Port of LONG BEACH
The Green Port

ANALYSIS OF BIDS
CITY OF LONG BEACH, HARBOR DEPARTMENT

SPECIFICATIONS FOR: Pier A, Berths A88-A96, Shore to Ship Power Retrofit at Pier A Container Terminal

NO. HD-S2342A

DATE OPENED: January 31, 2012

		Cupertino Electric, Inc. 1132 N. Seventh Street San Jose, CA 95112 Phone: (562) 641-2400 Fax: (562) 946-9988		Vellutini Corp dba Royal Electric 8481 Carbide Ct Sacramento, CA 95828 Phone: (916) 226-2100 Fax: (916) 226-2150		Comet Electric 7760 Deering Avenue Canoga Park, CA 91304 Phone: (818) 340-0965 Fax: (818) 340-4033		The Ryan Company 15 Commerce Way Norton, MA 02766 Phone: (508) 742-2500 Fax: (508) 742-2540		Marathon Construction Company 10108 Riverford Road Lakeside, CA 92040 Phone: (619) 276-4401 Fax: (619) 276-0717	
ITEM	ESTIMATED QUANTITIES	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT
ITEM NO. 41 - Schedule: Provide all labor, equipment, materials and incidentals necessary to develop and update all schedules complete as specified for the lump sum price of -	Lump Sum	50,000.00	50,000.00	163,000.00	163,000.00	35,196.00	35,196.00	80,000.00	80,000.00	250,000.00	250,000.00
TOTAL:		$13,159,999.00		$13,007,368.00		$13,982,989.00		$14,345,271.00		$14,999,777.00	
CERTIFIED CHECK OR BOND:		10% Bond		10% Bond		10% Bond		10% Bond		10% Bond	

Shimmick Construction Company
LOWEST RESPONSIBLE BIDDER

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ANALYSIS OF BIDS
CITY OF LONG BEACH, HARBOR DEPARTMENT

SPECIFICATIONS FOR: Pier A, Berths A88-A96, Shore to Ship Power Retrofit at Pier A Container Terminal | **NO. HD-S2342A** | **DATE OPENED: January 31, 2012**

		Steiny and Company 221 N. Ardmore Ave Los Angeles, CA 90004 Phone: (213) 341-2149 Fax: (213) 382-0612									
		NON-RESPONSIVE									
ITEM	ESTIMATED QUANTITIES	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT
ITEM NO. 1 - Mobilization and Demobilization: Furnish all labor, materials, tools, equipment, incidentals and supervision necessary to perform... as specified and shown for the lump sum price (of which only 50% may be applied to mobilization) of -	Lump Sum	300,000.00	300,000.00								
ITEM NO. 2 - Site Specific Safety Plan: Provide and implement an approved Site Specific Safety Plan for the lump sum price of -	Lump Sum	10,000.00	10,000.00								
ITEM NO. 3 - Asphalt Concrete Pavement Demolition: Provide all labor, equipment, materials and incidentals necessary to perform demolition, removal and disposal of existing asphalt pavement and... as shown and specified for the lump sum price of -	Lump Sum	126,206.00	126,206.00								
ITEM NO. 4 - Soil Handling and Disposal of Surplus Soil: Provide all labor, equipment, materials and incidentals necessary to stockpile... approximately one thousand one hundred (1,100) tons... as specified and shown for the unit price per ton of -	Unit Price	38.94	42,834.00								
ITEM NO. 5 - Soil Handling and Disposal of Non-Hazardous Waste: Provide all labor, equipment, materials and incidentals necessary to... approximately six hundred fifty (650) tons of Non-Hazardous... as specified and shown for the unit price per ton of -	Unit Price	59.08	38,402.00								
TOTAL:											
CERTIFIED CHECK OR BOND:											

Shimmick Construction Company
LOWEST RESPONSIBLE BIDDER

594575/Exp. 05/31/2012
LICENSE NUMBER

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SPECIFICATIONS FOR: Pier A, Berths A88-A96, Shore to Ship Power Retrofit at Pier A Container Terminal | **NO. HD-S2342A** | **DATE OPENED: January 31, 2012**

		Steiny and Company 221 N. Ardmore Ave Los Angeles, CA 90004 Phone: (213) 341-2149 Fax: (213) 382-0612									
		NON-RESPONSIVE									
ITEM	ESTIMATED QUANTITIES	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT
ITEM NO. 6 - Port Furnished Crushed Miscellaneous Base: Provide all labor, equipment, materials and incidentals necessary to mix, load... approximately two thousand six hundred fifty (2,650) tons... as specified and shown for the unit price per ton of -	Unit Price	47.00	124,550.00								
ITEM NO. 7 - Asphalt Concrete Pavement: Provide all labor, equipment, materials and incidentals necessary to construct approximately two thousand five hundred fifty (2,550) tons of asphalt... as specified and shown for the unit price per ton of -	Unit Price	230.00	586,500.00								
ITEM NO. 8 - 8-Foot Chain Link Fence with Barbed Wire: Provide all labor, material, equipment and incidentals... approx four hundred eighty (480) linear feet of 8-foot chain link... as specified and shown for the unit price per linear foot of -	Unit Price	86.00	41,280.00								
ITEM NO. 9 - Chain Link Gates: Provide all labor, material, equipment and incidentals necessary to furnish and install all chain link gates as specified and shown for the lump sum price of -	Lump Sum	12,754.00	12,754.00								
ITEM NO. 10 - Pipe Bollards, 12-inch: Provide all labor, equipment, materials and incidentals necessary to furnish, install, and coat fifty seven (57) 12-inch diameter pipe bollards, as specified and shown for the unit price per each of -	Unit Price	2,014.00	114,798.00								
TOTAL:											
CERTIFIED CHECK OR BOND:											

Shimmick Construction Company	**594575/Exp. 05/31/2012**	**$11,513,850.00**	
LOWEST RESPONSIBLE BIDDER	LICENSE NUMBER	AMOUNT	AUTHORIZED SIGNATURE

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SPECIFICATIONS FOR: Pier A, Berths A88-A96, Shore to Ship Power Retrofit at Pier A Container Terminal | **NO. HD-S2342A** | **DATE OPENED: January 31, 2012**

		Steiny and Company 221 N. Ardmore Ave Los Angeles, CA 90004 Phone: (213) 341-2149 Fax: (213) 382-0612 NON-RESPONSIVE									
ITEM	ESTIMATED QUANTITIES	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT
ITEM NO. 11 - Bid Item Removed: Bid item removed per Addendum No. 1 Issued January 4, 2012.	Lump Sum	0	0								
ITEM NO. 12 - Repair of Existing Striping: Provide all labor, equipment, materials and incidentals necessary to repair approximately three thousand eight hundred (3,800) linear feet of... as specified and required for the unit price per linear foot of -	Unit Pricie	269.00	1,022,200.00								
ITEM NO. 13 - Repair of Existing Pavement Markings: Provide all labor, equipment, materials and incidentals necessary to repair approximately one hundred fifty five (155) existing markings, as specified and required for the unit price per each of -	Unit Pricie	134.25	20,808.75								
ITEM NO. 14 - Shore Power Outlet Vaults for Berth 90 (SPO 7, SPO 8 & SPO 9): Provide all labor, material, equipment and incidentals necessary to perform demolition and construction of shore to ship... as specified and shown for the lump sum price of -	Lump Sum	516,911.00	516,911.00								
ITEM NO. 15 - Shore Power Outlet Vaults for Berth 92 (SPO 4, SPO 5 & SPO 6): Provide all labor, material, equipment and incidentals necessary to perform demolition and construction of shore to ship... as specified and shown for the lump sum price of -	Lump Sum	516,911.00	516,911.00								
TOTAL:											
CERTIFIED CHECK OR BOND:											

Shimmick Construction Company — LOWEST RESPONSIBLE BIDDER

594575/Exp. 05/31/2012 — LICENSE NUMBER

$11,513,850.00 — AMOUNT

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ANALYSIS OF BIDS
CITY OF LONG BEACH, HARBOR DEPARTMENT

SPECIFICATIONS FOR: Pier A, Berths A88-A96, Shore to Ship Power Retrofit at Pier A Container Terminal | **NO. HD-S2342A** | **DATE OPENED: January 31, 2012**

		Steiny and Company 221 N. Ardmore Ave Los Angeles, CA 90004 Phone: (213) 341-2149 Fax: (213) 382-0612 NON-RESPONSIVE									
ITEM	ESTIMATED QUANTITIES	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT
ITEM NO. 16 - Shore Power Outlet Vaults for Berth 94 (SPO 1, SPO 2 & SPO 3): Povide all labor, material, equipment and incidentals necessary to perform demolition and construction of shore to ship... as specified and shown for the lump sum price of -	Lump Sum	516,911.00	516,911.00								
ITEM NO. 17 - Cut-Off Wall Plug/Penetrations: Provide all labor, material, equipment and incidentals necessary to perform demolition, coring and construction of four (4) cut-off wall plug... as specified and shown for the unit price per each of -	Unit Price	8,055.05	32,220.20								
ITEM NO. 18 - SPO "Dry Run" Cable Connection Support: Provide all labor, materials, tools, equipment and incidentals necessary to support approximately four (4) ship-side "dry... as specified and directed by the Engineer for the unit price per each of -	Unit Price	1,250.00	5,000.00								
ITEM NO. 19 - Ship Testing and Commissioning: Provide all labor, materials, tools, equipment and incidentals necessary to support approximately four (4) ship-side commissioning... as specified and directed by the Engineer for the unit price per each of -	Unit Price	17,796.05	71,184.20								
ITEM NO. 20 - Transformer for Berth 90: Provide al labor, material, equipment, and incidentals required to furnish, install, test and commission the transformer(s) as part of a complete system as specified and shown for the lump sum price of -	Lump Sum	707,440.00	707,440.00								
TOTAL:											
CERTIFIED CHECK OR BOND:											

Shimmick Construction Company
LOWEST RESPONSIBLE BIDDER

594575/Exp. 05/31/2012
LICENSE NUMBER

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SPECIFICATIONS FOR: Pier A, Berths A88-A96, Shore to Ship Power Retrofit at Pier A Container Terminal | **NO. HD-S2342A** | **DATE OPENED: January 31, 2012**

		Steiny and Company 221 N. Ardmore Ave Los Angeles, CA 90004 Phone: (213) 341-2149 Fax: (213) 382-0612									
		NON-RESPONSIVE									
ITEM	ESTIMATED QUANTITIES	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT
ITEM NO. 21 - Transformer for Berth 92: Provide al labor, material, equipment, and incidentals required to furnish, install, test and commission the transformer(s) as part of a complete system as specified and shown for the lump sum price of -	Lump Sum	707,440.00	707,440.00								
ITEM NO. 22 - Transformer for Berth 94: Provide al labor, material, equipment, and incidentals required to furnish, install, test and commission the transformer(s) as part of a complete system as specified and shown for the lump sum price of -	Lump Sum	707,440.00	707,440.00								
ITEM NO. 23 - Switchgear Assembly for Berth 90: Provide all labor, material, equipment and incidentals required to furnish, install, test and commission the switchgear assembly as part of a complete... as specified and shown for the lump sum price of -	Lump Sum	1,781,839.00	1,781,839.00								
ITEM NO. 24 - Switchgear Assembly for Berth 92: Provide all labor, material, equipment and incidentals required to furnish, install, test and commission the switchgear assembly as part of a complete... as specified and shown for the lump sum price of -	Lump Sum	1,465,896.00	1,465,896.00								
ITEM NO. 25 - Switchgear Assembly for Berth 94: Provide all labor, material, equipment and incidentals required to furnish, install, test and commission the switchgear assembly as part of a complete... as specified and shown for the lump sum price of -	Lump Sum	1,501,827.00	1,501,827.00								
TOTAL:											
CERTIFIED CHECK OR BOND:											

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SPECIFICATIONS FOR: Pier A, Berths A88-A96, Shore to Ship Power Retrofit at Pier A Container Terminal | **NO. HD-S2342A** | **DATE OPENED: January 31, 2012**

		Steiny and Company 221 N. Ardmore Ave Los Angeles, CA 90004 Phone: (213) 341-2149 Fax: (213) 382-0612 NON-RESPONSIVE									
ITEM	ESTIMATED QUANTITIES	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT
ITEM NO. 26 - Ductbanks and Raceways for Berth 90: Provide all labor, material, equipment and incidentals required to furnish and install the ductbanks and raceways as part of a complete system as specified and shown for the lump sum price of -	Lump Sum	727,666.00	727,666.00								
ITEM NO. 27 - Ductbanks and Raceways for Berth 92: Provide all labor, material, equipment and incidentals required to furnish and install the ductbanks and raceways as part of a complete system as specified and shown for the lump sum price of -	Lump Sum	777,400.00	777,400.00								
ITEM NO. 28 - Ductbanks and Raceways for Berth 94: Provide all labor, material, equipment and incidentals required to furnish and install the ductbanks and raceways as part of a complete system as specified and shown for the lump sum price of -	Lump Sum	569,505.00	569,505.00								
ITEM NO. 29 - Conductors for Berth 90: Provide all labor, material, equipment and incidentals required to furnish, install and test the conductors as part of a complete system as specified and shown for the lump sum price of -	Lump Sum	407,685.00	407,685.00								
ITEM NO. 30 - Conductors for Berth 92: Provide all labor, material, equipment and incidentals required to furnish, install and test the conductors as part of a complete system as specified and shown for the lump sum price of -	Lump Sum	570,934.00	570,934.00								
TOTAL:											
CERTIFIED CHECK OR BOND:											

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		Steiny and Company 221 N. Ardmore Ave Los Angeles, CA 90004 Phone: (213) 341-2149 Fax: (213) 382-0612 NON-RESPONSIVE									
ITEM	ESTIMATED QUANTITIES	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT
ITEM NO. 31 - Conductors for Berth 94: Provide all labor, material, equipment and incidentals required to furnish, install and test the conductors as part of a complete system as specified and shown for the lump sum price of -	Lump Sum	347,513.00	347,513.00								
ITEM NO. 32 - SPO Receptacles for Berth 90: Provide all labor, material, equipment and incidentals required to furnish, install, test and commission the SPO receptacles as part of a complete system as specified and shown for the lump sum price of -	Lump Sum	259,726.00	259,726.00								
ITEM NO. 33 - SPO Receptacles for Berth 92: Provide all labor, material, equipment and incidentals required to furnish, install, test and commission the SPO receptacles as part of a complete system as specified and shown for the lump sum price of -	Lump Sum	259,726.00	259,726.00								
ITEM NO. 34 - SPO Receptacles for Berth 94: Provide all labor, material, equipment and incidentals required to furnish, install, test and commission the SPO receptacles as part of a complete system as specified and shown for the lump sum price of -	Lump Sum	259,726.00	259,726.00								
ITEM NO. 35 - All Other Electrical Work for Berth 90: Provide all labor, material, equipment and incidentals required to furnish, install, test and commission all other electrical work for Berth 90 ... as specified and shown for the lump sum price of -	Lump Sum	660,975.00	660,975.00								
TOTAL:											
CERTIFIED CHECK OR BOND:											

Shimmick Construction Company
LOWEST RESPONSIBLE BIDDER

594575/Exp. 05/31/2012
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File: Bid Analysis HD-S2342A Segredo[BID ANALYSIS] 1/31/2012 3:04 PM

Port of LONG BEACH
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ANALYSIS OF BIDS
CITY OF LONG BEACH, HARBOR DEPARTMENT

SPECIFICATIONS FOR: Pier A, Berths A88-A96, Shore to Ship Power Retrofit at Pier A Container Terminal | **NO. HD-S2342A** | **DATE OPENED: January 31, 2012**

		Steiny and Company 221 N. Ardmore Ave Los Angeles, CA 90004 Phone: (213) 341-2149 Fax: (213) 382-0612 NON-RESPONSIVE									
ITEM	ESTIMATED QUANTITIES	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT
ITEM NO. 36 - All Other Electrical Work for Berth 92: Provide all labor, material, equipment and incidentals required to furnish, install, test and commission all other electrical work for Berth 92 ... as specified and shown for the lump sum price of -	Lump Sum	153,354.00	153,354.00								
ITEM NO. 37 - All Other Electrical Work for Berth 94: Provide all labor, material, equipment and incidentals required to furnish, install, test and commission all other electrical work for Berth 94 ... as specified and shown for the lump sum price of -	Lump Sum	223,576.00	223,576.00								
ITEM NO. 38 - Allowance for Load Bank Test Energy Usage: Provide all labor, materials, tools, equipment and incidentals necessary to reimburse the Tenant for energy... The limits and use of the Allowance shall be solely as directed by the Engineer -	Allowance	50,000.00	50,000.00								
ITEM NO. 39 - Stand-by Time: Provide all labor, equipment, materials and incidentals necessary to provide approximately twenty-five (25) hours of stand-by time for personnel and equipment, including, but not limited to... for the unit price per hour of -	Unit Price	805.52	20,138.00								
ITEM NO. 40 - Environmental Protection Plan (E.P.P) Compliance: Provide all labor, equipment, materials and incidentals necessary to develop Environmental Protection Plan, including SWPPP (see Appendix... as specified and shown for the lump sum price of -	Lump Sum	75,928.00	75,928.00								
TOTAL:											
CERTIFIED CHECK OR BOND:											

Shimmick Construction Company
LOWEST RESPONSIBLE BIDDER

594575/Exp. 05/31/2012
LICENSE NUMBER

$11,513,850.00
AMOUNT

AUTHORIZED SIGNATURE

Port of LONG BEACH
The Green Port

ANALYSIS OF BIDS
CITY OF LONG BEACH, HARBOR DEPARTMENT

SPECIFICATIONS FOR: Pier A, Berths A88-A96, Shore to Ship Power Retrofit at Pier A Container Terminal

NO. HD-S2342A

DATE OPENED: January 31, 2012

		Steiny and Company 221 N. Ardmore Ave Los Angeles, CA 90004 Phone: (213) 341-2149 Fax: (213) 382-0612 NON-RESPONSIVE									
ITEM	ESTIMATED QUANTITIES	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT	RATE	AMOUNT
ITEM NO. 41 - Schedule: Provide all labor, equipment, materials and incidentals necessary to develop and update all schedules complete as specified for the lump sum price of -	Lump Sum	20,000.00	20,000.00								
TOTAL:		$16,355,204.15									
CERTIFIED CHECK OR BOND:		10% Bond									

Shimmick Construction Company
LOWEST RESPONSIBLE BIDDER

594575/Exp. 05/31/2012
LICENSE NUMBER

$11,513,850.00
AMOUNT

AUTHORIZED SIGNATURE

File: Bid Analysis HD-S2342A Sagredo[BID ANALYSIS] 1/31/2012 3:04 PM

Progress Payment No. 15
Period Ending: OCTOBER 1 THRU NOVEMBER 13, 2014
PAYMENT DUE : 12-14-14
Specification: HD-S2342A Shore to Ship Retrofit at Pier A, Berths A88-A96
Contractor: Shimmick Construction Company

LBHD Contract No: HD-7912
Original Bid Amt: $11,513,850

Item No.	Item	Unit	Est. Qty.	Unit Price	Bid Amount	Qty This Month	A90 $ Amount This Month	A92 $ Amount This Month	A94 $ Amount This Month	Previous Qty or %	% of Item Comp	TOTAL $ Amount to Date
1	Mobilization and Demobilization	Lump Sum	1	130,000.00	130,000.00	0%	-	-	-	100%	100%	130,000.00
2	Site Specific Safety Plan	Lump Sum	1	15,000.00	15,000.00	0%	-	-	-	100%	100%	15,000.00
3	Asphalt Concrete Pavement Demolition	Lump Sum	1	150,000.00	150,000.00	0%	-	-	-	100%	100%	150,000.00
4	Soil Handling and Disposal of Surplus Soil	Tons	1100	10.00	11,000.00	-		-		862.43	78%	8,624.30
5	Soil Handling and Disposal of Non-Hazardous Waste	Tons	650	80.00	52,000.00	-	-	-	-	2,000.56	308%	160,044.64
6	Port Furnished Crushed Miscellaneous Base	Tons	2,650	15.00	39,750.00	-	-	-	-	2,137.65	81%	32,064.75
7	Asphalt Concrete Pavement	Tons	2,550	89.00	226,950.00	-	-	-	-	2,291.07	90%	203,905.23
8	8-Foot Chain Link Fence with Barbed Wire	LF	480	40.00	19,200.00	-	-	-	-	480.00	100%	19,200.00
9	Chain Link Gates	Lump Sum	1	15,000.00	15,000.00	0%	-	-	-	100%	100%	15,000.00
10	Pipe Bollards, 12-inch	Each	57	1,200.00	68,400.00	-			-	60.00	105%	72,000.00
11	Bid Item Removed	-	1	-	-	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12	Repair of Existing Striping	LF	3,800	1.00	3,800.00	-	-	-	-	5,747.00	151%	5,747.00
13	Repair of Existing Pavement Markings	Each	155	50.00	7,750.00	-	-	-	-	148.00	95%	7,400.00
14	Shore Power Outlet Vaults for Berth 90 (SPO 7, SPO 8 & SPO 9)	Lump Sum	1	250,000.00	250,000.00	0%	-	N/A	N/A	100%	100%	250,000.00
15	Shore Power Outlet Vaults for Berth 92 (SPO 4, SPO 5 & SPO 6)	Lump Sum	1	250,000.00	250,000.00	0%	N/A	-	N/A	100%	100%	250,000.00
16	Shore Power Outlet Vaults for Berth 94 (SPO 1, SPO 2 & SPO 3)	Lump Sum	1	250,000.00	250,000.00	0%	N/A	N/A	-	100%	100%	250,000.00
17	Cut-Off Wall Plug/Penetrations	Each	4	7,000.00	28,000.00	-	-	-	-	4.00	100%	28,000.00
18	SPO "Dry Run" Cable Connection Support	Each	4	3,000.00	12,000.00	-	-	-	-	2.00	50%	6,000.00
19	Ship Testing and Commissioning	Each	4	15,000.00	60,000.00	-	-	-	-	3.00	75%	45,000.00
20	Transformer for Berth 90	Lump Sum	1	650,000.00	650,000.00	0.00%	-	N/A	N/A	100%	100%	650,000.00
21	Transformer for Berth 92	Lump Sum	1	650,000.00	650,000.00	0.00%	-	-	N/A	100%	100%	650,000.00
22	Transformer for Berth 94	Lump Sum	1	650,000.00	650,000.00	0.00%	-	N/A	-	100%	100%	650,000.00
23	Switchgear Assembly for Berth 90	Lump Sum	1	1,750,000.00	1,750,000.00	0.00%	-	N/A	N/A	100%	100%	1,750,000.00
24	Switchgear Assembly for Berth 92	Lump Sum	1	1,475,000.00	1,475,000.00	0.00%	N/A	-	N/A	100%	100%	1,475,000.00
25	Switchgear Assembly for Berth 94	Lump Sum	1	1,500,000.00	1,500,000.00	0.00%	N/A	N/A	-	100%	100%	1,500,000.00
26	Ductbanks and Raceways for Berth 90	Lump Sum	1	500,000.00	500,000.00	0%	-	N/A	N/A	100%	100%	500,022.00

Progress Payment No. 15
Period Ending: OCTOBER 1 THRU NOVEMBER 13, 2014
PAYMENT DUE : 12-14-14
Specification: HD-S2342A Shore to Ship Retrofit at Pier A, Berths A88-A96
Contractor: Shimmick Construction Company

LBHD Contract No: HD-7912
Original Bid Amt: $11,513,850

Item No.	Item	Unit	Est. Qty.	Unit Price	Bid Amount	Qty This Month	A90 $ Amount This Month	A92 $ Amount This Month	A94 $ Amount This Month	Previous Qty or %	% of Item Comp	TOTAL $ Amount to Date
27	Ductbanks and Raceways for Berth 92	Lump Sum	1	450,000.00	450,000.00	0%	N/A	-	N/A	100%	100%	450,000.00
28	Ductbanks and Raceways for Berth 94	Lump Sum	1	325,000.00	325,000.00	0%	N/A	N/A	-	100%	100%	325,000.00
29	Conductors for Berth 90	Lump Sum	1	300,000.00	300,000.00	0%	-	N/A	N/A	100%	100%	300,000.00
30	Conductors for Berth 92	Lump Sum	1	300,000.00	300,000.00	0%	N/A	-	N/A	100%	100%	300,000.00
31	Conductors for Berth 94	Lump Sum	1	325,000.00	325,000.00	0%	N/A	N/A	-	100%	100%	325,000.00
32	SPO Receptacles for Berth 90	Lump Sum	1	100,000.00	100,000.00	0%	-	N/A	N/A	100%	100%	100,000.00
33	SPO Receptacles for Berth 92	Lump Sum	1	100,000.00	100,000.00	0%	N/A	-	N/A	100%	100%	100,000.00
34	SPO Receptacles for Berth 94	Lump Sum	1	100,000.00	100,000.00	0%	N/A	N/A	-	100%	100%	100,000.00
35	All Other Electrical Work for Berth 90	Lump Sum	1	475,000.00	475,000.00	0%	-	N/A	N/A	100%	100%	475,000.00
36	All Other Electrical Work for Berth 92	Lump Sum	1	70,000.00	70,000.00	0%	N/A	-	N/A	100%	100%	70,000.00
37	All Other Electrical Work for Berth 94	Lump Sum	1	105,000.00	105,000.00	0%	N/A	-	-	100%	100%	105,000.00
38	Allowance for Load Bank Test Energy Usage	Allowance	1	50,000.00	50,000.00		0	0	0	1%	1%	707.61
39	Stand-by Time	Hour	25	1,000.00	25,000.00	-			-	5	20%	5,000.00
40	Environmental Protection Plan (E.P.P) Compliance	Lump Sum	1	20,000.00	20,000.00	0%	-	-	-	100%	100%	20,000.00
41	Schedule	Lump Sum	1	5,000.00	5,000.00	0%	0	0	0	100%	100%	5,000.00
	CHANGE ORDERS						-	-	-			
	CHANGE ORDER #1	Lump Sum	1	2,660.13		0%	-			100%	100%	2,660.13
	CHANGE ORDER #2 - WORK											
	CHANGE ORDER #3L	Lump Sum	1	185,000.00		0%	-	-		100%	100%	185,000.00
	CHANGE ORDER #4	L	1	10,230.67			-	-	-	100%	100%	10,230.67
	CHANGE ORDER # 5	Lump Sum	1	38,737.84			-	-	-	100%	100%	38,737.84
	CHANGE ORDER #6	Lump Sum	1	251,913.40			83,971.13	83,971.13	83,971.14	0%	100%	251,913.40
TOTALS				488,542.04	11,513,850.00	2.19%	$ 83,971.13	$ 83,971.13	$ 83,971.14	97.82%	100%	$ 11,992,257.57
	NEW CONTRACT AMOUNT			**12,002,392.04**								$ -

Progress Payment No. 15
Period Ending: OCTOBER 1 THRU NOVEMBER 13, 2014
PAYMENT DUE : 12-14-14
Specification: HD-S2342A Shore to Ship Retrofit at Pier A, Berths A88-A96
Contractor: Shimmick Construction Company

LBHD Contract No: HD-7912
Original Bid Amt: $11,513,850

Item No.	Item	Unit	Est. Qty.	Unit Price	Bid Amount	Qty This Month	A90 $ Amount This Month	A92 $ Amount This Month	A94 $ Amount This Month	Previous Qty or %	% of Item Comp	TOTAL $ Amount to Date

CM Initials

Victor Sagredo 12/4/14

Victor Sagredo
Project Manger

Date

SIGN HERE

Suzanne C. Plezia P.E.
Director of Construction Management

Date

SIGN HERE

INITIAL HERE

Gross Earnings:	$ 11,992,257.57
Previous Payments:	$ 11,670,247.87
Previous Retention:	$ (70,096.32)
Earned This Period:	$ 251,913.40
STOP NOTICE R J NOBLE $13,310.88+25%	$ (16,638.60)
Less Retention: E	$ -
RELEASE STOP NOTICE R J NOBLE $13,310.88+25%	$ 16,638.60
AMOUNT DUE THIS ESTIMATE:	$ 251,913.40

BPO No.	INDEX CODE	PROJ	PROJ DET	Subobject Code
BPHA12000126	HACDCMCN	HA1314	1H2342A	210009

ATTACHMENT B
Prop 1B Shore Power Infrastructure Costs

Costs Accrued Per Berth - Pier A

A90

Contract Cost Category Description	Contract Cost Category No.	Corresponding Bid Item No.	Cost Estimates (Submitted 11-2012)	Progress Payment No. 1	2	3	4	5	6	7	8	9	10	11	12	13	TOTAL TO DATE
Mobilization and Demobilization	1	1	$43,333.33	$21,666.00													$21,666.00
Chain-Link Fence and Gates	2	8, 9	$11,400.00											$1,300.00	$2,880.00		$4,180.00
Pipe Bollards	3	10	$22,800.00														$0.00
Pavement (including striping)	4	3, 7, 12, 13	$79,500.00		$12,951.71	$34,389.23	$26,685.00	$18,382.50	$26,407.14	$550.00	$1,530.00	$1,585.00				$3,415.52	$125,896.10
Relocation of utilities	5	n/a	$0.00														$0.00
Transformers	6	20	$650,000.00					$560,000.00		$63,750.00				$4,500.00	$20,500.00	$750.00	$649,500.00
Switchgear assembly(s)	7	23	$1,750,000.00						$81,000.00	$1,339,600.00			$6,000.00	$48,000.00	$247,200.00	$6,000.00	$1,727,800.00
Ductbanks and raceways	8	26	$500,000.00	$6,053.54	$11,275.42	$86,538.14	$159,127.61	$91,580.97	$95,446.32		$22,000.00	$25,000.00				$500.00	$497,522.00
Conductors	9	29	$300,000.00										$16,000.00	$22,853.00	$198,750.00	$50,250.00	$287,853.00
SPO Receptacles	10	32	$100,000.00			$85,000.00						$11,400.00					$96,400.00
SPO Vaults	11	14	$250,000.00				$160,700.00	$18,225.00	$2,075.00	$46,000.00	$10,500.00		$7,500.00			$5,000.00	$250,000.00
All other electrical work	12	35	$475,000.00	$17,555.56	$8,777.78	$8,777.78	$8,777.78	$8,777.78	$124,777.78	$8,777.78	$8,777.78	$8,777.78	$8,777.78	$109,277.78	$77,577.78	$27,797.78	$427,208.92
Commissioning and testing	13	19, 38	$20,000.00												$200.00	$1,400.00	$1,600.00
Demolition	14	n/a	$50,000.00														$0.00
Soil, excavation, fill and waste handling	15	4, 5, 6	$34,250.00			$3,957.75	$29,616.60		$28,290.00							$30,826.67	$92,691.02
Other costs*	16	2, 39, 40, 41, 17, 18	$51,666.67	$1,488.00	$740.33	$740.33	$740.33	$740.33	$14,740.33	$740.33	$740.33	$740.33	$740.33	$740.33	$740.33	$740.33	$24,371.96
Change Order #1												$2,660.13					$2,660.13
Change Order #2																	$0.00
Change Order #3												$35,000.00		$7,500.00			$42,500.00
Total Berth Cost			$4,337,950	$46,763.10	$33,745.24	$219,403.23	$385,647.32	$697,706.58	$372,736.57	$1,459,418.11	$43,548.11	$85,163.24	$39,018.11	$194,171.11	$547,848.11	$126,680.30	$4,251,849.13
			Cost Breakdown														
			Labor ($)	$0.00	$22,669.89	$15,006.18	$43,666.76	$17,576.56	$23,990.62	$34,395.30	$27,354.00	$22,160.27	$0.00	$45,262.70	$15,458.86	$18,031.25	
			Labor (man-hours)	0	452.50	281.00	843.00	344.50	429.00	684.25	508.40	387.50	0.00	856.50	281.50	305.00	
			Materials	$6,825.74	$9,763.79	$111,975.75	$159,990.31	$555,285.46	$190,949.10	$1,983,738.06	$7,699.24	$7,024.26	$0.00	$18,588.43	$96,163.74	$1,780.25	
			Equipment	$0.00	$7,149.60	$5,814.10	$18,026.20	$7,750.53	$16,774.88	$6,709.60	$563.55	$0.00	$0.00	$2,743.65	$1,193.40	$754.40	
			Other	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00		$0.00	$0.00	$0.00	$0.00			

A92

Contract Cost Category Description	Contract Cost Category No.	Corresponding Bid Item No.	Cost Estimates (Submitted 11-2012)	Progress Payment No. 1	2	3	4	5	6	7	8	9	10	11	12	13	TOTAL TO DATE
Mobilization and Demobilization	1	1	$43,333.33	$21,666.00													$21,666.00
Chain-Link Fence and Gates	2	8, 9	$11,400.00											$1,300.00			$1,300.00
Pipe Bollards	3	10	$22,800.00														$0.00
Pavement (including striping)	4	3, 7, 12, 13	$79,500.00								$73,864.43	$45,746.00		$5,450.00		$3,415.52	$128,475.95
Relocation of utilities	5	n/a	$0.00														$0.00
Transformers	6	21	$650,000.00					$560,000.00		$63,750.00				$4,500.00	$20,500.00		$648,750.00
Switchgear assembly(s)	7	24	$1,475,000.00							$1,222,300.00					$226,500.00	$6,000.00	$1,454,800.00
Ductbanks and raceways	8	27	$450,000.00			$12,000.00	$17,800.00	$25,200.00			$266,300.00	$83,700.00		$39,820.00	$2,680.00		$447,500.00
Conductors	9	30	$300,000.00										$7,500.00		$212,000.00	$67,700.00	$287,200.00
SPO Receptacles	10	33	$100,000.00			$85,000.00							$10,800.00		$600.00		$96,400.00
SPO Vaults	11	15	$250,000.00				$152,000.00				$85,500.00				$7,500.00	$4,700.00	$249,700.00
All other electrical work	12	36	$70,000.00	$7,792.00	$3,888.00	$3,888.00	$3,888.00	$3,888.00	$3,888.00	$3,888.00	$3,888.00	$3,888.00	$3,888.00	$3,888.00	$3,888.00	$9,721.00	$60,281.00
Commissioning and testing	13	19, 38	$20,000.00												$200.00	$1,400.00	$1,600.00
Demolition	14	n/a	$50,000.00														$0.00
Soil, excavation, fill and waste handling	15	4, 5, 6	$34,250.00								$42,815.00	$5,325.00	$8,624.30	$104,382.80		$30,826.67	$191,973.77
Other costs*	16	2, 39, 40, 41, 17, 18	$51,666.67	$1,488.00	$740.33	$740.33	$740.33	$740.33	$740.33	$740.33	$7,740.33	$740.33	$740.33	$740.33	$740.33	$740.33	$17,371.96
Change Order #1																	$0.00
Change Order #2																	$0.00
Change Order #3												$50,000.00		$7,500.00		$8,800.00	$106,300.00
Total Berth Cost			$3,607,950	$30,946.00	$4,628.33	$101,628.33	$174,428.33	$589,828.33	$4,628.33	$1,290,678.33	$480,107.76	$229,399.33	$31,552.63	$167,581.13	$474,608.33	$133,303.52	$3,713,316.68
			Cost Breakdown														
			Labor ($)	$0.00	$0.00	$0.00	$21,833.38	$17,576.56	$0.00	$847.81	$76,398.39	$15,851.64	$0.00	$25,622.31	$20,113.49	$18,270.80	
			Labor (man-hours)	0.00	0.00	0.00	421.50	344.50	0.00	15.25	1,442.50	279.50	0.00	432.10	372.00	308.00	
			Materials	$772.20	$3,590.93	$98,741.48	$137,740.31	$575,988.93	$3,726.88	$1,872,326.20	$37,705.32	$22,766.37	$3,861.87	$3,861.87	$91,025.16		
			Equipment	$0.00	$0.00	$0.00	$9,084.60	$2,065.65	$0.00	$140.40	$8,192.60	$1,444.30	$0.00	$976.95	$1,872.00	$70.20	
			Other	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00		$0.00	$0.00	$0.00				

A94

Contract Cost Category Description	Contract Cost Category No.	Corresponding Bid Item No.	Cost Estimates (Submitted 11-2012)	Progress Payment No. 1	2	3	4	5	6	7	8	9	10	11	12	13	TOTAL TO DATE
Mobilization and Demobilization	1	1	$43,333.33	$21,666.00													$21,666.00
Chain-Link Fence and Gates	2	8, 9	$11,400.00										$4,120.00		$4,380.00		$8,500.00
Pipe Bollards	3	10	$22,800.00													$12,000.00	$12,000.00
Pavement (including striping)	4	3, 7, 12, 13	$79,500.00									$3,300.00	$24,876.19	$35,760.18		$3,415.52	$67,351.89
Relocation of utilities	5	n/a	$0.00														$0.00
Transformers	6	22	$650,000.00							$623,750.00				$4,500.00	$20,500.00		$648,750.00
Switchgear assembly(s)	7	25	$1,500,000.00							$1,201,050.00			$35,500.00	$12,500.00	$223,750.00	$6,000.00	$1,478,800.00
Ductbanks and raceways	8	28	$325,000.00			$12,000.00	$17,800.00	$25,200.00				$39,323.00	$93,467.00	$92,050.00	$40,460.00	$2,200.00	$322,500.00
Conductors	9	31	$325,000.00										$10,000.00		$192,000.00	$54,000.00	$256,000.00
SPO Receptacles	10	34	$100,000.00			$85,000.00						$3,600.00			$7,800.00		$96,400.00
SPO Vaults	11	16	$250,000.00				$152,000.00					$42,299.00	$34,135.00	$14,566.00	$2,000.00	$4,700.00	$249,700.00
All other electrical work	12	37	$105,000.00	$11,672.00	$5,833.00	$5,833.00	$5,833.00	$5,833.00	$5,833.00	$5,833.00	$5,833.00	$5,833.00	$5,833.00	$5,833.00	$5,833.00		$75,835.00
Commissioning and testing	13	19, 38	$20,000.00												$200.00	$1,400.00	$1,600.00
Demolition	14	n/a	$50,000.00														$0.00
Soil, excavation, fill and waste handling	15	4, 5, 6	$34,250.00										$750.00	$115,932.80		$30,826.67	$147,509.47

Other costs*	16	2, 39, 40, 41, 17, 18	$51,666.67	$1,488.00	$740.33	$740.33	$740.33	$740.33	$740.33	$740.33	$740.33	$1,740.33	$740.33	$4,240.33	$1,440.33	$3,740.33	$18,571.96
Change Order #1																	$0.00
Change Order #2																	$0.00
Change Order #3																	$0.00
Total Berth Cost			$3,567,950	$34,826.00	$6,573.33	$103,573.33	$176,373.33	$31,773.33	$6,573.33	$1,831,373.33	$6,573.33	$96,095.33	$209,421.52	$285,382.31	$498,363.33	$118,282.52	$3,405,184.32
			Cost Breakdown														
			Labor ($)	$0.00	$0.00	$0.00	$21,833.38	$0.00	$0.00	$1,766.13	$0.00	$37,472.27	$0.00	$37,174.00	$20,272.89	$18,131.39	
			Labor (man-hours)	0.00	0.00	0.00	421.50	0.00	0.00	32.00	0.00	703.00	0.00	673.30	374.50	306.50	
			Materials	$772.20	$6,003.00	$99,972.79	$137,740.31	$30,251.90	$5,773.72	$1,980,795.16	$5,973.20	$7,904.60	$5,440.52	$33,711.66	$92,066.73		
			Equipment	$0.00	$0.00	$0.00	$9,084.60	$0.00	$0.00	$2,250.52	$0.00	$2,853.50	$0.00	$4,989.29	$2,033.55	$153.68	
			Other	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00		$0.00	$0.00	$0.00				

Actual Port Payment Amounts (Less Retentions)

	8/30/2012	9/30/2012	10/30/2012	11/30/2012	12/31/2012	1/31/2013	2/28/2013	3/31/2013	4/30/2013	5/31/2013	6/30/2013	7/31/2013	8/31/2013
A90	$44,424.94	$32,057.98	$208,433.07	$366,364.95	$662,821.25	$347,294.90	$1,386,447.20	$41,370.70	$87,710.31	$37,067.21	$184,462.56	$520,455.71	$120,346.29
A92	$29,398.70	$4,396.91	$96,546.91	$165,706.92	$560,336.92	$4,396.91	$1,226,144.42	$456,102.38	$217,929.36	$29,975.00	$159,202.07	$450,877.91	$126,638.34
A94	$33,084.70	$6,244.66	$98,394.66	$167,554.66	$30,184.66	$6,244.66	$1,739,804.66	$6,244.66	$91,290.56	$198,950.44	$271,113.19	$473,445.16	$112,368.39
Total	$106,908.34	$42,699.56	$403,374.64	$699,626.53	$1,253,342.83	$357,936.47	$4,352,396.28	$503,717.74	$396,930.23	$265,992.65	$614,777.82	$1,444,778.78	$359,353.02

		A90				A92				A94			
Progress Payment No.	Period Ending	Paid		Retention		Paid		Retention		Paid		Retention	
		Amount	Check No.	Amount	Check No.	Amount	Check No.	Amount	Check No.	Amount	Check No.	Amount	Check No.
1	8/30/2012	$44,424.94	1010292	$2,338.16	1010294	$29,398.70	1010292	$1,547.30	1010294	$33,084.70	1010292	$1,741.30	1010294
2	9/30/2012	$32,057.98	1011437	$1,687.26	1011438	$4,396.91	1011437	$231.42	1011438	$6,244.66	1011437	$328.67	1011438
3	10/30/2012	$208,433.07	1017592	$10,970.16	1017593	$96,546.91	1017592	$5,081.42	1017593	$98,394.66	1017592	$5,178.67	1017593
4	11/30/2012	$366,364.95	1023063	$19,282.37	1023064	$165,706.92	1023063	$8,721.42	1023064	$167,554.66	1023063	$8,818.67	1023064
5	12/31/2012	$662,821.25	1027973	$34,885.33	1027972	$560,336.92	1027973	$29,491.42	1027972	$30,184.66	1027973	$1,588.66	1027972
6	1/31/2013	$347,294.90	1033258	$18,636.85	1033260	$4,396.91	1033258	$231.42	1033260	$6,244.66	1033258	$328.66	1033260
7	2/28/2013	$1,386,447.20	1037109	$72,970.91	1037110	$1,226,144.42	1037109	$64,553.92	1037110	$1,739,804.66	1037109	$91,568.66	1037110
8	3/31/2013	$41,370.70	1039225	$2,177.40	1039226	$456,102.38	1039225	$24,005.39	1039226	$6,244.66	1039225	$328.67	1039226
9	4/30/2013	$87,710.31	1043037	$4,258.16	1043038	$217,929.36	1043037	$11,469.97	1043038	$91,290.56	1043037	$4,804.77	1043038
10	5/31/2013	$37,067.21	1045328	$1,950.90	1045329	$29,975.00	1045328	$1,577.63	1045329	$198,950.44	1045328	$10,471.08	1045329
11	6/30/2013	$184,462.56	1051035	$9,708.55	1051036	$159,202.07	1051035	$8,379.06	1051036	$271,113.19	1051035	$14,269.12	1051036
12	7/31/2013	$520,455.71	1054083	$27,392.40	1054084	$450,877.91	1054083	$23,730.42	1054084	$473,445.16	1054083	$24,918.17	1054084
13	8/31/2013	$120,346.29	1059186	$6,334.02	1059187	$126,638.39	1059186	$6,665.18	1059187	$112,368.39	1059186	$5,914.12	1059187
TOTAL		$4,039,257.07		$212,592.47		$3,527,652.80		$185,685.97		$3,234,925.06		$170,259.22	
GRAND TOTAL		$4,251,849.54				$3,713,338.77							

G236				Progress Payment No.														
Contract Cost Category Description	Contract Cost Category No.	Corresponding Bid Item No.	Cost Estimates (Submitted 11-2012)	1	2	3	4	5	6	7	8	9	10	11	12	13	TOTAL
Mobilization and Demobilization	1	4, 5	$ 350,000.00	$ 169,998.00	$ 3,000.04	$ 6,000.07	$ 3,000.04	$ 3,000.04	$ 3,000.04	$ 3,000.04	$ 3,000.04	$ 3,000.04	$ 3,000.03	$ 3,000.04	$ 58,930.70	$ 61,670.72	$ 323,599.84
Chain-Link Fence and Gates	2	3, 16, 17	$ 260,000.00	$ 102,142.86	$ -	$ 40,000.00	$ -	$ 33,571.43	$ -	$ 29,285.71		$ 20,000.00	$ 27,300.00	$ 7,283.33	$ 416.67		$ 260,000.00
Pipe Bollards	3	n/a	$ -	$ -	$ -	$ -	$ -	$ -	$ -								$ -
Pavement (including striping)	4	15	$ 15,000.00	$ -	$ -	$ -	$ -	$ -	$ 4,950.00	$ 4,950.00		$ 5,100.00					$ 15,000.00
Relocation of utilities	5	n/a	$ -	$ -	$ -	$ -	$ -	$ -	$ -								$ -
Transformers	6	19	$ 650,000.00	$ -	$ -	$ -	$ 635,000.00	$ -	$ -		$ 7,500.00	$ 7,500.00					$ 650,000.00
Switchgear assembly(s)	7	20, 24	$ 3,195,000.00	$ -	$ -	$ 1,517,500.00	$ 321,998.30	$ 146,854.96	$ -	$ 45,245.90	$ 844,525.00	$ 483,875.84	$ 90,000.00	$ 3,500.00	$ 76,500.00		$ 3,530,000.00
Ductbanks and raceways	8	21	$ 1,300,000.00	$ 50,500.00	$ 76,913.46	$ 170,315.01	$ 201,817.70	$ 171,727.91	$ 259,572.60	$ 195,170.07	$ 145,693.03	$ 28,290.19					$ 1,299,999.97
Conductors	9	22	$ 600,000.00	$ -	$ -	$ -	$ -	$ -	$ -	$ 5,000.00	$ 5,000.00	$ 171,000.00	$ 332,000.00	$ 87,000.00			$ 600,000.00
SPO Receptacles	10	23	$ 350,000.00	$ -	$ 272,000.00	$ 20,000.00	$ 10,000.00	$ -	$ -	$ 20,000.00	$ 10,000.00			$ 18,000.00			$ 350,000.00
SPO Vaults	11	18	$ 500,000.00	$ -	$ 6,000.00	$ 204,583.33	$ 84,916.67	$ -	$ 118,750.00	$ 64,750.00	$ 21,000.00						$ 500,000.00
All other electrical work	12	25	$ 535,000.00	$ 47,969.88	$ 10,859.27	$ 21,718.59	$ 10,859.29	$ 10,859.29	$ 10,859.29	$ 10,859.29	$ 10,859.28	$ 10,859.29	$ 10,859.30	$ 10,859.29	$ 32,577.88		$ 199,999.94
Commissioning and testing	13	26	$ 187,500.00	$ -	$ -	$ -	$ -	$ -	$ -					$ 1,085.65	$ 30,000.00	$ 11,250.00	$ 42,335.65
Demolition	14	n/a	$ -	$ -	$ -	$ -	$ -	$ -	$ -								$ -
Soil, excavation, fill and waste handling	15	8, 9, 10, 11, 12, 14	$ 295,400.00	$ -	$ 16,588.00	$ 24,112.54	$ 34,496.13	$ 48,600.25	$ 22,650.74	$ 47,287.37	$ 33,652.58	$ 29,356.37		$ 100.00	$ (12,109.00)		$ 244,734.98
Other costs*	16	1, 2, 6, 7, 13, 27, 28, 29	$ 310,000.00	$ 34,815.80	$ 7,870.31	$ 43,064.50	$ 9,193.84	$ 7,870.31	$ 7,870.31	$ 20,370.31	$ 12,870.31	$ 7,870.31	$ 7,870.30	$ 12,664.65	$ 21,280.50	$ 3,406.86	$ 197,018.31
Change Order 1																	$ -
Change Order 2							$ 24,725.82										$ 24,725.82
Change Order 3																	$ -
Change Order 4											$ 20,138.44						$ 20,138.44
Total Berth Cost			$ 8,547,900.00	$ 405,426.54	$ 393,231.08	$ 2,047,294.04	$ 1,336,007.79	$ 422,484.19	$ 427,652.98	$ 445,918.69	$ 1,114,238.68	$ 766,852.04	$ 471,029.63	$ 143,492.96	$ 207,596.75	$ 76,327.58	$ 8,257,552.95
			Cost Breakdown														
			Labor ($)	$7,272.59	$12,827.76	$75,503.95	$94,544.61	$56,838.11	$82,809.64	$78,928.94	$141,743.04	$88,905.63	$42,895.98	$68,206.99	$33,322.71	$16,527.70	$800,327.65
			Labor (man-hours)	99.00	275.75	1,513.50	1,673.00	996.00	950.70	1,430.50	2,511.00	1,572.00	826.00	1,181.50	589.00	282.50	13,900.45
			Materials	$69,181.54	$285,375.31	$1,561,028.21	$738,870.99	$216,772.90	$123,909.57	$110,219.21	$572,256.82	$243,134.87	$259,784.60	$113,883.30	$151,748.49	$462.31	$4,446,628.12
			Equipment	$5,456.46	$14,875.66	$5,642.23	$2,607.32	$16,544.75	$8,254.61	$10,908.59	$6,213.98	$6,524.54	$1,356.88	$10,206.64	$300.48	$1,001.60	$89,893.74
			Other	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00

Port Payments

	Payment 1 (October 2012)	Payment 2 (January 2013)	Payment 3 (January 2013)	Payment 4 (12/31/2013)	Payment 5 (1/31/2013	Payment 6 (2/282013)	Payment 7 (3/31/2013)	Payment 8 (4/30/2013)	Payment 9 (5/31/2013)	Payment 10 (5/31/2013)	Payment 11 (7/31/2013)	Payment 12 (8/31/2013)	Payment 13 (9/30/2013)	
	Amount	Amount	Amount	Amount	Amount	Amount	Amount	Amount	Amount	Amount	Amount	Amount	Amount	
G236	$405,426.54	$393,231.08	$2,047,294.04	$ 1,336,007.78	$422,484.19	$427,652.98	$445,918.69	$1,114,238.68	$766,852.04	$471,029.63	$143,492.96	$207,596.75	$76,327.58	
Contractor Invoice Amount (less retentions)	$385,155.21	$373,569.52	$1,944,929.34	$1,269,207.39	$390,859.98	$416,770.33	$419,622.76	$1,062,526.75	$727,709.44	$419,278.15	$130,418.31	$214,616.91	$75,657.97	
Port Payment to Contractor	$385,155.21	$373,569.52	$1,944,929.34	$1,269,207.39	$390,859.98	$416,770.33	$419,622.76	$1,062,526.75	$727,709.44	$419,278.15	$130,418.31	$214,616.91	$75,657.97	
Port Set Aside for Retention	$20,271.33	$19,661.56	$102,364.70	$66,800.39	$21,124.21	$21,382.65	$22,295.93	$55,711.93	$38,342.60	$23,551.48	$7,174.65	$10,379.84	$7,853.23	
Check Totals	$405,426.54	$393,231.08	$2,047,294.04	$1,336,007.78	$411,984.19	$438,152.98	$441,918.69	$1,118,238.68	$766,052.04	$442,829.63	$137,592.96	$224,996.75	$83,511.20	$8,247,236.56

I245					Progress Payment No.																	
Contract Cost Category Description	Contract Cost Category No.	Corresponding Bid Item No.	Cost Estimates (Submitted 11-2012)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16**	TOTAL
Mobilization and Demobilization	1	4, 5	$ 333,750.00	$ 100,500.00	$ 49,500.00	$ -	$ -	$ -	$ -							$ 27,000.00	$ 67,875.00	$ 4,500.00	$ 26,250.00	$ 275,625.00
Chain-Link Fence and Gates	2	3, 16, 17	$ 398,250.00	$ 212,000.00	$ 45,250.00	$ 3,000.00	$ 24,750.00	$ 3,000.00	$ 3,000.00	$ 3,000.00	$ 3,000.00	$ 3,000.00	$ 3,000.00	$ 3,000.00	$ 52,000.00	$ 19,950.00	$ 16,000.00			$ 393,950.00
Pipe Bollards	3	n/a	$ -	$ -	$ -	$ -	$ -	$ -	$ -											$ -
Pavement (including striping)	4	14, 15	$ 12,000.00	$ -	$ -	$ 1,034.00	$ 3,540.00	$ 1,531.50	$ -				$ 3,382.50	$ (4,841.00)		$ 1,404.50				$ 6,051.50
Relocation of utilities	5	n/a	$ -	$ -	$ -	$ -	$ -	$ -	$ -											$ -
Transformers	6	22	$ 600,000.00	$ -	$ -	$ -	$ -	$ -	$ -						$ 583,000.00	$ 12,000.00	$ 5,000.00			$ 600,000.00
Switchgear assembly(s)	7	26	$ 1,112,440.00	$ -	$ -	$ -	$ -	$ -	$ -					$ 1,094,940.00		$ 7,500.00	$ 10,000.00			$ 1,112,440.00
Ductbanks and raceways	8	30	$ 1,500,000.00	$ 187,080.00	$ 100,530.00	$ 357,700.00	$ 361,705.00	$ 23,060.00	$ 154,035.00	$ 105,760.00	$ 78,900.00	$ 238,150.00	$ 92,150.00							$ 1,500,000.00
Conductors	9	34	$ 400,000.00	$ -	$ -	$ -	$ -	$ -	$ -		$ 320,000.00	$ 1,500.00			$ 68,500.00	$ 7,500.00	$ 2,500.00			$ 400,000.00
SPO Receptacles	10	38	$ 150,000.00	$ -	$ -	$ -	$ 125,000.00	$ -	$ -			$ 5,000.00			$ 7,500.00	$ 5,000.00	$ 7,500.00			$ 150,000.00
SPO Vaults	11	18	$ 400,000.00	$ -	$ -	$ -	$ 250,000.00	$ -	$ -	$ 25,000.00	$ 65,000.00		$ 60,000.00							$ 400,000.00
All other electrical work	12	42	$ 150,000.00	$ 70,000.00	$ -	$ -	$ 70,000.00	$ -	$ -									$ 5,000.00	$ 2,500.00	$ 147,500.00
Commissioning and testing	13	49	$ 100,000.00	$ -	$ -	$ -	$ -	$ -	$ -											$ -
Demolition	14	n/a	$ -	$ -	$ -	$ -	$ -	$ -	$ -											$ -
Soil, excavation, fill and waste handling	15	8, 9, 10, 11, 12, 13	$ 215,390.00	$ 3,280.00	$ 18,609.00	$ 18,232.00	$ 46,572.25	$ 21,296.75	$ 14,601.50	$ 20,793.25	$ 28,574.00	$ 13,789.00	$ 13,013.75	$ (8,754.00)	$ (21,290.00)	$ 29,014.00	$ (3,510.00)			$ 192,221.44
Other costs*	16	1, 2, 6, 7, 46, 47, 48	$ 262,500.00	$ 40,875.00	$ 6,437.50	$ 6,437.50	$ 6,437.50	$ 11,207.50	$ 6,437.50	$ 18,937.50	$ 6,437.50	$ 6,437.50	$ 43,937.50	$ 6,437.50	$ 6,437.50	$ 66,437.50	$ 13,937.50	$ 9,167.50	$ 3,500.00	$ 259,500.00
Change Order #2 - R14A (acceleration)							$ 10,000.00													$ 10,000.00
Change Order #2 (GCC rounding)							$ 2,625.75													$ 2,625.75
Change Order #3									$ 6,397.60											$ 6,397.60
Change Order #4									$ 72,542.10	$ 10,042.10	$ 10,042.10	$ 10,042.10	$ 10,042.10	$ 10,042.10	$ 10,042.10	$ 10,042.10	$ 10,042.10	$ 10,042.10		$ 342,301.50
Change Order #5											$ 18,937.50									$ 18,937.50
Change Order #6													$ 10,500.00							$ 10,500.00
Change Order #7																				$ -
Change Order #8													$ 13,177.00	$ 3,165.00			$ 12,754.51			$ 29,096.51
Change Order #9																		$ 10,780.00		$ 10,780.00
Change Order #10																			$ 14,294.75	$ 14,294.75
Total Berth Cost			$ 5,834,330.00	$ 813,735.00	$ 320,326.50	$ 386,403.50	$ 720,613.50	$ 60,995.75	$ 240,013.10	$ 209,532.85	$ 550,851.10	$ 285,918.60	$ 366,731.85	$ 1,124,007.54	$ 726,189.80	$ 205,868.10	$ 162,049.11	$ 59,489.60	$ 48,544.75	$ 5,905,349.45
			Cost Breakdown																	
			Labor ($)	$11,398.38	$36,325.28	$60,406.67	$67,465.81	$38,485.03	$51,849.95	$68,743.17	$75,072.22	$270,248.52	$191,535.07	$16,855.38	$52,160.89	$63,385.34	$24,588.28	$329.56	$13,683.38	$1,042,530.53
			Labor (man-hours)	337.39	591.18	943.67	1,133.38	626.10	856.45	1,160.66	1,257.20	3,848.33	3,060.15	281.40	898.25	1,191.00	483.40	7.00	182.00	16,856
			Materials	$89,606.14	$81,605.79	$125,142.66	$260,111.02	$199,546.64	$14,345.95	$21,688.36	$191,364.94	$390,174.41	$58,918.26	$1,222,208.18	$551,460.02	$458,237.67	$54,755.55	$21,553.81	$2,274.16		$3,796,717.80
			Equipment	$3,046.86	$24,846.50	$17,106.61	$3,759.16	$0.00	$0.00	$24,813.33	$28,639.64	$35,442.03	$37,524.33	$441.45	$0.00	$0.00	$0.00				$193,719.12
			Other	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00			$0.00		$0.00				$0.00

**Not submitted to AQMD.

I247					Progress Payment No.																	
Contract Cost Category Description	Contract Cost Category No.	Corresponding Bid Item No.	Cost Estimates (Submitted 11-2012)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16**	TOTAL
Mobilization and Demobilization	1	4, 5	$ 333,750.00	$ 100,500.00	$ 49,500.00	$ -	$ -	$ -	$ -							$ 27,000.00	$ 67,875.00	$ 4,500.00	$ 26,250.00	$ 275,625.00
Chain-Link Fence and Gates	2	3, 16, 17	$ 398,250.00	$ 212,000.00	$ 45,250.00	$ 3,000.00	$ 24,750.00	$ 3,000.00	$ 3,000.00	$ 3,000.00	$ 3,000.00	$ 3,000.00	$ 3,000.00	$ 3,000.00	$ 52,000.00	$ 19,950.00	$ 16,000.00			$ 393,950.00
Pipe Bollards	3	n/a	$ -	$ -	$ -	$ -	$ -	$ -	$ -											$ -
Pavement (including striping)	4	14, 15	$ 12,000.00	$ -	$ -	$ 1,034.00	$ 3,540.00	$ 1,531.50	$ -				$ 3,382.50	$ (4,841.00)		$ 1,404.50				$ 6,051.50
Relocation of utilities	5	n/a	$ -	$ -	$ -	$ -	$ -	$ -	$ -											$ -
Transformers	6	23	$ 600,000.00	$ -	$ -	$ -	$ -	$ -	$ -						$ 583,000.00	$ 12,000.00	$ 5,000.00			$ 600,000.00
Switchgear assembly(s)	7	27	$ 1,000,000.00	$ -	$ -	$ -	$ -	$ -	$ -					$ 982,500.00	$ 10,000.00	$ 7,500.00	$ 10,000.00			$ 1,000,000.00
Ductbanks and raceways	8	31	$ 1,500,000.00	$ 159,760.00	$ 48,330.00	$ 274,990.00	$ 242,465.00	$ 292,280.00	$ 40,425.00	$ 10,800.00	$ 37,710.00	$ 42,480.00	$ 79,760.00	$ 207,000.00	$ 69,100.00					$ 1,500,000.00
Conductors	9	35	$ 200,000.00	$ -	$ -	$ -	$ -	$ -	$ -		$ 160,000.00	$ 1,500.00			$ 36,500.00		$ 2,000.00			$ 200,000.00
SPO Receptacles	10	39	$ 100,000.00	$ -	$ -	$ -	$ 80,000.00	$ -	$ 2,500.00						$ 7,500.00	$ 4,000.00	$ 6,000.00			$ 100,000.00
SPO Vaults	11	19	$ 500,000.00	$ -	$ -	$ 57,500.00	$ 257,500.00	$ 35,000.00	$ -				$ 115,000.00	$ 35,000.00						$ 500,000.00
All other electrical work	12	43	$ 150,000.00	$ 70,000.00	$ -	$ -	$ 70,000.00	$ -	$ -									$ 5,000.00	$ 2,500.00	$ 147,500.00
Commissioning and testing	13	49	$ 100,000.00	$ -	$ -	$ -	$ -	$ -	$ -											$ -
Demolition	14	n/a	$ -	$ -	$ -	$ -	$ -	$ -	$ -											$ -
Soil, excavation, fill and waste handling	15	8, 9, 10, 11, 12, 13	$ 215,390.00	$ 3,280.00	$ 18,609.00	$ 18,232.00	$ 46,572.25	$ 21,296.75	$ 14,601.50	$ 20,793.25	$ 28,574.00	$ 13,789.00	$ 13,013.75	$ (8,754.00)	$ (21,290.00)	$ 29,014.00	$ (3,510.00)			$ 192,221.44
Other costs*	16	1, 2, 6, 7, 46, 47, 48	$ 262,500.00	$ 40,875.00	$ 6,437.50	$ 6,437.50	$ 6,437.50	$ 11,207.50	$ 6,437.50	$ 18,937.50	$ 6,437.50	$ 6,437.50	$ 43,937.50	$ 6,437.50	$ 6,437.50	$ 66,437.50	$ 13,937.50	$ 9,167.50	$ 3,500.00	$ 259,500.00
Change Order #2 - R14A (acceleration)							$ 10,000.00													$ 10,000.00
Change Order #2 (GCC rounding)							$ 2,625.75													$ 2,625.75
Change Order #3									$ 42,397.60											$ 42,397.60
Change Order #4									$ 72,542.10	$ 10,042.10	$ 10,042.10	$ 10,042.10	$ 10,042.10	$ 10,042.10	$ 10,042.10	$ 10,042.10	$ 10,042.10	$ 10,042.10		$ 342,301.50
Change Order #5											$ 18,937.50									$ 18,937.50
Change Order #6													$ 10,500.00							$ 10,500.00
Change Order #7																				$ -
Change Order #8													$ 13,177.00	$ 3,165.00			$ 12,754.51			$ 29,096.51
Change Order #9																		$ 10,780.00		$ 10,780.00
Change Order #10																			$ 14,294.75	$ 14,294.75
Total Berth Cost			$ 5,371,890.00	$ 586,415.00	$ 168,026.50	$ 363,193.50	$ 763,871.50	$ 364,315.75	$ 180,903.10	$ 83,572.85	$ 284,761.10	$ 95,248.60	$ 304,112.85	$ 1,328,567.54	$ 783,289.60	$ 197,348.10	$ 160,049.11	$ 59,489.60	$ 48,544.75	$ 5,667,709.43
			Cost Breakdown																	
			Labor ($)	$11,398.38	$36,325.28	$60,406.67	$72,441.76	$38,485.03	$51,849.95	$68,827.50	$59,933.88	$21,128.93	$95,510.08	$143,781.91	$49,979.01	$35,842.80	$20,993.19	$258.04	$11,507.21	
			Labor (man-hours)	337.39	591.18	943.67	1,211.38	652.10	58.1	910.4	971.9	315.9	1,458.7	2,338.3	1,258.3	678.0	412.3	5.5	160.0	
			Materials	$89,606.14	$81,605.79	$125,142.66	$215,958.52	$154,487.77	$0.00	$11,247.73	$151,978.75	$309,475.24	$57,997.18	$672,956.13	$1,126,128.85	$4,945.46	$45,519.07	$19,541.83	$2,274.16		
			Equipment	$3,046.86	$24,846.50	$17,106.61	$3,759.16	$0.00	$0.00	$12,426.37	$29,012.83	$18,597.73	$8,558.36	$353.16	$0.00	$0.00	$0.00				
			Other	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00			$0.00	$0.00	$0.00				

**Not submitted to AQMD.

I266					Progress Payment No.																	
Contract Cost Category Description	Contract Cost Category No.	Corresponding Bid Item No.	Cost Estimates (Submitted 11-2012)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16**	TOTAL
Mobilization and Demobilization	1	4, 5	$ 333,750.00	$ 100,500.00	$ 49,500.00	$ -	$ -	$ -								$ 27,000.00	$ 67,875.00	$ 4,500.00	$ 26,250.00	$ 275,625.00
Chain-Link Fence and Gates	2	3, 16, 17	$ 398,250.00	$ 212,000.00	$ 45,250.00	$ 3,000.00	$ 24,750.00	$ 3,000.00	$ 3,000.00	$ 3,000.00	$ 3,000.00	$ 3,000.00	$ 3,000.00	$ 17,250.00	$ 38,250.00	$ 19,950.00	$ 16,000.00			$ 382,450.00
Pipe Bollards	3	n/a	$ -	$ -	$ -	$ -	$ -	$ -												$ -
Pavement (including striping)	4	14, 15	$ 12,000.00	$ -	$ -	$ 1,034.00	$ 3,540.00	$ 1,531.50												$ 6,051.50
Relocation of utilities	5	n/a	$ -	$ -	$ -	$ -	$ -	$ -												$ -
Transformers	6	24	$ 600,000.00	$ -	$ -	$ -	$ 149,270.00	$ 113,650.00	$ 177,520.00	$ 363,220.00	$ 192,500.00		$ 7,500.00							$ 600,000.00
Switchgear assembly(s)	7	28	$ 2,000,000.00	$ -	$ -	$ -	$ -	$ -			$ 1,982,500.00		$ 17,500.00							$ 2,000,000.00
Ductbanks and raceways	8	32	$ 2,000,000.00	$ 226,180.00	$ 211,400.00	$ 316,410.00	$ 141,000.00	$ -			$ 317,600.00	$ 25,830.00	$ 50,920.00		$ 48,000.00					$ 2,000,000.00
Conductors	9	36	$ 500,000.00	$ -	$ -	$ -	$ 300,000.00	$ -			$ 401,200.00	$ 48,800.00	$ 15,400.00	$ 34,400.00						$ 500,000.00
SPO Receptacles	10	40	$ 170,000.00	$ -	$ -	$ -	$ 70,000.00	$ -			$ 14,000.00			$ 12,000.00		$ 3,000.00				$ 170,000.00
SPO Vaults	11	20	$ 580,000.00	$ -	$ -	$ -	$ -	$ -		$ 25,000.00	$ 231,000.00	$ 24,000.00								$ 580,000.00
All other electrical work	12	44	$ 150,000.00	$ 70,000.00	$ -	$ -	$ 70,000.00	$ -										$ 5,000.00	$ 2,500.00	$ 147,500.00
Commissioning and testing	13	50	$ 100,000.00	$ -	$ -	$ -	$ -	$ -												$ -

Demolition	14	n/a	$ -	$ -	$ -	$ -	$ -	$ -															$ -
Soil, excavation, fill and waste handling	15	8, 9, 10, 11, 12, 13	$ 215,390.00	$ 3,280.00	$ 18,609.00	$ 18,232.00	$ 46,572.25	$ 21,296.75	$ 14,601.50	$ 20,793.25	$ 28,574.00	$ 11,789.00	$ 13,013.75	$ (8,754.00)	$ (21,200.00)	$ 29,014.00	$ (3,510.00)					$ 192,221.44
Other costs*	16	1, 2, 6, 7, 46, 47, 48	$ 262,500.00	$ 40,875.00	$ 6,437.50	$ 6,437.50	$ 6,437.50	$ 11,207.50	$ 18,937.50	$ 43,937.50	$ 6,437.50	$ 6,437.50	$ 6,437.50	$ 6,437.50	$ 6,437.50	$ 66,437.50	$ 13,937.50	$ 9,167.50	$ 3,500.00			$ 259,500.00
Change Order #2 (SCE grounding)						$ 2,606.75																$ 2,606.75
Change Order #3									$ 5,281.50													$ 5,281.50
Change Order #4									$ 72,542.10	$ 30,042.10	$ 30,042.10	$ 30,042.10	$ 30,042.10	$ 30,042.10	$ 30,042.10							$ 252,794.70
Change Order #5											$ (24,524.00)					$ 30,941.10	$ 30,941.10	$ 30,941.10				$ 67,059.30
Change Order #6												$ 22,500.00	$ 5,000.00									$ 27,500.00
Change Order #7														$ 43,460.00								$ 43,460.00
Change Order #8																						$ -
Change Order #9																	$ 16,486.00					$ 16,486.00
Change Order #10																			$ 14,294.75			$ 14,294.75
Total Berth Cost			$ 7,321,890.00	$ 652,855.00	$ 331,196.50	$ 345,113.50	$ 744,176.50	$ 150,885.75	$ 291,932.60	$ 485,992.85	$ 3,582,426.60	$ 171,798.60	$ 152,895.85	$ 130,000.54	$ 99,439.60	$ 173,868.10	$ 127,344.60	$ 69,295.60	$ 46,544.75			$ 7,531,469.94
			Cost Breakdown																			
			Labor ($)	$11,398.38	$36,325.28	$60,406.67	$77,072.81	$45,599.71	$3,957.20	$176,117.91	$116,184.11	$18,772.03	$23,086.36	$14,724.27	$19,527.81	$7,643.12	$17,936.08	$12,340.79	$12,358.49			
			Labor (man-hours)	337.39	591.18	943.67	1,285.88	744.80	38.05	3,038.95	2,039.60	361.35	409.70	905.23	328.00	130.00	354.00	196.30	199.00			
			Materials	$99,606.14	$81,605.79	$125,142.06	$304,263.53	$232,505.35	$0.00	$52,998.15	$2,039,879.10	$393,156.43	$191,426.25	$68,432.01	$8,883.82	$18,042.96	$80.97	$48,703.99	$2,274.16			
			Equipment	$3,046.88	$24,946.50	$17,106.61	$3,759.16	$0.00	$0.00	$83,031.33	$30,270.76	$3,520.00	$6,331.08	$519.74	$0.00	$0.00	$0.00					
			Other	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00			$0.00	$0.00	$0.00					

**Not submitted to AQMD.

J270				Progress Payment No.																	
Contract Cost Category Description	Contract Cost Category No.	Corresponding Bid Item No.	Cost Estimates (Submitted 11-2012)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16**	TOTAL
Mobilization and Demobilization	1	4, 5	$ 333,750.00	$ 100,000.00	$ 49,500.00	$ -	$ -	$ -	$ -							$ 27,000.00	$ 67,675.00	$ 4,500.00	$ 26,250.00	$ 275,425.00
Chain-Link Fence and Gates	2	3, 16, 17	$ 398,250.00	$ 212,000.00	$ 45,250.00	$ 3,000.00	$ 34,750.00	$ 3,000.00	$ 3,000.00	$ 3,000.00	$ 3,000.00	$ 3,000.00	$ 3,000.00	$ 17,250.00	$ 36,250.00	$ 19,950.00	$ 16,000.00			$ 382,450.00
Pipe Bollards	3	n/a	$ -	$ -	$ -	$ -	$ -	$ -	$ -											$ -
Pavement (including striping)	4	14, 15	$ 12,000.00	$ -	$ -	$ 1,034.00	$ 3,540.00	$ 1,531.50	$ -				$ 3,382.50	$ (4,841.00)		$ 1,404.50				$ 6,051.50
Relocation of Utilities	5	n/a	$ -	$ -	$ -	$ -	$ -	$ -	$ -											$ -
Transformers	6	25	$ 600,000.00	$ -	$ -	$ -	$ -	$ -	$ -		$ 592,500.00		$ 7,500.00							$ 600,000.00
Switchgear assembly(s)	7	29	$ 2,200,000.00	$ -	$ -	$ -	$ -	$ -	$ -		$ 2,182,500.00		$ 17,500.00							$ 2,200,000.00
Duct banks and raceways	8	33	$ 1,500,000.00	$ 131,220.00	$ 128,400.00	$ 283,560.00	$ 155,600.00	$ 55,560.00	$ 372,220.00	$ 203,480.00	$ 150,240.00	$ 8,460.00	$ 9,240.00		$ 2,000.00					$ 1,500,000.00
Conductors	9	37	$ 400,000.00	$ -	$ -	$ -	$ -	$ -	$ -		$ 342,900.00	$ 12,950.00	$ 11,250.00	$ 32,900.00						$ 400,000.00
SPO Receptacles	10	41	$ 150,000.00	$ -	$ -	$ -	$ 125,000.00	$ -	$ -		$ 12,500.00			$ 7,500.00			$ 5,000.00			$ 150,000.00
SPO Vaults	11	23	$ 550,000.00	$ -	$ -	$ -	$ 250,000.00	$ 25,500.00	$ 86,000.00	$ 52,500.00	$ 116,000.00	$ 20,000.00								$ 550,000.00
All other electrical work	12	45	$ 350,000.00	$ 70,000.00	$ -	$ -	$ 70,000.00	$ -	$ -									$ 5,000.00	$ 2,500.00	$ 147,500.00
Commissioning and testing	13	50	$ 300,000.00	$ -	$ -	$ -	$ -	$ -	$ -											$ -
Demolition	14	n/a	$ -	$ -	$ -	$ -	$ -	$ -	$ -											$ -
Soil, excavation, fill and waste handling	15	8, 9, 10, 11, 12, 13	$ 215,390.00	$ 3,280.00	$ 18,609.00	$ 18,232.00	$ 46,572.25	$ 21,296.75	$ 14,601.50	$ 20,793.25	$ 28,574.00	$ 11,789.00	$ 13,013.75	$ (8,754.00)	$ (21,200.00)	$ 29,014.00	$ (3,510.00)			$ 192,221.44
Other costs*	16	1, 2, 6, 7, 46, 47, 48	$ 262,500.00	$ 40,875.00	$ 6,437.50	$ 6,437.50	$ 6,437.50	$ 11,207.50	$ 18,937.50	$ 43,937.50	$ 6,437.50	$ 6,437.50	$ 6,437.50	$ 6,437.50	$ 6,437.50	$ 66,437.50	$ 13,937.50	$ 9,167.50	$ 3,500.00	$ 259,500.00
Change Order #2 (SCE grounding)						$ 2,606.75														$ 2,606.75
Change Order #3									$ 5,281.50											$ 5,281.50
Change Order #4									$ 72,542.10	$ 30,042.10	$ 30,042.10	$ 30,042.10	$ 30,042.10	$ 30,042.10	$ 30,042.10					$ 252,794.70
Change Order #5											$ (24,524.00)					$ 30,941.10	$ 30,941.10	$ 30,941.10		$ 67,059.30
Change Order #6												$ 22,500.00	$ 5,000.00							$ 27,500.00
Change Order #7														$ 43,460.00						$ 43,460.00
Change Order #8																				$ -
Change Order #9																		$ 21,191.00		$ 21,191.00
Change Order #10																			$ 14,294.75	$ 14,294.75
Total Berth Cost			$ 6,871,890.00	$ 557,875.00	$ 348,196.50	$ 312,283.50	$ 684,506.50	$ 118,315.75	$ 572,432.60	$ 353,752.85	$ 3,440,389.60	$ 114,878.60	$ 106,863.85	$ 124,000.54	$ 53,459.60	$ 173,848.10	$ 120,344.60	$ 69,810.60	$ 46,544.75	$ 7,106,064.94
			Cost Breakdown																		
			Labor ($)	$11,398.38	$36,325.28	$60,406.67	$102,361.41	$43,014.65	$25,058.54	$68,743.17	$85,972.71	$50,903.86	$6,748.35	$44,101.78	$14,925.86	$6,396.82	$14,364.62	$329.56	$15,412.81		
			Labor (man-hours)	337.39	591.18	943.67	1,685.38	714.20	1,343.05	1,160.06	1,463.85	799.13	135.75	730.34	260.45	108.00	283.40	7.00	175.50		
			Materials	$99,606.14	$81,605.79	$125,142.06	$266,111.02	$195,046.53	$24,001.90	$21,688.36	$1,398,023.38	$396,117.85	$219,922.50	$56,502.35	$10,497.05	$9,736.78	$67.47	$10,054.99	$2,274.16		
			Equipment	$3,046.88	$24,946.50	$17,106.61	$3,759.16	$0.00	$0.00	$24,812.52	$26,639.64	$22,290.59	$2,600.00	$441.45	$0.00	$0.00	$0.00				
			Other	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00			$0.00	$0.00	$0.00				

**Not submitted to AQMD.

		J243				J247				J266				J279			
Progress Payment No.	Period Ending	Paid		Retention		Paid		Retention		Paid		Retention		Paid		Retention	
		Amount	Check No.	Amount	Check No.	Amount	Check No.	Amount	Check No.	Amount	Check No.	Amount	Check No.	Amount	Check No.	Amount	Check No.
1	8/31/2012	$583,048.25	1010181	$30,686.75	1010182	$557,094.25	1010181	$29,320.75	1010182	$626,193.25	1010181	$32,641.75	1010182	$529,981.25	1010181	$27,893.75	1010182
2	9/30/2013	$209,310.17	1011927	$11,016.33	1011928	$159,625.17	1011927	$8,401.32	1011928	$334,658.68	1011927	$16,559.82	1011928	$235,786.68	1011927	$12,409.82	1011928
3	10/31/2012	$367,083.33	1017464	$19,320.17	1017465	$342,133.83	1017464	$18,059.07	1017465	$327,857.83	1017464	$17,255.68	1017465	$296,650.33	1017464	$15,613.18	1017465
4	11/30/2012	$684,580.92	1021977	$36,030.58	1021978	$725,677.92	1021977	$38,193.58	1021978	$706,967.48	1021977	$37,208.82	1021978	$650,281.18	1021977	$34,225.32	1021978
5	12/31/2012	$57,945.96	1024872	$3,049.79	1025171	$346,099.98	1024872	$18,215.79	1025171	$143,341.47	1024872	$7,544.28	1025171	$112,709.96	1024872	$5,905.79	1025171
6	1/31/2013	$247,012.45	1027782	$13,000.66	1027783	$171,857.95	1027782	$9,045.16	1027783	$277,354.97	1027782	$14,597.63	1027783	$544,219.97	1027782	$28,622.63	1027783
7	2/28/2013	$193,356.21	1032025	$10,176.64	1032275	$71,194.21	1032025	$4,178.65	1032275	$453,493.20	1032025	$24,299.64	1032275	$207,865.21	1032025	$17,687.64	1032275
8	3/31/2013	$521,403.55	1033020	$27,547.56	1033021	$268,223.05	1033020	$14,238.06	1033021	$3,401,009.12	1033020	$179,121.43	1033021	$1,265,861.21	1033020	$172,008.47	1033021
9	4/30/2013	$296,122.67	1040057	$14,795.93	1040058	$106,986.17	1040057	$4,762.43	1040058	$171,708.67	1040057	$8,589.93	1040058	$119,444.67	1040057	$5,733.93	1040058
10	5/31/2013	$239,661.31	1045607	$13,436.65	1045608	$273,272.31	1045607	$15,205.64	1045608	$129,426.26	1045607	$7,634.79	1045608	$85,887.66	1045607	$5,343.29	1045608
11	7/7/2013	$1,067,389.06	1050792	$56,200.38	1050960	$1,166,721.06	1050792	$61,428.38	1050960	$123,042.42	1050792	$6,560.02	1050960	$117,342.40	1050792	$6,280.01	1050960
12	8/9/2013	$668,564.71	1054167	$36,309.48	1054168	$714,409.71	1054167	$38,364.48	1054168	$65,157.21	1054167	$4,871.98	1054168	$21,452.21	1054167	$2,671.98	1054168
13	8/31/2013	$233,274.10	1060205	$10,292.40	1060206	$225,199.11	1060205	$9,867.41	1060206	$202,874.11	1060205	$8,692.40	1060206	$202,874.11	1060205	$8,692.41	1060206
14	9/31/2013	$144,669.32	1064295	$8,102.45	1064296	$142,769.32	1064295	$8,002.46	1064296	$111,700.83	1064295	$6,367.23	1064296	$113,600.83	1064295	$6,467.23	1064296
15	10/31/2013	$43,946.45	1069034	$2,974.48	1069035	$43,946.45	1069034	$2,974.48	1069035	$49,367.15	1069034	$3,259.78	1069035	$53,751.39	1069034	$3,490.53	1069035
16**	12/11/2013	$46,544.75		$2,327.24		$46,544.75		$2,327.24		$46,544.75		$2,327.24		$46,544.75		$2,327.24	
TOTAL		$5,597,913.21		$299,267.49		$5,357,155.27		$283,385.50		$7,146,708.70		$377,572.47		$6,723,592.91		$355,303.24	
GRAND TOTAL		$5,897,180.70				$5,640,540.72				$7,524,281.17				$7,078,896.15			

T132/134				Progress Payment No.													
Contract Cost Category Description	Contract Cost Category No.	Corresponding Bid Item No.	Cost Estimates (Submitted 11-2012)	1	2	3	4	5	6	7	8	9	10	11	12	TOTAL
Mobilization and Demobilization	1	1	$290,262.61	$ 145,131.30	$ -	$ -	$ -								$ 72,565.65	$ 217,696.95
Chain-Link Fence and Gates	2	8, 9, 10	$11,909.20	$ 1,087.09	$ 2,183.82	$ -	$ -			$ 2,079.93	$ 419.32			$ 3,690.05		$ 9,460.21
Pipe Bollards	3	11, 12, 13	$67,175.38	$ -	$ -	$ -	$ 17,781.68		$ 28,430.04					$ 12,684.97	$ 6,373.69	$ 65,270.38
Pavement (including striping)	4	14, 15, 16, 42	$37,178.77	$ -	$ 961.87	$ -	$ 59.38	$ 181.69				$ 419.33	419.32	$ 733.81		$ 2,775.40
Relocation of utilities	5	17	$6,709.15	$ -	$ -	$ -	$ -			$ 500.00				$ 8,418.29	$ 8,418.29	$ 17,336.58
Transformers	6	21	$709,593.23	$ -	$ -	$ -	$ -					$ 632,247.57			$ 77,345.66	$ 709,593.23
Switchgear assembly(s)	7	25	$2,105,417.86	$ -	$ -	$ -	$ -							$ 2,105,417.86		$ 2,105,417.86
Ductbanks and raceways	8	29	$765,573.51	$ -	$ -	$ 24,242.11	$ 12,856.36							$ 469,609.46	$ 258,865.58	$ 765,573.51
Conductors	9	33	$692,948.22	$ -	$ -	$ -	$ 73,622.29	$ 453,871.78						$ 14,127.01	$ 148,497.14	$ 690,118.22
SPO Receptacles	10	37	$453,919.50	$ -	$ -	$ -	$ 107,933.60							$ 235,120.03	$ 110,827.88	$ 453,881.51
SPO Vaults	11	n/a	$0	$ -	$ -	$ -	$ -									$ -
All other electrical work	12	41	$89,190.97	$ -	$ -	$ -	$ -								$ 80,903.47	$ 80,903.47
Commissioning and testing	13	45, 46	$37,831.79	$ -	$ -	$ -	$ -									$ -
Demolition	14	4	$8,408.06	$ -	$ -	$ -	$ -						$ 1,105.25	$ 4,417.50	$ 1,443.55	$ 6,966.30
Soil, excavation, fill and waste handling	15	2, 5, 6, 7	$67,641.20	$ -	$ -	$ 631.67	$ 2,672.02			$ 7,702.15	$ 3,052.14	$ 559.00	$ 1,397.50	$ 4,104.11	$ 4,005.66	$ 24,124.25
Other costs*	16	3, 43, 44	$19,219.67	$ 262.08	$ 1,048.30	$ 611.52	$ 988.94	$ 611.52	$ 611.52	$ 611.52	$ 262.08	$ 611.51	$ 349.42	$ 1,223.02	$ 4,203.98	$ 11,395.41
Change order #1									$ 54,000.00				$ 74,712.25	$ 149,424.50	$ 74,712.25	$ 352,849.00
Change order #2											$ (538.75)					$ (538.75)
Total Berth Cost			**$5,362,979.10**	**$ 146,480.47**	**$ 4,193.99**	**$ 25,485.30**	**$ 215,914.27**	**$ 454,664.99**	**$ 83,041.56**	**$ 10,893.60**	**$ 3,194.79**	**$ 633,837.41**	**$ 77,983.74**	**$ 3,008,970.61**	**$ 848,162.80**	**$ 5,512,823.53**
			Cost Breakdown													
			Labor ($)	$0.00	$0.00	$0.00	$0.00		$0.00	$0.00	$0.00			$284,182.74	$361,657.80	$645,840.54
			Labor (man-hours)	0.00	0.00	0.00	0.00		0.00	0.00	0.00			4,307.50	5,114.50	9,422
			Materials	$0.00	$0.00	$0.00	$111,012.00	$337,365.00	$0.00	$0.00	$0.00	$632,236.00	$632,236.00	$2,192,548.46	$99,012.00	$4,004,409.46
			Equipment	$0.00	$0.00	$0.00	$0.00		$0.00	$0.00	$0.00			$134,039.34	$40,860.00	$174,899.34
			Other	$0.00	$0.00	$0.00	$0.00		$0.00	$0.00	$0.00					

T136				Progress Payment No.													
Contract Cost Category Description	Contract Cost Category No.	Corresponding Bid Item No.	Cost Estimates (Submitted 11-2012)	1	2	3	4	5	6	7	8	9	10	11	12	TOTAL
Mobilization and Demobilization	1	1	$290,262.61	$ 145,131.30	$ -	$ -	$ -								$ 72,565.65	$ 217,696.95
Chain-Link Fence and Gates	2	8, 9, 10	$11,909.20	$ 1,087.08	$ 2,183.81	$ -	$ -			$ 2,079.93	$ 419.32				$ 5,501.79	$ 11,271.93
Pipe Bollards	3	11, 12, 13	$67,175.38	$ -	$ -	$ -	$ 17,781.68		$ 28,430.04				$ 3,186.85	$ 3,186.85	$ 5,346.24	$ 57,931.66
Pavement (including striping)	4	14, 15, 16, 42	$37,178.77	$ -	$ 961.87	$ -	$ 59.38	$ 181.69				$ 419.32	$ 419.32	$ 733.81		$ 2,775.39
Relocation of utilities	5	17	$6,709.15	$ -	$ -	$ -	$ -			$ 500.00						$ 500.00
Transformers	6	20	$709,593.23	$ -	$ -	$ -	$ -					$ 709,593.23				$ 709,593.23
Switchgear assembly(s)	7	24	$1,779,834.87	$ -	$ -	$ -	$ -					$ 1,779,834.87				$ 1,779,834.87
Ductbanks and raceways	8	28	$394,105.50	$ -	$ -	$ 22,252.90	$ 12,632.40					$ 60,033.12	$ 207,355.60	$ 59,825.60	$ 32,007.88	$ 394,107.50
Conductors	9	32	$471,591.80	$ -	$ -	$ -	$ 60,230.87	$ 312,140.78							$ 99,222.91	$ 471,594.56
SPO Receptacles	10	36	$226,959.75	$ -	$ -	$ -	$ 71,485.25								$ 155,474.51	$ 226,959.76
SPO Vaults	11	n/a	$0	$ -	$ -	$ -	$ -									$ -
All other electrical work	12	40	$79,665.13	$ -	$ -	$ -	$ -					$ 63,090.13			$ 8,287.50	$ 71,377.63
Commissioning and testing	13	45, 46	$37,831.79	$ -	$ -	$ -	$ -									$ -
Demolition	14	4	$8,408.06	$ -	$ -	$ -	$ -					$ 4,417.50	$ 1,425.00			$ 5,842.50
Soil, excavation, fill and waste handling	15	2, 5, 6, 7	$67,641.20	$ -	$ -	$ 631.67	$ 2,672.02			$ 7,702.15	$ 3,052.14	$ 1,927.04	$ 4,589.59	$ 61,315.98	$ 3,549.65	$ 85,440.24
Other costs*	16	3, 43, 44	$19,219.67	$ 262.08	$ 1,048.30	$ 611.52	$ 988.94	$ 611.52	$ 611.52	$ 611.52	$ 262.08	$ 611.53	$ 349.44	$ 1,223.02	$ 4,203.98	$ 11,395.45
Change order #1									$ 54,000.00			$ 78,107.00	$ 39,553.50	$ 307,582.50	$ 184,897.88	$ 665,140.88
Change order #2											$ (538.75)					$ (538.75)
Total Berth Cost			**$4,208,086.09**	**$ 146,480.46**	**$ 4,193.98**	**$ 23,496.09**	**$ 165,850.54**	**$ 312,933.99**	**$ 83,041.56**	**$ 10,893.60**	**$ 3,194.79**	**$ 2,699,033.74**	**$ 256,879.30**	**$ 433,867.76**	**$ 571,057.99**	**$ 4,710,923.80**
			Cost Breakdown													
			Labor ($)	$0.00	$0.00	$0.00	$0.00		$0.00	$0.00	$0.00	$55,296.00	$84,161.00	$61,236.00	$240,434.00	$441,127.00
			Labor (man-hours)	0.00	0.00	0.00	0.00		0.00	0.00	0.00	875.00	1,291.00	922.00	3,398.00	$6,486.00
			Materials	$0.00	$0.00	$0.00	$111,012.00	$337,365.00	$0.00	$0.00	$0.00	$980,643.00	$29,654.00			$1,458,674.00
			Equipment	$0.00	$0.00	$0.00	$0.00		$0.00	$0.00	$0.00	$63,990.00			$22,400.00	$86,390.00
			Other	$0.00	$0.00	$0.00	$0.00		$0.00	$0.00	$0.00					$0.00

T138				Progress Payment No.													
Contract Cost Category Description	Contract Cost Category No.	Corresponding Bid Item No.	Cost Estimates (Submitted 11-2012)	1	2	3	4	5	6	7	8	9	10	11	12	TOTAL
Mobilization and Demobilization	1	1	$290,262.61	$ 145,131.30	$ -	$ -	$ -								$ 72,565.65	$ 217,696.95
Chain-Link Fence and Gates	2	8, 9, 10	$11,909.20	$ 1,087.08	$ 2,183.81	$ -	$ -			$ 2,079.93	$ 419.32		$ 9,057.68			$ 14,827.82
Pipe Bollards	3	11, 12, 13	$67,175.38	$ -	$ -	$ -	$ 17,781.68		$ 28,430.04			$ 6,373.69	$ 10,376.28			$ 62,961.69
Pavement (including striping)	4	14, 15, 16, 42	$37,178.77	$ -	$ 961.88	$ -	$ 59.38	$ 181.69				$ 419.32	$ 419.32	$ 733.81		$ 2,775.40
Relocation of utilities	5	17	$6,709.15	$ -	$ -	$ -	$ -			$ 500.00		$ 6,000.00				$ 6,500.00
Transformers	6	19	$709,593.23	$ -	$ -	$ -	$ -		$ 630,787.23		$ 78,806.00					$ 709,593.23
Switchgear assembly(s)	7	23	$1,921,221.76	$ -	$ -	$ -	$ -				$ 1,921,221.76					$ 1,921,221.76
Ductbanks and raceways	8	27	$599,461.62	$ -	$ -	$ 54,000.00	$ 12,763.20		$ 16,341.92	$ 76,146.78	$ 264,709.72	$ 20,448.00	$ 136,800.00	$ 18,252.00		$ 599,461.62
Conductors	9	31	$518,338.89	$ -	$ -	$ -	$ 43,910.07	$ 332,611.54			$ 16,360.21	$ 48,863.61	$ 15,448.26	$ 61,145.19		$ 518,338.88
SPO Receptacles	10	35	$340,439.63	$ -	$ -	$ -	$ 71,485.25					$ 59,684.22	$ 209,271.16			$ 340,440.63
SPO Vaults	11	n/a	$0	$ -	$ -	$ -	$ -									$ -
All other electrical work	12	39	$81,156.80	$ -	$ -	$ -	$ -			$ 22,603.63		$ 41,978.17	$ 4,143.75	$ 8,287.50	$ 4,143.75	$ 81,156.80

Commissioning and testing	13	45, 46	$37,831.79	$ -	$ -	$ -	$ -									$ 25,331.79	$ 25,331.79
Demolition	14	4	$8,408.06	$ -	$ -	$ -	$ -			$ 6,413.55	$ 663.15	$ 663.15					$ 7,739.85
Soil, excavation, fill and waste handling	15	2, 5, 6, 7	$67,641.20	$ -	$ -	$ 631.67	$ 2,672.02			$ 9,982.21	$ 5,332.19	$ 559.00	$ 1,397.50			$ 3,549.65	$ 24,124.24
Other costs*	16	3, 43, 44	$19,219.67	$ 262.07	$ 1,048.31	$ 611.52	$ 988.94	$ 611.52	$ 611.52	$ 611.52	$ 262.08	$ 611.53	$ 349.44	$ 1,223.02	$ 4,203.98	$ 11,395.45
Change order #1									$ 54,000.00	$ 76,738.07	$ 229,568.21	$ 167,154.96	$ 117,932.76			$ 645,394.00
Change order #2											$ (538.75)					$ (538.75)
Total Berth Cost			**$4,716,547.74**	**$ 146,480.45**	**$ 4,194.00**	**$ 55,243.19**	**$ 149,660.54**	**$ 333,404.75**	**$ 730,170.71**	**$ 195,075.69**	**$ 2,516,803.89**	**$ 352,755.65**	**$ 505,196.15**	**$ 89,641.52**	**$ 109,794.82**	**$ 5,188,421.36**
			Cost Breakdown													
			Labor ($)	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$50,304.00	$0.00	$56,707.73	$72,835.00	$67,948.60	$16,565.00	$264,360.33
			Labor (man-hours)	0.00	0.00	0.00	0.00	0.00	0.00	780.00	0.00	844.50	1,132.00	968.50	83.00	$3,808.00
			Materials	$0.00	$0.00	$0.00	$98,312.00	$337,365.00	$0.00	$3,300.00	$1,560,128.00	$16,704.00	$16,352.17			$2,032,161.17
			Equipment	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$11,736.00	$0.00	$24,728.56	$5,859.12	$14,780.00	$2,060.00	$59,163.68
			Other	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00			$0.00

T140				Progress Payment No.												
Contract Cost Category Description	Contract Cost Category No.	Corresponding Bid Item No.	Cost Estimates (Submitted 11-2012)	1	2	3	4	5	6	7	8	9	10	11	12	TOTAL
Mobilization and Demobilization	1	1	$290,262.61	$ 145,131.30	$ -	$ -		$ -		$ 2,079.93	$ 8,962.79				$ 72,565.65	$ 217,696.95
Chain-Link Fence and Gates	2	8, 9, 10	$11,909.20	$ 1,087.08	$ 2,183.81	$ -		$ -								$ 14,313.61
Pipe Bollards	3	11, 12, 13	$67,175.38	$ -	$ -	$ -	$ 17,781.68	$ -	$ 28,430.04	$ 20,963.67						$ 67,175.39
Pavement (including striping)	4	14, 15, 16, 42	$37,178.77	$ -	$ 961.88	$ -	$ 59.38	$ 181.69		$ 27,172.49		$ 54,764.29	$ 419.32	$ 27,906.30	$ 27,172.49	$ 138,637.84
Relocation of utilities	5	17	$6,709.15	$ -	$ -	$ -				$ 500.00	$ 2,000.00					$ 2,500.00
Transformers	6	18	$709,593.23	$ -	$ -	$ -		$ 709,593.23								$ 709,593.23
Switchgear assembly(s)	7	22	$3,939,255.79	$ -	$ -	$ -		$ 3,939,255.79								$ 3,939,255.79
Ductbanks and raceways	8	26	$349,501.65	$ -	$ 27,978.60	$ 171,418.70	$ 71,690.70	$ 15,839.94	$ 14,400.00	$ 33,200.00	$ 7,636.36	$ 7,337.35				$ 349,501.65
Conductors	9	30	$413,138.96	$ -	$ -	$ -	$ 60,019.96	$ 269,851.81		$ 44,170.98				$ 39,096.22		$ 413,138.97
SPO Receptacles	10	34	$226,959.75	$ -	$ -	$ -	$ 71,485.25			$ 50,839.26	$ 33,150.00		$ 71,485.25			$ 226,959.76
SPO Vaults	11	n/a	$0	$ -	$ -	$ -										$ -
All other electrical work	12	38	$86,714.11	$ -	$ 10,520.87	$ 7,013.91	$ 63,125.21				$ (10,520.87)	$ 14,917.49		$ 1,657.50		$ 86,714.11
Commissioning and testing	13	45, 46	$37,831.79	$ -	$ -	$ -										$ -
Demolition	14	4	$8,408.06	$ -	$ -	$ -										$ -
Soil, excavation, fill and waste handling	15	2, 5, 6, 7	$67,641.20	$ -	$ 3,420.09	$ 1,087.68	$ 3,356.04			$ 7,702.15	$ 46,839.32	$ 559.00	$ 1,397.50		$ 3,549.65	$ 67,911.43
Other costs*	16	3, 43, 44	$19,219.67	$ 262.07	$ 4,193.21	$ 611.52	$ 988.94	$ 611.52	$ 611.52	$ 611.52	$ 262.08	$ 611.53	$ 349.44	$ 1,223.02	$ 4,203.98	$ 14,940.35
Change order #1									$ 322,607.18	$ 125,957.90	$ 48,051.03					$ 496,616.11
Change order #2											$ 37,469.88					$ 37,469.88
Total Berth Cost			**$6,271,499.30**	**$ 146,480.45**	**$ 49,258.46**	**$ 180,131.81**	**$ 288,507.16**	**$ 4,935,333.98**	**$ 366,048.74**	**$ 313,197.90**	**$ 173,850.59**	**$ 78,189.66**	**$ 73,651.51**	**$ 69,883.04**	**$ 107,491.77**	**$ 6,782,025.07**
			Cost Breakdown													
			Labor ($)	$0.00	$50,213.00	$83,884.00	$112,676.45	$9,223.00	$18,706.00	$81,661.70	$78,025.00	$1,525.00	$1,603.00	$102,950.80	$12,790.00	$553,257.95
			Labor (man-hours)	0.00	806.00	1315.00	1781.00	142.00	288.00	485775.25	1625.50	24.00	24.00	983.00	209.00	$492,972.75
			Materials	$0.00	$57,192.02	$234,135.00	$209,862.30	$3,283,875.00	$633,225.00	$9,724.00	$0.00				$15,519.42	$4,443,532.74
			Equipment	$0.00	$14,329.00	$12,861.00	$26,711.80	$2,087.00	$7,001.00	$20,809.32	$48,121.29	$1,365.00		$30,480.00	$11,430.00	$175,195.41
			Other	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00					$0.00

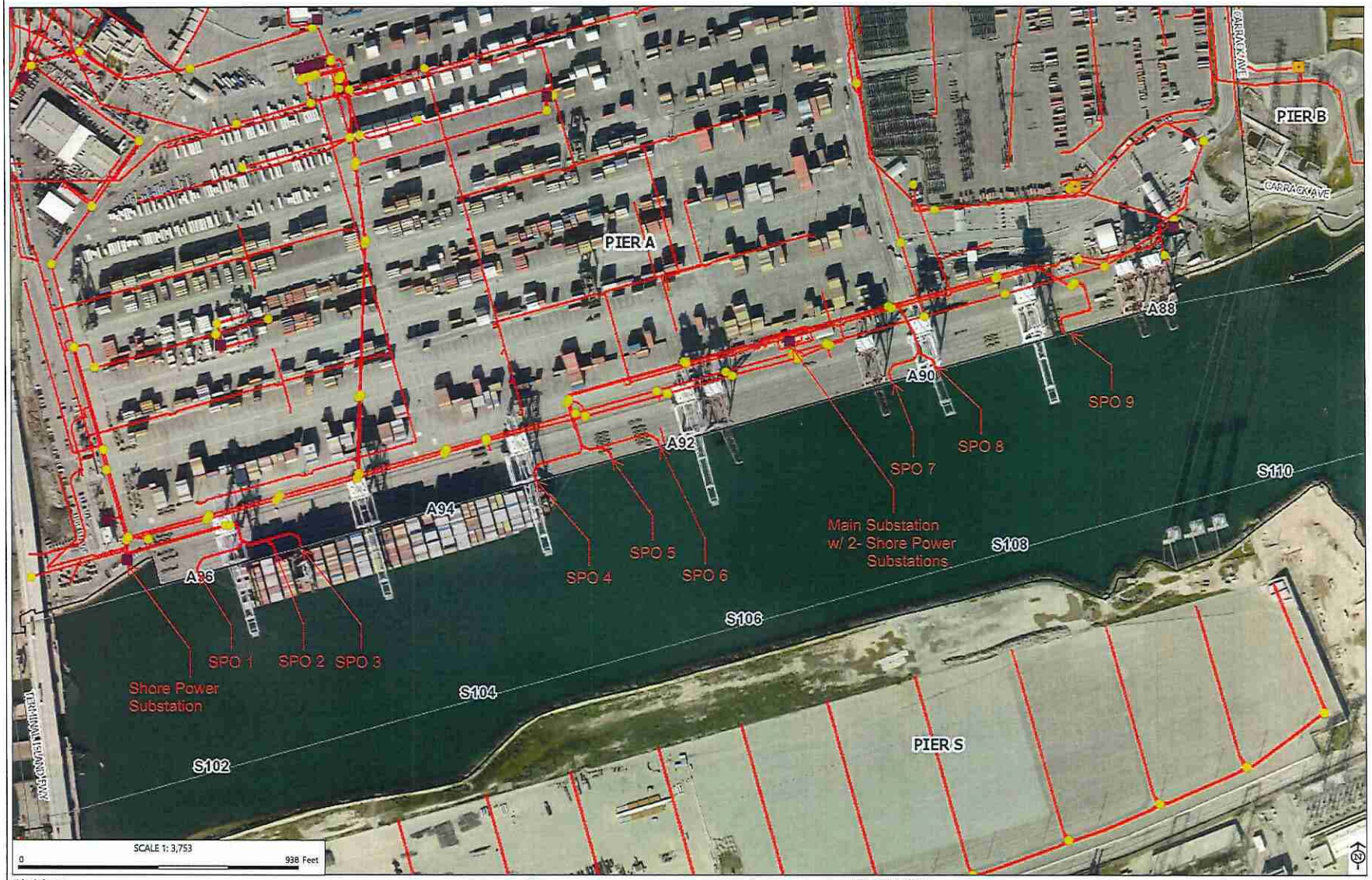
		T132/134				T136				T138				T140			
Progress Payment No.	Period Ending	Paid		Retention		Paid		Retention		Paid		Retention		Paid		Retention	
		Amount	Check No.	Amount	Check No.	Amount	Check No.	Amount	Check No.	Amount	Check No.	Amount	Check No.	Amount	Check No.	Amount	Check No.
1	8/31/2012	$139,156.45	1013550	$7,324.02	1013369	$139,156.44	1013550	$7,324.02	1013369	$139,156.43	1013550	$7,324.02	1013369	$139,156.43	1013550	$7,324.02	1013369
2	9/30/2012	$3,984.29	1017157	$209.70	1017158	$3,984.28	1017157	$209.70	1017158	$3,984.30	1017157	$209.70	1017158	$46,795.54	1017157	$2,462.92	1017158
3	10/31/2012	$24,211.30	1018355	$1,274.26	1018356	$22,321.28	1018355	$1,174.80	1018356	$52,481.02	1018355	$2,762.16	1018356	$171,125.20	1018355	$9,006.60	1018356
4	11/30/2012	$205,118.56	1025282	$10,795.70	1025283	$157,558.00	1025282	$8,292.53	1025283	$142,177.50	1025282	$7,483.03	1025283	$274,081.79	1025282	$14,425.36	1025283
5	12/31/2012	$431,931.73	1027736	$22,733.25	1027737	$297,287.29	1027736	$15,646.70	1027737	$316,734.52	1027736	$16,670.24	1027737	$4,688,567.28	1027736	$246,766.70	1027737
6	1/31/2013	$78,889.48	1032234	$4,152.08	1032235	$78,889.48	1032234	$4,152.08	1032235	$693,662.16	1032234	$36,508.54	1032235	$347,746.30	1032234	$18,302.44	1032235
7	2/28/2013	$10,348.91	1038592	$544.68	1038593	$10,348.90	1038592	$10,893.59	1038593	$185,321.91	1038592	$9,753.78	1038593	$297,538.00	1038592	$15,659.89	1038593
8	3/31/2013	$3,035.05	1042462	$159.74	1042463	$3,035.05	1042462	$159.74	1042463	$2,390,963.70	1042462	$125,840.19	1042463	$165,158.06	1042462	$8,692.53	1042463
9	4/30/2013	$602,145.54	1046397	$31,691.87	1046398	$2,564,082.05	1046397	$134,951.69	1046398	$335,117.86	1046397	$17,637.78	1046398	$74,280.17	1046397	$3,909.48	1046398
10	5/31/2013	$74,084.55	1052050	$3,899.19	1052051	$244,035.33	1052050	$12,843.96	1052051	$479,936.35	1052050	$25,259.81	1052051	$69,968.94	1052050	$3,682.57	1052051
11	6/30/2013	$2,858,522.08	1059654	$150,448.53	1059655	$412,174.36	1059654	$21,693.39	1059655	$85,159.44	1059654	$4,482.09	1059655	$66,388.90	1059654	$3,494.14	1059655
12	9/30/2013	$796,744.51	1069922	$42,408.14	1069923	$533,494.96	1069922	$28,552.90	1069923	$95,294.96	1069922	$5,489.74	1069923	$93,107.06	1069922	$5,374.59	1069923
TOTAL		$5,228,172.45		$275,641.16		$4,466,367.42		$245,895.10		$4,919,990.15		$259,421.08		$6,433,913.67		$339,101.24	
GRAND TOTAL		$5,503,813.61				$4,712,262.52				$5,179,411.23				$6,773,014.91			

ATTACHMENT C
Maps of Container Terminal Shore Power Infrastructure

Port of Long Beach

Port ATLAS

Port of LONG BEACH
The Green Port



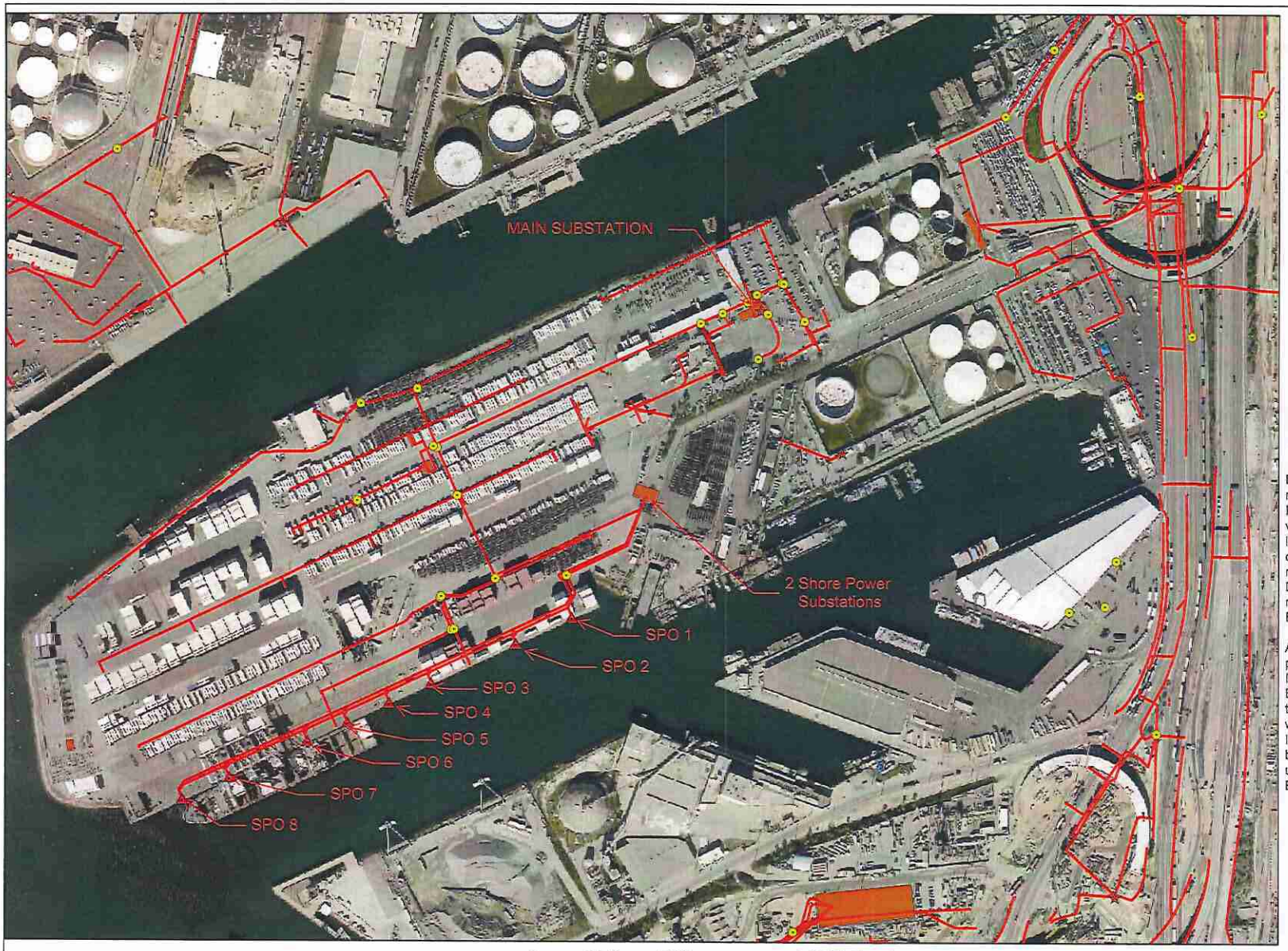
Legend

- Electric Junction
  - Maintenance Hole
  - Substation
  - Transformer
- Electric Meter
- Active Electric Line
- Abandoned Electric Line
- POLB Roads
- Railroad Track
- Pierhead Line
- Piers

Disclaimer:
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Author / Notes:

03/27/2019



PORT OF LONG BEACH
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Port of LONG BEACH
The Green Port

- Maintenance Hole
- Shore Power Outlet
- Transformer
- Active Electric Line
- Substation

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Aerial Photo: This is a proprietary dataset provided courtesy of the Los Angeles Region Imagery Acquisition Consortium (LAR-IAC), Eagle View Technologies, Inc. Use other than what is allowable under license or by written pression from Eagle View Technologies, Inc. will be considered unauthorized and may be punishable by law. Permission for external use may be given with written permission from Eagle View Technologies, Inc.

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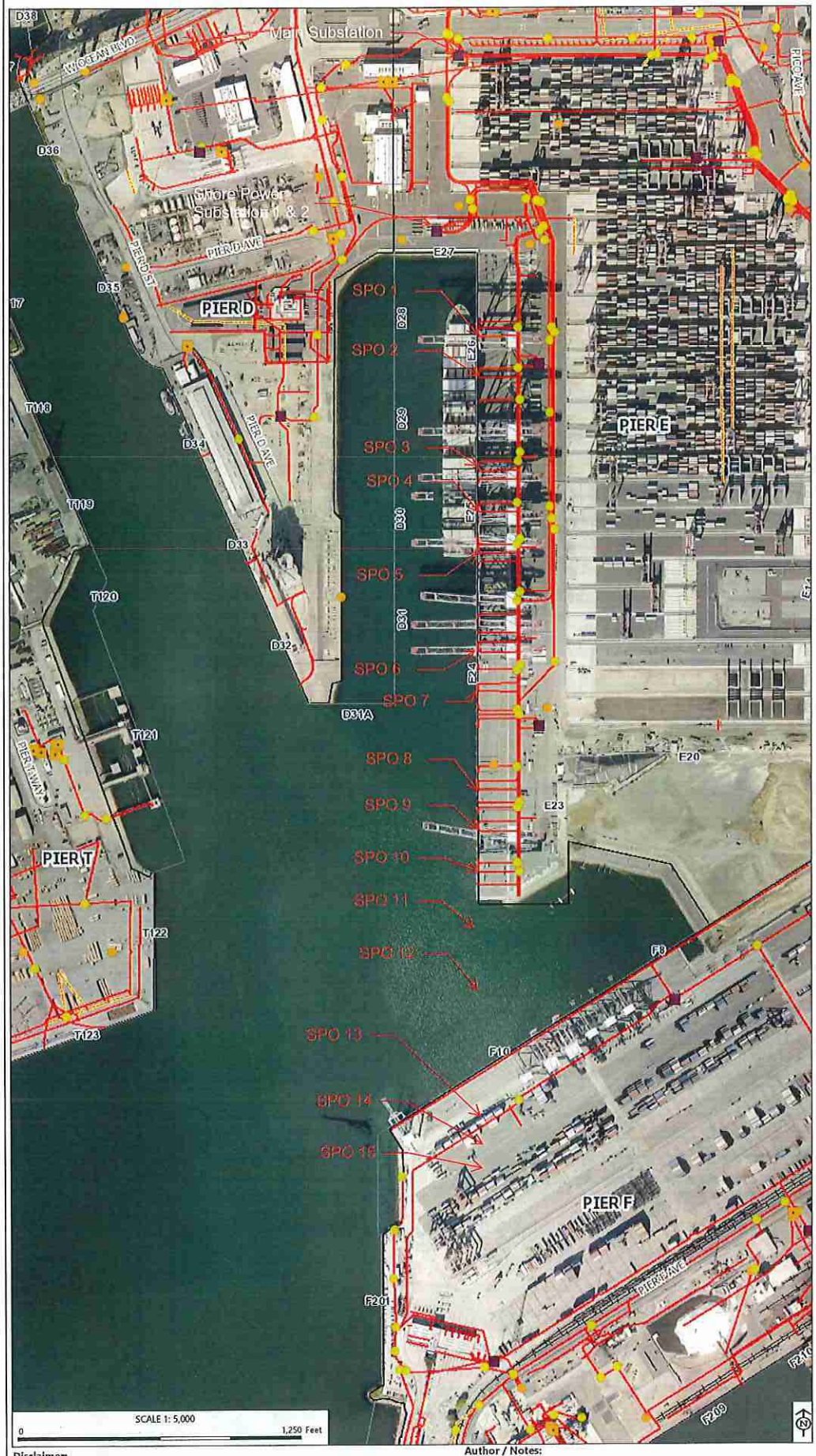
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NDSR 19-1010 JLT 4/3/19 Aerial Photo: LARIAC March 2017 4-in

Port of Long Beach

Port ATLAS

Port of LONG BEACH
The Green Port



Legend

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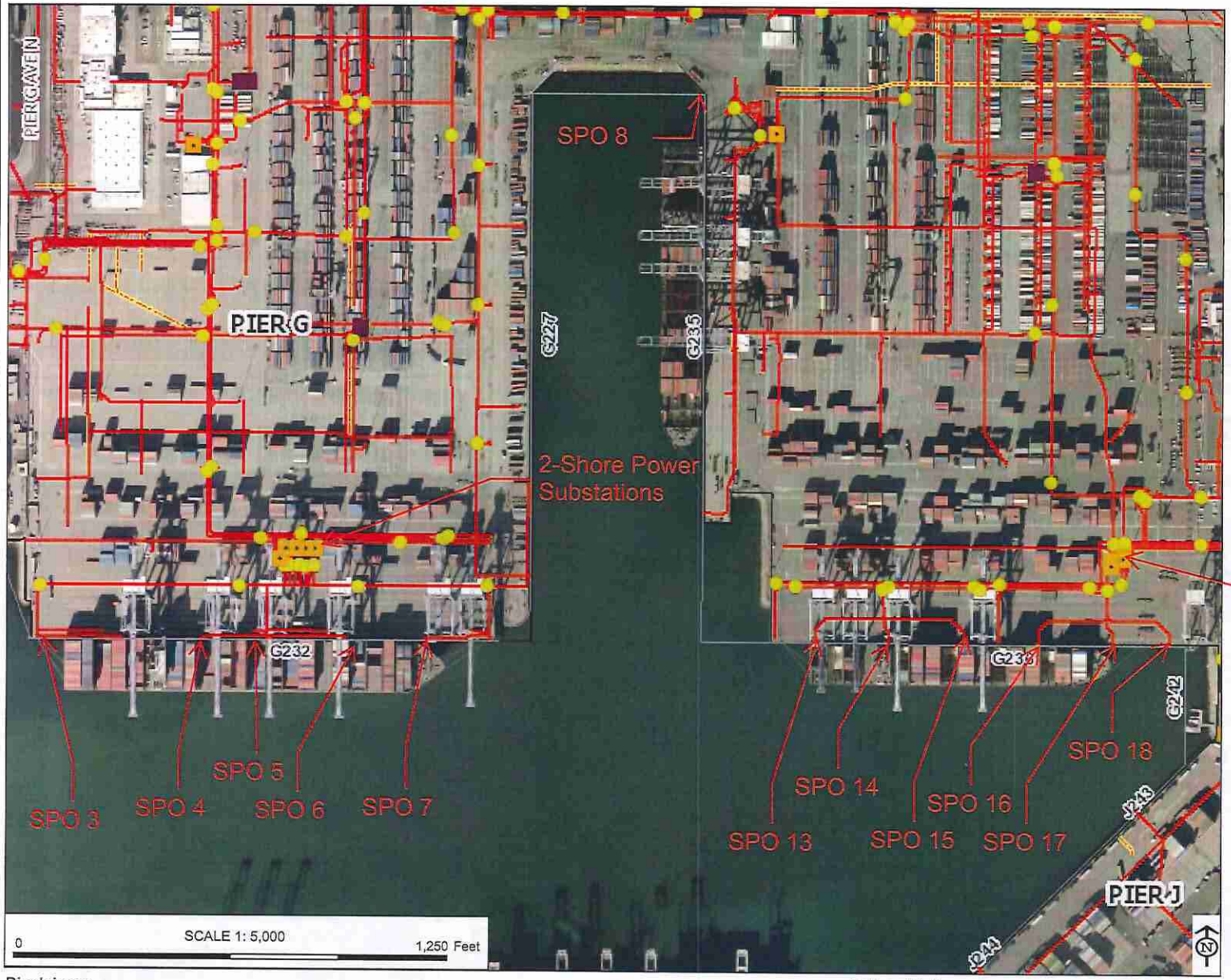
SPOs 11 thru 15 on Phase 3 not complete

04/04/2019

Port of Long Beach

Port ATLAS

Port of LONG BEACH
The Green Port



Legend

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2-Shore Power Substations

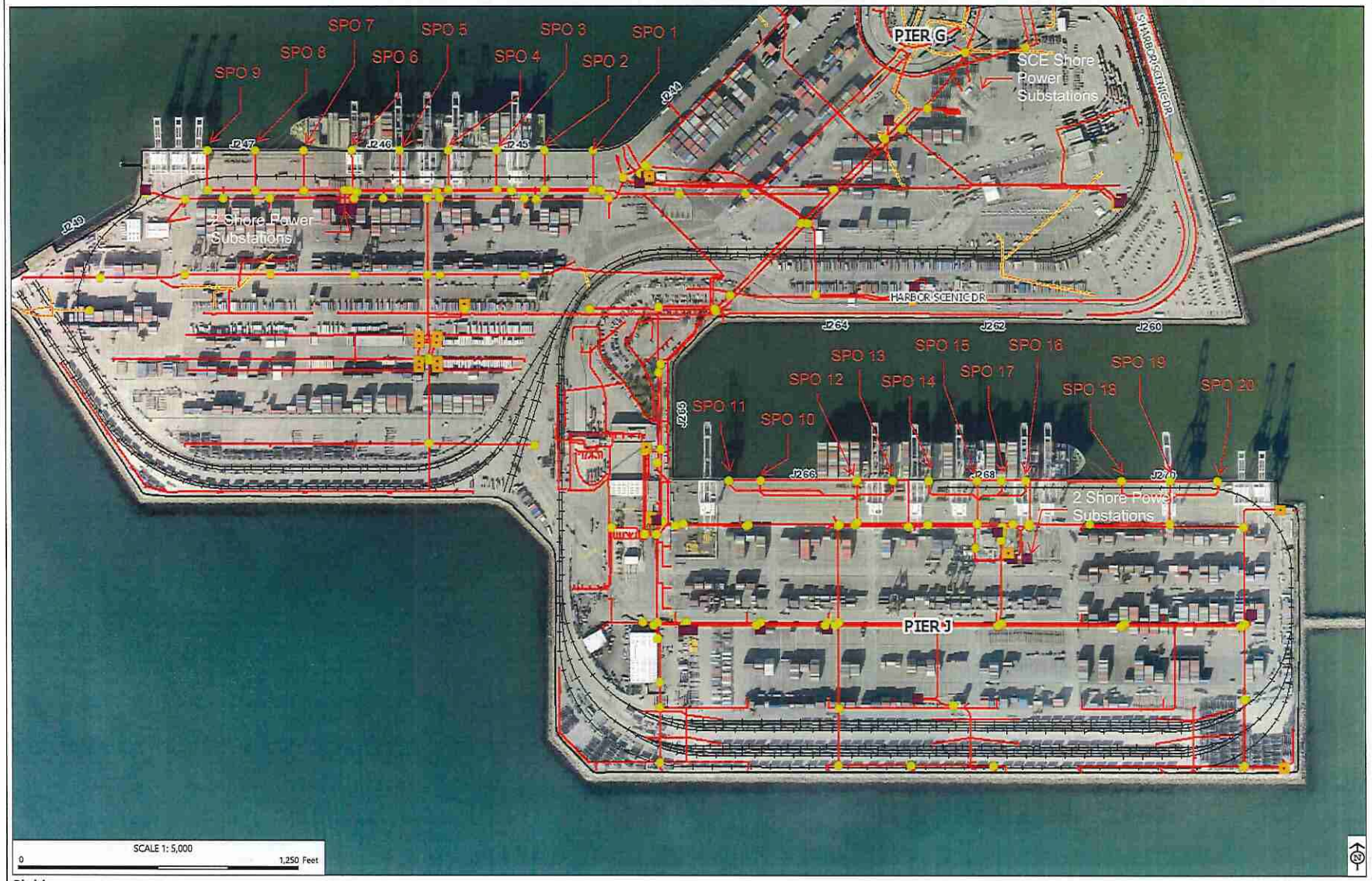
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Author / Notes:

04/09/2019

Port of Long Beach



Port ATLAS

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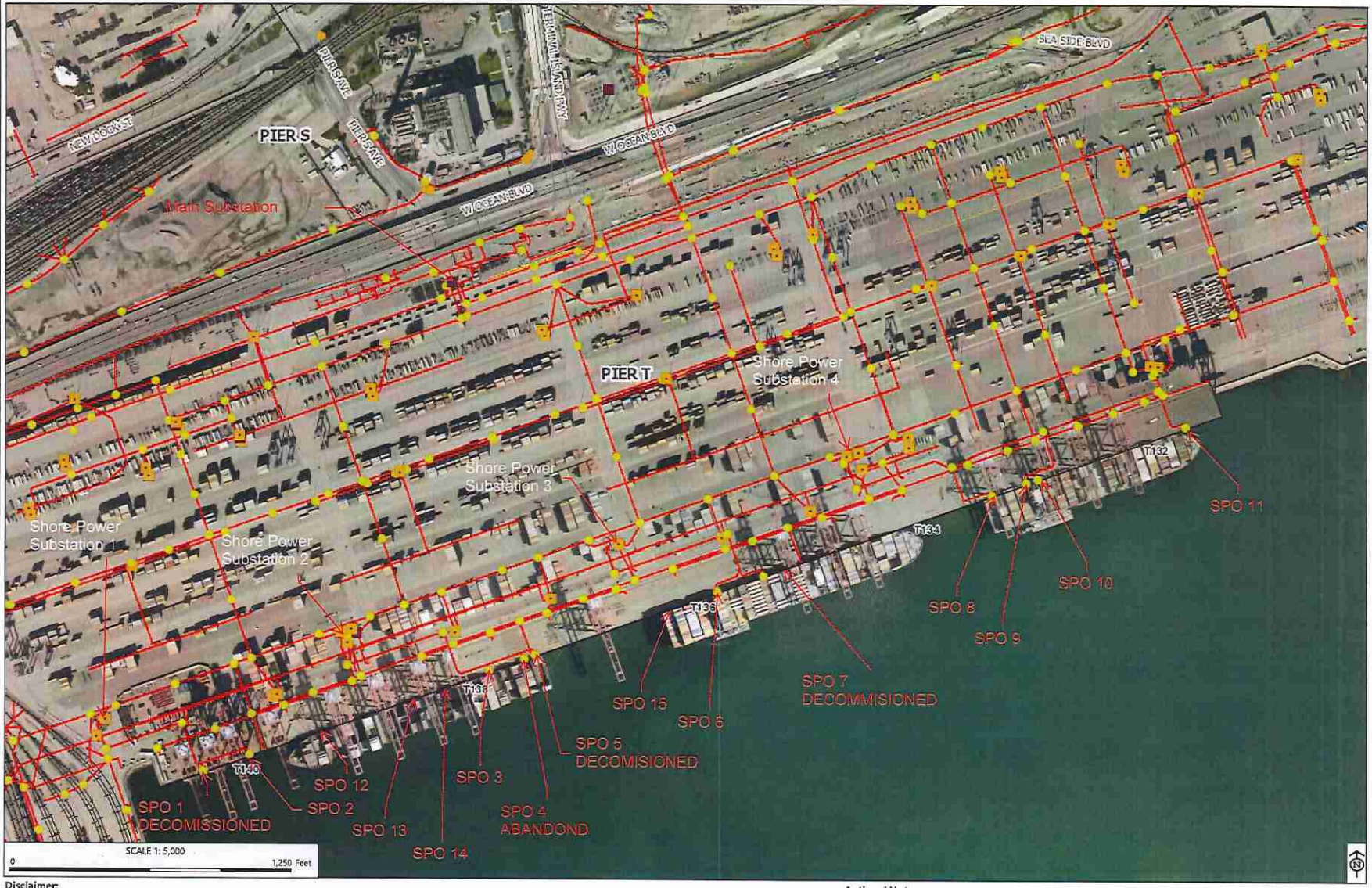
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Author / Notes:

04/04/2019

ATTACHMENT D
Port of Long Beach Vessel Visits by Berth

Container Vessel Visits Subject to the New At-Berth and At Anchor Regulation

ITS		LBCT		Pacific Container Terminal		SSA Terminals Pier A		SSA Terminals Pier C		TTI	
Berth	Visits	Berth	Visits	Berth	Visits	Berth	Visits	Berth	Visits	Berth	Visits
G232	53	E24	34	J245 (includes reefer)	52	A92	43	C60	1	T132	1
G235	25	E26	49	J266	65	A94	104	C62	81	T134	124
G236	68	F8	19	J270	21	A96	78	Total Visits	82	T136	55
Total Visits	146	Total Visits	102	Total Visits	138	Total Visits	225			T138	12
										T140	43
										Total Visits	235

RoRo Vessel Visits Subject to the New At-Berth and At Anchor Regulation			
Toyota Logistics		**SSA-Crescent**	
Berth	Visits	Berth	Visits
B83	104	F204	3
Total Visits	**104**	F205	44
		F207	60
		Total Visits	**104**

Tanker Vessel Visits Subject to the New At-Berth and At Anchor Regulation					
Tesoro Pier B		**Tesoro Pier T**		**Chemoil**	
Berth	Visits	Berth	Visits	Berth	Visits
B77	6	T121	204	F209	65
B78	65	**Total Visits**	**204**	**Total Visits**	**65**
B84	4				
B84A	76				
B86	49				
Total Visits	**200**				

July 1, 2019

Bonnie Soriano
Chief, Freight Activity Branch
California Air Resources Board
1001 "I" Street
Sacramento, CA 95814

SUBJECT: PORT OF LOS ANGELES AND PORT OF LONG BEACH COMMENTS ON MAY 14 & 16, 2019 WORKSHOPS FOR THE "CONTROL MEASURE FOR OCEAN-GOING VESSELS OPERATING AT BERTH AND AT ANCHOR"

Dear Ms. Soriano:

The ports of Los Angeles and Port of Long Beach (Ports) appreciate this opportunity to provide comments on the concepts and draft regulation language presented at the California Air Resources Board's (CARB) May 14 and 16, 2019 workshops regarding the "Control Measure for Ocean-Going Vessels Operating At Berth and At Anchor."

We want to thank CARB for continuing to work with the Ports and our tenants during this regulatory development process to obtain the best available data and to craft a regulation that achieves significant public health benefits. The Ports continue to appreciate the open dialog with CARB staff to discuss the regulatory concepts and share our comments and concerns.

The purpose of this comment letter is to respond to the May 8, 2019 version of the Draft Regulation Order provided at the May workshops. In Appendix A, CARB will find specific information relative to Port of Los Angeles.

The following summarizes the Ports' comments regarding the regulatory concepts presented at the May 2019 workshops:

- **The Proposed Implementation Timelines Are Still Too Aggressive** – In the May 8, 2019 draft regulation, container terminals are still required to control ship emissions for every

60.25

Port of LONG BEACH
The Green Port
Port of Long Beach | Environmental Planning
4801 Airport Plaza Drive | Long Beach, CA 90815
562.283.7100

THE PORT OF LOS ANGELES
Port of Los Angeles | Environmental Management
425 S. Palos Verdes Street | San Pedro, CA 90731
310.732.3675

visit by 2021, with 10% flexibility split evenly between Terminal Incident Exception (TIEs) and Vessel Incident Exception (VIEs), by 2021, with further reduction to 6% flexibility split between TIEs and VIEs for 2022 and beyond. This timeline is unreasonable. While the TIEs and VIEs provide some flexibility for terminals and vessels to avoid compliance action for a limited number of unforeseen circumstances that result in a vessel not being able to plug in, that flexibility does not avoid the need for infrastructure to be installed to allow for access to shore power for 100% of all calls. Given the anticipated schedule for finalization of the proposed regulation, there will be less than a year from adoption to when this implementation requirement comes into effect, which does not allow for any of the necessary shore power improvements to be constructed.

If CARB hopes terminals and fleets will opt for shore power, a greenhouse gas reduction strategy, to meet their increased compliance requirements rather than the alternative emission control devices, which are known to increase greenhouse gases, this timeline does not allow for that compliance path to materialize for at least several years. The Ports have provided documentation in their previous letter dated May 20, 2019 that shore power projects take 5 years on average to complete. In addition, there are still considerable feasibility concerns regarding the ability of terminal operators, and/or third party vendors to develop and deploy alternative emission control devices on a stringent time line of one year.

60.26 The Ports are encouraged that CARB plans to have an interim evaluation in 2023 for tankers and Ro-Ros, but this evaluation should not replace a technical feasibility assessment to better inform this regulation, as described below. We also believe more than one evaluation maybe necessary. We ask that a feasibility assessment be updated in 2025 and beyond to evaluate the state of the technology and industry's ability to comply with the regulation. The Port of Los Angeles has specific concerns for tanker terminals as detailed in Appendix A.

- 60.27a **A Technology Feasibility Assessment Process Is Needed** – The Ports continue to urge CARB to develop a technology feasibility assessment of the alternative At Berth technologies, which would look at the state of technological development and their readiness to be deployed in the marketplace to support efforts to achieve public health benefits. The berth analysis developed by CARB should not be misconstrued as a technical document at the level of detail upon which regulation should be formed. It is an aggregation of terminal operator and harbor pilot opinions (no data), and Google Maps research, and is not founded upon any engineering assessment of the infrastructure required at the terminals. Further, there are challenges associated with the technologies upon which this regulation depends which, by all appearances, are too costly, technologically and operationally infeasible in some cases, and/or unsafe to use.

60.27b

In addition, this necessary feasibility assessment should include an evaluation of: (i) state of technology and deployment readiness for both shore power and alternative emission control devices; (ii) the requisite timeline to design, build, test, and deploy shore power and alternative control technologies for each California port to achieve at minimum 95% compliance, and identification of any associated constraints such as wharf space; (iii) safety and navigation of harbor waters space due to applications of new technologies for unregulated vessel types; (iv) number and types of alternative control technologies, which would be needed at each California port; (v) the cost of the various types of technologies and availability of incentives to encourage early demonstration of such technologies; and importantly, (vi) the appropriate remediation fee to encourage investment in ship- and shore-side infrastructure and alternative emission control devices, while not driving business out of California.

60.28

- **All Terminals Should Be Required to Submit Terminal Plans** – The proposed regulation language allows terminals to have the ports submit plans on their behalf. The Ports should not be responsible for the submission of each terminal's plans on their terminal operators' behalf. All terminals should submit their own terminal plans. Ports do not have control over the financial and operational decisions terminals will have to make in order to comply with the regulation, and Ports cannot be liable for terminal infrastructure deployment under the new rule. In addition, if the terminal operator intends to install the shore power infrastructure themselves, they should be required to provide the elements outlined in the proposed port plan requirements rather than the Port.

  In the past, the Ports have supported shore power deployment by providing the design, bid, build, and services. In some cases, the investment was recouped through terminal leases. This was a service to our terminals, particularly for the initial installations under the original 2007 shore power regulation, but is not necessarily the path forward given the Ports' current capital project commitments and the extensive electrical infrastructure required to achieve the zero emission goals of the Clean Air Action Plan (CAAP) at the terminals.

  If the Ports are still required to submit port plans in the proposed regulation update, then the terminal plan deadlines must be set at least six months prior to port plan deadlines to allow the Ports sufficient time to review the submitted terminal plans, negotiate lease terms with their terminals, and compile the necessary information CARB has requested for the Ports to submit port plans. There is no guarantee that agreements will be reached in time to meet the timeline for this part of the proposed regulation. Many of these leases have several years remaining and terminals may be reluctant to renegotiate lease terms, especially for strategies that have no CARB certification.

  If terminals determine they need to construct more infrastructure, project initiation will not commence until the proposed At Berth Regulation goes into effect. It is unrealistic to

expect terminals or the ports to have design or schedules for equipment installation completed by June 2020. The earliest date according to CARB's timeline for project initiation is January 2020, assuming terminals do not use the first six months to evaluate their best compliance option. Given that project initiation, consultant selection for design, preliminary design, CEQA approval, and final design can take 23-30 months, it does not make sense to anticipate a schedule and estimation of the electrical infrastructure required at a terminal in just six months. If the terminals/Ports submitted plans solely based on preliminary design, which is a vastly premature estimate of project scope and timeline, it would take 11-15 months. This challenge once again points to the impossibility of meeting the 2021 timeline with shore power, the most mature, emission-efficient, technological solution.

- **Exceptions to Delays in Port Plan Schedules** – If ports are still required to submit port plans, then CARB should provide exceptions to any possible enforcement action if port plan schedules are not met. The port plans can only provide an estimated schedule of installing equipment and/or necessary construction projects. Delays can and will happen outside of the control of the Ports. For example, delays due to permitting, equipment acquisition, environmental assessment, and other events that may cause schedules to not be met should be given exemptions to enforcement action in this regulation. It is unfair to hold the Ports liable for mobile source operators' actions and emissions outside of our direct control.

60.29

- **Specifics on Remediation Fund** – The Ports request that CARB revise the fees for payment into the remediation fund for longer-term outages due to construction projects or repairs. CARB has set remediation fee costs as shown below in Table XVIII of the "Control Measure for Ocean-Going Vessels At Berth Cost Analysis Inputs and Assumptions for Standardized Regulatory Impact Assessment."

60.30

Table XVIII. Remediation Fee Costs

Data Input	Value			Basis
Hourly remediation fee for terminal and for vessel, for each vessel type	Vessel Type	Vessel Hourly Fee	Terminal Hourly Fee	Staff analysis using Carl Moyer formula to calculate average emissions in tons per hour by vessel category. Product and crude tanker values were averaged for cost estimation purposes, however the fee would be dependent on the vessel type. Note that these values are estimates based on current Staff analyses at the time this document was prepared, and do not necessarily represent the exact fees that would apply.
	Container/ Reefer	$2,395	$2,395	
	Cruise	$12,879	$12,879	
	Auto/Ro-Ro	$1,515	$1,515	
	Product Tankers	$1,783	$1,783	
	Crude Tankers	$9,873	$9,873	
Which terminals would offer the remediation fee as an option?	All (100%)			Staff assumes that all terminals would offer the remediation fee as an option.

CARB has set the remediation fee cost at an unreasonable level for long term construction projects. Appendix A gives an example of how the remediation fees using Table XVIII would have more than doubled the cost of a recent Port of Los Angeles construction project,

which increased shore power capabilities, by upgrading electrical infrastructure at their World Cruise Center. If terminals decide that their strategy to meet this regulation is to install more shore power infrastructure, then similar situations are likely.

The Ports are also concerned that unforeseen repairs that may take several months or more could occur. In these types of prolonged incidences, the remediation fund fees set per hour will become so prohibitively high that terminals may have to shut down or turn away vessels during the repair. Ports again encourage CARB to conduct a feasibility study that would help set the rates for the remediation fund and determine the state of alternative emission control technology.

There are currently a total of two certified alternative emissions control systems in use at this time, and those systems are only certified for use on container vessels. The Ports are uncertain in how many, if any, additional systems will be deployed in the next few years. This limited number of options makes it difficult for terminals or shipping lines to secure exclusive service of these systems, which would mean most construction or repairs would cause the payment of large fines pursuant to the remediation fee fund.

The Ports encourage CARB staff to set up the remediation funds for use specifically in technology research, development, demonstration, and deployment of emissions reduction technologies specific to ocean going vessels rather than for general emission reduction use. As stated in our previous letters, in order to accelerate the development and deployment of shore power and alternative control options, including infrastructure for non-container terminals and vessels, the Ports request that CARB prioritize funding as they did for the currently regulated fleet through Proposition 1B in 2006. The remediation fund can be better utilized to accelerate emission reductions from this under-represented category.

- **Compliance May Hinder CAAP Efforts** – Lastly, the Ports remain concerned that the cost to comply with CARB's proposed Rule will affect our ability to meet the goals under the 2017 CAAP Update given the significant upfront costs of an At Berth Infrastructure Program. The costs shown in the May presentation were annualized, but much of the costs will be upfront rather than spread over the ten years. CARB staff has also assumed that minimal infrastructure changes will be needed to meet the regulation. Our joint letters to CARB have included cost estimates that we feel are representative of the infrastructure costs that would be necessary to meet compliance and fulfill the Ports' obligations as currently written in this draft regulation. CARB has not included any of these costs in their revisions, even with the provision of invoices and information directly from the Port of Long Beach financial system.

60.31

In addition, Port staff resources are limited. The staff that are currently designing the zero-emission terminal infrastructure for technology demonstration projects, and future full-scale deployments are the same staff members who would be responsible for designing the

infrastructure to support the new At Berth Regulation. This underscores the need for prioritizing programs and funding, as described above and in previous letters, in order to determine how to most effectively allocate our resources to participate in the development and implementation of CARB's regulatory program.

The Ports thank CARB staff for hosting additional workshops, engaging with us directly, and their consideration of the comments contained in this letter as well as in the attached Appendix.

We look forward to continuing to meet with CARB staff in the future to further discuss the proposed amendments to the At Berth Regulation. Please feel free contact us with any questions or concerns regarding this letter.

Sincerely,

CHRISTOPHER CANNON
Director of Environmental Management
Port of Los Angeles

MATTHEW ARMS
Acting Director of Environmental Affairs
and Planning
Port of Long Beach

Attachment

cc: CARB, Cynthia Marvin (Cynthia.Marvin@arb.ca.gov)
CARB, Angela Csondes (Angela.Csondes@arb.ca.gov)
CARB, Nicole Light (Nicole.Light@arb.ca.gov)
CARB: Kaylin Huang (Kaylin.Huang@arb.ca.gov)

CC:LW:TD:AC:yo
APP No.: 010227-517

THE PORT
OF LOS ANGELES
425 S. Palos Verdes Street Post Office Box 151 San Pedro, CA 90733-0151 TEL/TDD 310 SEA-PORT www.portoflosangeles.org

Eric Garcetti *Mayor, City of Los Angeles*

Board of Harbor Commissioners: Jaime L. Lee *President*; Diane L. Middleton *Commissioner*; Lucia Moreno-Linares *Commissioner*; Anthony Pirozzi, Jr. *Commissioner*; Edward R. Renwick *Commissioner*

Eugene D. Seroka *Executive Director*

APPENDIX A
Port of Los Angeles
Response to CARB At Berth Regulation Berth Draft Regulation (version May 8, 2019)

The Port of Los Angeles (POLA or Port) appreciates this opportunity to provide more detailed comments on the California Air Resources Board (CARB) draft regulation "Control Measure for Ocean-going Vessels At Berth" (version May 8, 2019). The Port has some concerns regarding tankers and the remediation fees.

Tankers

60.35 POLA had provided specific information about our tanker terminals in our previous joint letter with Port of Long Beach on May 20, 2019. Many of our tanker terminals are being redesigned to meet California State Lands Commission (CSLC) Chapter 31.F 2016 California Building Code, Title 24, Part 2, Marine Oil Terminal Engineering and Maintenance Standards (MOTEMS) requirement. MOTEMS is a comprehensive set of codes and standards for analysis, design, inspection/maintenance, and operation of existing and new marine oil terminals in the State of California. MOTEMS requirements will ensure better resistance to earthquakes, protect the public and the environment, and reduce the potential of an oil spill, while maintaining the operation and viability of the marine oil facility.

The new terminal designs will limit the number of emission control strategies that our tanker terminals will be able to utilize. A majority of the new designs do not leave any space for a land-side alternative emission control technology strategy. There is also no shore power infrastructure in the design drawings at this time, nor have there been any discussion from our tanker terminals to install shore power. Finally, as stated in POLA's appendix in the joint letter to CARB on May 20, 2019, there are various areas throughout the Port where navigation of the waterways would preclude the use of a barge-based system.

Two of our terminals have completed their environmental document and design (Shell and PBF). Construction will soon begin at these terminals and is unlikely to be halted due to this regulation to redesign the terminals. CSLC would be averse to any delays to these construction projects as they are meant to protect the public and the environment. Other terminals currently working on their environmental documents and designs are also unlikely to redesign their terminals for CARB's At Berth regulation as there is currently no CARB certified emission control technology for tankers. The terminals would not be able

to wait for the technology to become available in order to design their terminals as they already need to meet MOTEM standards.

The Port stresses the need for CARB to conduct a feasibility assessment to better inform this regulation, especially for tankers due the many variables and restrictions associated with this industry.

Remediation Fund

60.36 CARB has set remediation fees in Table XVIII of the "Control Measure for Ocean-Going Vessels At Berth Cost Analysis Inputs and Assumptions for Standardized Regulatory Impact Assessment," that would be used for construction and repair projects.

Table XVIII. Remediation Fee Costs

Data Input	Value			Basis
Hourly remediation fee for terminal and for vessel, for each vessel type	Vessel Type	Vessel Hourly Fee	Terminal Hourly Fee	Staff analysis using Carl Moyer formula to calculate average emissions in tons per hour by vessel category. Product and crude tanker values were averaged for cost estimation purposes, however the fee would be dependent on the vessel type. Note that these values are estimates based on current Staff analyses at the time this document was prepared, and do not necessarily represent the exact fees that would apply.
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	Auto/Ro-Ro	$1,515	$1,515	
	Product Tankers	$1,783	$1,783	
	Crude Tankers	$9,873	$9,873	
Which terminals would offer the remediation fee as an option?	All (100%)			Staff assumes that all terminals would offer the remediation fee as an option.

POLA owns and maintains shore power infrastructure at our terminals. Construction and repairs to shore power infrastructure are conducted through the Port. We are concerned that the mechanism used to determine the amount paid to the remediation fund is unreasonable for long construction or repair projects. There are instances where unforeseen repairs may take longer than a few months due to the need to order equipment, coordinate times for terminal shutdown during repairs, or other issues that may come up. The current scheme for calculating payment to the remediation fund is based on an hourly basis per a call. For extended periods where shore power will not be accessible, the cost will be extraordinarily high for industry or the Port as shown in the example provided below.

The Port recently upgraded our World Cruise Center to allow for 11 kV and 6.6 kV shore power connections for cruise vessels. This construction required a new transformer at the Cruise Center. The goal of the construction was to provide enough power for the large cruise ships to plug into shore power at POLA. The construction occurred from June 30, 2017 through April 23, 2018, and during the electrical upgrade no visiting cruise vessels were able connect to shore power. Alternative shore power was not an option either since there are no CARB-certified alternative emission control technologies for cruise vessels. The total number of hours for cruise vessels berthed at the World Cruise Center during the construction was 1,056.55 hours. Based on the hourly fee for cruise in Table XVIII, the hypothetical remediation fee for this construction project would have cost $13,607,307 (1,056.55 hour x $12,879/hour). The total cost of the electrical upgrade itself

was about $11 million. This hypothetical remediation fee would have more than doubled the cost of this construction project that took less than a year to complete.

Since there are currently only two CARB-certified alternative emission control systems available at the Ports of Los Angeles and Long Beach, for long periods of construction or repair, there is uncertainty with respect to the availability of these systems in the future. In cases where a system cannot be secured, the remediation fee compliance mechanism would have to be utilized. As shown in our example above, the fee could increase to amounts that are not sustainable to industry or the Port. In our previous and current comment letters, the Ports request that CARB conduct a feasibility assessment. This will help determine the rate for the remediation fund as the current remediation fee costs will be too high for these prolonged instances of shore power construction or repair.

December 3, 2019

Richard Corey
California Air Resources Board
Clerks' Office
1001 I Street
Sacramento, CA 95814

Dear Mr. Corey:

SUBJECT: PORT OF LOS ANGELES AND PORT OF LONG BEACH COMMENTS ON THE PROPOSED REGULATION ORDER, "AIRBORNE TOXIC CONTROL MEASURE FOR AUXILIARY DIESEL ENGINES OPERATED ON OCEAN-GOING VESSELS AT-BERTH IN A CALIFORNIA PORT"

The Port of Long Beach and Port of Los Angeles (Ports) appreciate this opportunity to provide comments on the California Air Resources Board (CARB) proposed regulation order, "Airborne Toxic Control Measure for Auxiliary Diesel Engines Operated on Ocean-Going Vessels At-Berth in a California Port" released in the Initial Statement of Reasons (ISOR) on October 15, 2019. The Ports also appreciate you and your staff's willingness to meet with us throughout the rulemaking process. We found those meetings productive and helpful, and we hope to continue this cooperative relationship going forward.

The Ports support the changes incorporated into the latest regulatory proposal, specifically:

- The new rule would go into effect in 2021, but additional emission reduction requirements of the regulated fleet would be delayed until January 1, 2025.

- Bifurcating the cruise vessels into two categories, one for vessels which carry less than 1,500 combined passengers and crew, and one for vessels which carry more than 1,500 combined passengers and crew, and providing different hourly remediation fees for each.

- Tier III ships would have lower remediation fees than other Tier 0 to Tier II ships.

The Ports remain concerned with the following key elements of the proposed regulation:

- Future compliance with the timelines remains too difficult for the Roll-on/roll-off (RoRo) vessels and tanker vessels, which are currently proposed to comply with a

90% control requirement in 2025 and 2027, respectively. Given the technology to control emissions from RoRos and tanker vessels does not exist today, and the significant safety concerns associated with tanker vessels, we request at a minimum two additional years with each category. RoRos should be required to comply in 2027 at the earliest, and tankers at the San Pedro Bay Port should be required to comply in 2029 at the earliest.

- The industry has raised significant concerns regarding the potential alternative emission capture and control technologies upon which this regulation depends, including cost, operational viability, safety,and the reality that utilizing these technologies will increase greenhouse gas emissions. The technology for controlling at-berth emissions for RoRo vessels or tanker vessels has never been demonstrated and a prototype does not exist. The technology feasibility assessment proposed for 2023 should require CARB staff assess the state of technology, the readiness to deploy it at each port, safety considerations, and cost-effectiveness. The rule should specifically call out these elements as required components of the feasibility assessment. In addition, there should be a mechanism for staff, without returning to the CARB Board for approval, to make the necessary changes to the implementation timeline should the feasibility assessment demonstrate the technology is not feasible or the costs too great per ton of emissions reduction.

- CARB previously provided funding on the scale of hundreds of millions of dollars through Prop 1B to support shorepower investment for the currently regulated fleet. The ISOR estimates compliance under the proposed regulation will cost the shipping industry $2.2 billion. To reduce the likelihood of cargo diversion, which could result in greater emissions overall, and to support the development and deployment of the requisite alternative emission capture and control technologies for tanker and RoRo vessels, the Ports request CARB allocate at least $200 million for tanker and RoRo emission capture and control technology or shore power statewide.

- The Ports support including Alternative Compliance Plans for the currently unregulated fleet including Tankers and RoRos in the regulation.

- Lastly, the Ports recommend that the Air Districts maintain responsibility for implementation of the remediation fund. Our local air district, the South Coast Air Quality Management District, has the greatest local experience in evaluating technology, developing solicitations, and building air quality programs.

This regulation sets an important precedent not only for California, but also for ports worldwide. Success will be dependent upon reasonable timelines, feasible technology, and public and private funds, which drive technology commercialization. The Ports appreciate the opportunity to work with CARB on this important effort to develop an effective regulation to reduce air emissions from vessels and public health impacts in our communities.

Please feel free to reach out to Teresa Pisano, Port of Los Angeles Marine Environmental Supervisor at (310) 732-3057 or via email at teresa.pisano@portla.org, or Morgan Caswell, Port of Long Beach Manager of Air Quality Practices at (562) 283-7138 or via email at morgan.caswell@polb.com with any specific questions.

Sincerely,

EUGENE SEROKA
Executive Director
Port of Los Angeles

MARIO CORDERO
Executive Director
Port of Long Beach

cc: Bonnie Soriano, CARB (via email Bonnie.Soriano@arb.ca.gov)
Angela Csondes, CARB (via email Angela.Csondes@arb.ca.gov)
Nicole Light, CARB (via email Nicole.Light@arb.ca.gov)

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CARB At-Berth Regulation Cost Effectiveness Analysis for Auto Carriers and RoRo Ships at Port of Long Beach & Port of Los Angeles

PMSA
PACIFIC MERCHANT SHIPPING ASSOCIATION

Port of LONG BEACH
The Green Port

THE PORT OF LOS ANGELES

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Prepared by:
STARCREST CONSULTING GROUP, LLC

CARB AT-BERTH REGULATION COST EFFECTIVENESS ANALYSIS FOR AUTO CARRIERS AND RORO SHIPS AT PORT OF LONG BEACH & PORT OF LOS ANGELES

Starcrest developed an emission reduction evaluation for CARB's proposed amendments to the at-berth regulation for Auto Carrier and RoRo ships at the Port of Long Beach (POLB) and the Port of Los Angeles (POLA), also referred to as the San Pedro Bay Ports (SPBP). Using this evaluation, Starcrest developed an Excel calculation tool (the Auto/RoRo Tool) to assess the emission reductions and cost-effectiveness of the proposed amendments for these vessels based on the SPBP 2018 Annual Emissions Inventories and Carl Moyer Program methodology. Based on this assessment, the cost of the proposed amendments as they relate to Auto Carrier and RoRo ships at the SPBPs is significant compared to other emission-reduction projects with similar benefits, and alternative more cost-effective emission reduction approaches should be explored.

The Auto/RoRo Tool currently utilizes the SPBP 2018 Annual Emissions Inventories for the emissions reduction analysis and the cost assumptions/information provided in Standardized Regulatory Impact Assessment (SRIA) for CARB's Proposed Control Measure for Ocean-Going Vessels at Berth released on August 20, 2019, for the cost effectiveness analysis. This tool was designed with flexibility to allow input modifications to explore alternative cost inputs. Two financing approaches are included in the tool: (1) hourly rental of barge-based emission capture and control (C&C) systems, and (2) capital investment of four barge-based C&C systems dedicated to treat Auto Carrier and RoRo ships The need for four (4) barge-based systems to control 100 percent of calls was established by an evaluation of 2018 calls from these vessel types. This evaluation is included as a worksheet in the Auto/RoRo Tool.

Project Goals

- Estimate emission reductions that may be achieved by barge-based C&C systems applied to the auto carrier and RoRo vessels calling at the SPBP.
- Assess cost effectiveness (CE) for barge-based treatment options to meet the requirements of the proposed amendments.
- Estimate the portion of auto carrier/RoRo at-berth emissions to all at-berth emissions in both mass and percent.
- Estimate the portion of auto carrier/RoRo at-berth emissions to all OGV emissions in both mass and percent.

Key Assumptions

- This review assumes that 100 percent of calls are treated by a barge-based C&C system (based on an evaluation of 2018 calls from these vessel types in the SPBP).
- Barge-based emission C&C systems will control 80% of NOx, ROG and DPM emissions.

Key Findings

Reduction of PM (including PM_{10}, $PM_{2.5}$, and DPM) and NO_x emissions in the 36%-40% range could be achieved from auto carrier and RoRo vessel control, but emissions of other pollutants (CO2e, SOx and CO) are estimated to increase in the range of 28% to 151% due to emissions from increased bunkering activities at anchorage and supporting activities such as tugs and generators needed to operate barge-based C&C systems. A summary of the proposed regulation's emission reduction benefits, based on the auto carrier and RoRo calls made at SPBP in 2018, is provided in Table A1 (tons per year (tpy)) and Table A2 (tons per day (tpd)). Negative numbers indicate increased emissions.

Table A1: Reductions from Barge-Based at-Berth Capture and Control, tpy

Port	PM_{10} tpy	$PM_{2.5}$ tpy	DPM tpy	NO_x tpy	SO_x tpy	HC tpy	CO tpy	CO_2e mt/yr
Emission Reductions (or increases)								
POLB	0.40	0.38	0.38	19.61	-0.66	-0.73	-5.04	-1,615
POLA	0.22	0.20	0.18	8.98	-0.37	-0.43	-3.30	-1,005
Total	**0.62**	**0.58**	**0.56**	**28.59**	**-1.03**	**-1.15**	**-8.33**	**-2,620**
Percent Reduction (or increase)								
POLB	36%	36%	38%	40%	-28%	-44%	-113%	-49%
POLA	39%	38%	39%	40%	-35%	-52%	-151%	-53%
Total	**37%**	**37%**	**38%**	**40%**	-30%	-47%	-125%	-50%

Table A2: Reductions from Barge-Based at-Berth Capture and Control, tpd

Port	PM10 tpd	PM2.5 tpd	DPM tpd	NOx tpd	SOx tpd	HC tpd	CO tpd	CO2e mt/yr
Emission Reductions (or increases)								
POLB	0.0011	0.0010	0.0010	0.0537	-0.0018	-0.0020	-0.0138	-4.4
POLA	0.0006	0.0006	0.0005	0.0246	-0.0010	-0.0012	-0.0090	-2.8
Total	**0.0017**	**0.0016**	**0.0015**	**0.0783**	**-0.0028**	**-0.0032**	**-0.0228**	**-7.2**
Percent Reduction (or increase)								
POLB	36%	36%	38%	40%	-28%	-44%	-113%	-49%
POLA	39%	38%	39%	40%	-35%	-52%	-151%	-53%
Total	**37%**	**37%**	**38%**	**40%**	-30%	-47%	-125%	-50%

To place these reductions in context, Tables B1 (tpy) and B2 (tpd) summarize the 2018 SPBP auto carrier and RoRo emissions at berth, all OGVs at berth, and all OGVs in all modes (at berth, maneuvering, transit). The tables also show the percentages that the auto carrier and RoRo emissions make up of all OGV emissions at berth and of the entire 2018 OGV inventory. **Overall, auto carrier and RoRo at berth emissions made up approximately one percent (1%) of all OGV emissions in the SPBPs' 2018 inventory or between 2% to 4.5 % of all at-berth emissions.**

Table B1: Auto Carriers and RoRo At-berth Emissions Contribution in CY 2018, tpy

Port	Vessel Type	PM	PM2.5	DPM	NOx	SOx	HC	CO	CO2e
		tpy	tpy	tpy	tpy	tpy	tpy	tpy	mt/y
SPBP	Auto and RoRo at Berth	1.7	1.6	1.4	69.9	3.4	2.4	6.5	5,001
SPBP	All vessels at Berth	60.1	56.3	31.4	1894.8	169.7	72.7	188.7	264,414
SPBP	All vessels	142.0	133.0	106.1	7078.5	323.3	270.9	590.3	503,286
SPBP	Percent of all OGV at Berth	2.8%	2.8%	4.5%	3.7%	2.0%	3.3%	3.5%	1.9%
SPBP	Percent of all OGV	1.2%	1.2%	1.3%	1.0%	1.0%	0.9%	1.1%	1.0%

Table B2: Auto Carriers and RoRo At-berth Emissions Contribution in CY 2018, tpd

Port	Vessel Type	PM10	PM2.5	DPM	NOx	SOx	HC	CO	CO2e
		tpd	tpd	tpd	tpd	tpd	tpd	tpd	mt/d
SPBP	Auto and RoRo at Berth	0.0045	0.0043	0.0039	0.1916	0.0092	0.0066	0.0179	14
SPBP	All vessels at Berth	0.1648	0.1543	0.0861	5.1914	0.4649	0.1993	0.5170	724
SPBP	All vessels	0.3891	0.3642	0.2907	19.3931	0.8857	0.7421	1.6172	1,379
SPBP	Percent of all OGV at Berth	2.8%	2.8%	4.5%	3.7%	2.0%	3.3%	3.5%	1.9%
SPBP	Percent of all OGV	1.2%	1.2%	1.3%	1.0%	1.0%	0.9%	1.1%	1.0%

A utilization analysis evaluated how many auto carrier or RoRo vessels were at berth in one of the ports during each day of 2018. A maximum of four concurrent calls took place on five days during the year, and three concurrent calls took place on 12 days. This indicates that four barge-based C&C systems would have been needed to accommodate all SPBP auto carrier and RoRo calls in 2018 and would be needed going forward assuming 2018 was representative of future call frequency at these two ports. Because three or four concurrent calls occur so infrequently, the C&C barge fleet would be utilized about 19 percent of the time.

Cost effectiveness (CE) calculations, discussed below, result in cost effectiveness between $115k and $200k for the barge rental scenario (varies based on effective hourly rate) and $54,987 for the scenario that includes the purchase of four barge-based C&C systems to serve 100% of calls made to SPBP. **Both scenarios are far less cost effective than CARB's Carl Moyer Program (CMP), which has an upper CE limit of $30,000 per weighted ton of emissions reduced.**

It should be noted that the CMP also allows for a second tier CE limit for the higher cost of advanced/emerging technology projects; this second tier CE limit is $100k per weighted ton. The $100k/ton limit is only applied to the small increment between today's technology and the advanced technology level, which in practice is zero-emission or near-zero emission (i.e., 90% cleaner than current technology). Since barge-based C&C systems are not using technology that is 90% cleaner than today's clean-up technology, these systems should be evaluated at the $30k/weighted ton CE limit.

Emissions Assessment

The key elements and the sources of information included in the emissions reduction evaluation include:

- OGV at-berth emissions for auxiliary and boiler engines are based on auto carrier and RoRo vessels that visited POLA and POLB in 2018 and are consistent with both Ports' 2018 annual emissions inventory. The average at-berth hours and emissions (in grams per hour) by port, by terminal and by anchorage are shown in Tables 1 and 2 of the Auto/RoRo Tool under the tab "2018 Data Summary".
- The frequency of auto carrier and RoRo calls per day in 2018 was analyzed and it was determined that four dedicated barges would be required to treat emissions for the entire auto carrier and RoRo fleet arriving at SPBP. Importantly, four barges would have been needed to ensure ALL calls were serviced in 2018, but for a large percentage of the year, most of the barges would have been idle because four (4) vessels were in port simultaneously on only five days. In addition, more than four vessels may call simultaneously in future years so having four barges available would not guarantee full coverage. This analysis is provided in the Auto/RoRo Tool on the "Utilization" tab.
- The emissions analysis scenario assumes that the use of a barge system would require additional emission-producing activities that would reduce the overall effectiveness of the system. These activities include the following:
  - **Additional trips from harbor craft** (**HC)** as follows:
    1. HC home base to barge home base
    2. Barge home base to terminal
    3. HC home base
    4. HC home base to terminal
    5. Terminal to barge home base
    6. Barge home base to HC home base
  - **Harbor craft idling time** during this process. The average emissions in g/hr for assist tugs and the average time per trip are shown in Tables 3 and 5 of the Auto/RoRo Tool under tab "2018 Data Summary." These values are based on SPBP 2018 EI data.
  - **Two small generator sets** to provide electrical power to the system. It was assumed that the generator sets will be similar to those used by the Alternative Maritime Emission Control System (AMECS) barge currently being operated at the SPBP ports. Table 4 of the Auto/RoRo Tool under tab "2018 Data Summary" shows the emission factors in g/hr for these generators.
  - **Additional time at anchorages for bunkering**. Currently most of the auto carrier and RoRo ships bunker while operating at berth. If C&C barges are utilized during at-berth operations, bunkering will most likely take place at anchorage resulting in increases in emissions at anchorage.

Control efficiencies of 80% for PM/DPM and NOx were assumed, based on CARB's SRIA. It was assumed that barge system will treat auxiliary as well boiler engines exhaust.

Cost Effectiveness Assessment

The CE assessment is based on CARB's CMP methodology. This methodology combines the annual emission reductions in terms of "weighted emission reductions," or WER, in tons per year (tpy) as follows:

$$\mathbf{WER = NOx + ROG^{1} + (20 * PM2.5^{2})}$$

The WER is applied to the project cost, which is annualized by multiplying by the capital recovery factor (CRF), which is based on a discount rate and the project life. Cost-effectiveness is calculated under the CMP as follows:

$$\mathbf{CE\ (tpy) = Project\ Cost\ (\$) * CRF\ /\ WER\ (tpy)}$$

Below is a summary of the two scenarios included in the Auto/RoRo tool, based on CARB's SRIA:

- Hourly Rental: As determined in the "Emissions Summary" worksheet of the Auto/RoRo tool and based on 2018 SPBP EI data, a total of 4,934 hours per year of RoRo operation would need to be treated by the rented barge-based C&C systems to fully comply with the proposed regulation.

In the Auto/RoRo tool, hourly rate is a variable to determine CE at different hourly rates for the estimated emissions reductions. Attachment A provides excerpts of four actual C&C service transactions that demonstrate the effective hourly rate is greater than CARB's assumption of $900 an hour. Two invoices in attachment A show that the vendor required a 24-hour minimum usage time, which effectively raises the hourly rate if the barge system is used for anything less. The CE at each of the four hourly rates documented in Attachment A, as well as both CARB's $900 assumption and our application of the 24-hour minimum to the lowest hourly rate that we could document, $1,100, is provided below in Table C.

Table C: Cost Effectiveness at Different Hourly Rates

Hourly Rate	Cost-Effectiveness ($/weighted ton)	Rate Source (assumes/indicated all inclusive)
$900	$115,707	CARB SRIA Excel - "Cost Input Tab"
$1,100	$141,419	Receipt #2, Attachment A
$1,208	$155,304	Receipt #1, Attachment A
	$163,275	$900/hr for 17 hr call (avg.), includes 24-hr min. charge
$1,270		(Receipt #4)
$1,422	$182,816	Receipt #3
$1,552	$199,530	$1,100/hr for 17 hr call (avg.), includes 24-hr min. charge

[1] CMP uses ROG for CE evaluation. Since EI tracks HC, not ROG, HC is converted to ROG using this formula: ROG = HC * 1.26639, per 2017 CMP Guidelines, CARB

[2] PM2.5 is used in this CE evaluation to be consistent with CARB's methodology.

Using CARB's assumption of a $900/hr rental rate, the CE to reduce the estimated 38.76 weighted tons per year (discount rate of 1%, project life of 1 year), is estimated as $115,707 per weighted ton. Note that at the rate of $900 per hour for 4,934 hours/year, a total annual investment of $4.4M would be required to reduce 38.76 weighted tons of emissions (as calculated by CMP as WER) per year from Auto carrier/RoRo vessels (based on 2018 data).

As shown in Table C, the CE of the hourly rental scenario is highly sensitive to the effective hourly rental rate, which fluctuates for each transaction based on how the billing is structured for each client. For each $100 over the estimated rental rate of $900/hr, the project CE increases by $12,856/weighted ton. For an average 17-hour call serviced at a rate of $1,100/hr, the effective rate is $1,552/hr to account for the 24-hour minimum charge, which results in a CE of nearly $200,000 per weighted ton.

As documented in Attachment A, C&C system pricing depends on a key factor that drives the hourly cost higher. The vendor requirement to apply a 24-hour minimum charge skews costs higher than those based on CARB's assumed hourly rate ($900/hr) for all vessels with calls less than 24 hours. Note that the average call length in 2018 across Auto carrier/RoRo vessels is approximately 17 hours – the need to pay for these additional hours that were not used will drive the hourly rental service costs higher than projected by CARB.

- Purchase and Operate: As determined by the Utilization analysis (see Utilization tab), for the 2018 calls by RoRo/Auto carriers, a total of four (4) barge-based C&C systems would be required to cover all SPBP calls. There are limited data on the capital cost to purchase and operate barge-based C&C systems.
    - In the SRIA, CARB assumes[3] the capital cost to purchase a barge-based system is $4.9 million. While not provided for barge-based C&C systems, CARB estimates the land-based C&C system operating costs as follows: annual maintenance cost of $17,500 and an hourly operating rate of $100. No additional terminal labor costs were included, an assumption that merits further review. Using these values over a 20-year project life and a 5% discount rate (CARB's assumptions) the CE of purchasing and operating four units is estimated as $54,987 per ton, nearly double CARB's CMP limit of $30k per ton.
    - However, the only publicly available documentation of a barge-based C&C system is the Bay Area Air Quality Management District (BAAQMD) contract with Advanced Environmental Group, LLC for a project to design, build and operate a barge-based C&C system in Benicia. The total project cost is $8.844M. At this total project cost, assuming that this cost includes operation pursuant to contract requirements, the CE exceeds $73,012 per ton, well beyond the CMP limit of $30k per ton.

[3] CARB SRIA, page 80, *https://ww3.arb.ca.gov/regact/2019/ogvatberth2019/appc-1.pdf*

Discussion Based on Data and Assumptions Currently Included in the Auto/RoRo tool

- CARB uses the CMP cost effectiveness methodology to evaluate the CE of the proposed amendment. While this methodology accounts for the increase in hydrocarbon (and therefore ROG) emissions, it does not take into consideration the increase in CO2e, SOx and CO. The regulatory amendment should address associated increases in other pollutants.
- CARB estimates that just nine C&C systems would be needed statewide (seven of them barge-based), but 2018 call frequency analysis indicates four of these systems would need to be assigned to the Ports of Los Angeles and Long Beach to assure full compliance.
- Based on SPBP EI 2018 EI data, and a conservative estimate of 80% reduction in NOx and DPM emissions from Barge based C&C, it is estimated that 100% compliance with CARB's proposed amendments to the at-berth regulation would result in the reduction of approximately 38.76 weighted tpy.
- These reductions come at a very significant cost. As discussed above, the CE of the proposed amendments far exceeds the CMP CE limit of $30k/weighted ton. Under the CMP, emission reductions are achieved at far better CE levels. For example, repowering harbor craft such as tug, work and crew+supply boats (from Tier 2 to Tier 3) is far more cost-effective than including auto carriers and RoRo vessels under this proposed regulatory amendment. Specifically, at a one-time cost of about $800k-$900k, a tugboat repower will reduce from 4 to 15 weighted tpy of emissions[4] at a 10-year CE that ranges from $9k - $25k per weighted ton. This investment is well below the CMP CE limit of $30k/ton.

[4] This range is a function of engine horsepower, annual hours of operation, vessel type etc.

Attachment A

Receipt Excerpt #1:

AMECS Emission Control Services Invoice

Bill To	[redacted]	Invoice#	[redacted]
		Invoice Date	[redacted]
		Amount	$ 145,519.00
Wire To	Advanced Environmental Group LLC 230-234 East C Street Wilmington, CA 90744	[redacted]	

Visit Summary

Record#	[redacted]	Visit Date	[redacted]
Company	[redacted]	Vessel	[redacted]
Location	[redacted]	IMO/Call Sign	[redacted]

Visit Data

Vessel First Line (estimate)		[redacted]
Barge Arrival		[redacted]
Barge First Line		[redacted]
Connection Time (start control)		[redacted]
Actual Disconnect Time (stop control)		[redacted]
Barge Last Line		[redacted]
Barge Secured at Home Berth		[redacted]
Mobilization Start		[redacted]
Mobilization End		[redacted]
Service Hours([redacted])		120.42
SubTotal		**120.42**
		-
Total Hours Billed		120.42
Hourly Rate	$	1,100.00
Emission Control Services Total (120.42 * 1100)	$	132,462.00
Other: HOLIDAY RATE - [redacted] 330.00 * 24	$	7,920.00
Other: System connection delays - hourly rate applies per contract		
Other: [redacted] = 4.67 hours	$	5,137.00
Total Additional Charges/Credits	$	**13,057.00**
Total Amount Due	$	**145,519.00**

Terms NET 15. Due By ([redacted]

Interest on past due amounts will be charged at a rate of 1.5% per month

AMECS

Effective Rate:
Total Cost/Vessel Stay
=$145,519/120.42
=$1,208/hour

Generated: [redacted]

Receipt Excerpt #2:

AMECS Emission Control Services Invoice

Bill To	[redacted]	Invoice#	[redacted]
		Invoice Date	[redacted]
		Amount $	87,450.00
Wire To	Advanced Environmental Group LLC 230-234 East C Street Wilmington, CA 90744	[redacted]	

Visit Summary

Record#	[redacted]	Visit Date	[redacted]
Company	[redacted]	Vessel	[redacted]
Location	[redacted]	IMO/Call Sign	[redacted]

Visit Data

Vessel First Line (estimate)		[redacted]
Barge Arrival		[redacted]
Barge First Line		[redacted]
Connection Time (start control)		[redacted]
Actual Disconnect Time (stop control)		[redacted]
Barge Last Line		[redacted]
Barge Secured at Home Berth		[redacted]
Mobilization Start		[redacted]
Mobilization End		[redacted]
Service Hours([redacted])		79.50
SubTotal		**79.50**
		-
Total Hours Billed		79.50
Hourly Rate	$	1,100.00
Emission Control Services Total (79.5 * 1100)	$	87,450.00
	$	-
Other:	$	-
Other:	$	-
Total Additional Charges/Credits	**$**	**-**
Total Amount Due	**$**	**87,450.00**

Terms NET 15. Due By [redacted]

Interest on past due amounts will be charged at a rate of 1.5% per month.

AMECS

Effective Rate:
Total Cost/Vessel Stay
=$87,450/79.50
=$1,100/hour

Generated: [redacted]

Receipt Excerpt #3:

AMECS Emission Control Services Invoice

Bill To	[redacted]	Invoice# [redacted]
		Invoice Date [redacted]2019
		Amount $ 19,200.00
Wire To	Advanced Environmental Group LLC	Chase Bank - Bank Contact [redacted]
	230-234 East C Street	[redacted]
	Wilmington, CA 90744	[redacted]

Visit Summary

Record#	[redacted]	Visit Date	[redacted]/2019
Company	[redacted]	Vessel	[redacted]
Location	[redacted]	IMO/Call Sign	[redacted]

Visit Data

Vessel First Line (estimate)	[redacted]/2019	14:30
Barge Arrival	[redacted]2019	17:50
Barge First Line	[redacted]/2019	18:15
Connection Time (start control)	[redacted]2019	19:01
Actual Disconnect Time (stop control)	[redacted]/2019	03:01
Barge Last Line	[redacted]/2019	03:16
Barge Secured at Home Berth	[redacted]2019	04:55
Mobilization Start	[redacted]/2019	15:30
Mobilization End	[redacted]/2019	05:00
Mobilization/Demobilization Hours		4.00
Service Hours [redacted]/19 15:30 - [redacted]19 05:00		13.50
SubTotal		17.50
Total Hours Billed		17.50
Hourly Rate	$	800.00
Emission Control Services Total (17.5 * 800)	$	14,000.00
Note: Minimum Charge of 24 hours 800* 6.5	$	5,200.00
Other:	$	-
Total Additional Charges/Credits	$	5,200.00
Total Amount Due	$	19,200.00

Terms NET 15. Due B[redacted]/2019 Interest on past due amounts will be charged at a rate of 1.5% per month.

HRLY Charge $1422

AMECS

Generated: [redacted]

NOTE: Short Stay Vsl.
VSL STAY: 13.5 HRS
TUG CALLED: 4.0 HRS
MinCharge: 24 HRS
Effective Hourly Charge $19,200/13.5 hrs = $1422.22

Receipt Excerpt #4:

HOURLY CHARGE	$900 USD per hour. The Hourly Charge is inclusive of all tug services and/or other 3rd party services required for mobilizing, de-mobilizing, and positioning System to Customer's vessel. Notwithstanding the above, any and all charges for "Spacer Barges," "Fenders" and/or supplemental 3rd party crew boats are not included in the Hourly Charge and will be passed through to Customer at the actual cost to Operator + 20%. Additional charges may only be added upon written authorization by Customer. In the event Terminal may require a Spacer Barge between the VENDOR and Vessel.
EMISSION CONTROL SERVICE CHARGES	Service hours will be charged from the beginning of VENDOR mobilization to the end of VENDOR demobilization. Customer understands that Operator has a minimum charge of twenty-four (24) hours per vessel.

At an hourly rate of $900, applied across the minimum 24 hour billing requirement, the total cost is 24 x $900) / 17 hours (avg. call time) = $1,270 effective hourly rate.