APPEARANCES

BOARD MEMBERS:
Liane Randolph, Chair
Sandra Berg, Vice Chair
John Balmes, MD
Hector De La Torre
John Eisenhut
Senator Dean Florez
Assemblymember Eduardo Garcia
Davina Hurt
Gideon Kracov
Senator Connie Leyva
Tania Pacheco-Werner, PhD
Barbara Riordan
Supervisor Phil Serna
Dan Sperling, PhD
Diane Takvorian
Supervisor Nora Vargas

STAFF:
Richard Corey, Executive Officer
Edie Chang, Deputy Executive Officer, Planning, Freight, and Toxics
Chanell Fletcher, Deputy Executive Officer, Environmental Justice
APPEARANCES CONTINUED

STAFF:

Annette Hebert, Deputy Executive Officer, Southern California Headquarters and Mobile Source Compliance

Edna Murphy, Deputy Executive Officer, Internal Operations

Rajinder Sahota, Deputy Executive Officer, Climate Change and Research

Craig Segall, Deputy Executive Officer, Mobile Sources and Incentives

Ellen Peter, Chief Counsel

Heather Arias, Division Chief, Transportation and Toxics Division (TTD)

Matthew Botill, Division Chief, Industrial Strategies Division (ISD)

Richard Boyd, Assistant Division Chief, TTD

Maureen Hand, Air Resources Engineer, Climate Change Planning Section, ISD

Tracy Haynes, Staff Air Pollution Specialist, Freight Technology Section, TTD

Melissa Houchin, Air Resources Engineer, Freight Technology Section, TTD

Stephanie Kato, Staff Air Pollution Specialist, Energy Section, ISD

Shelby Livingston, Manager, Program Operation Section, ISD

Gabriel Monroe, Senior Attorney, Legal Office

Adam Moreno, Staff Air Pollution Specialist, Program Operation Section, ISD

David Quiros, Manager, Freight Technology Section, TTD

Jordan Ramalingam, Air Pollution Specialist, Fuels Evaluation Section, ISD
APPEARANCES CONTINUED

STAFF:
Bonnie Soriano, Branch Chief, Freight Activity Branch, TTD
Alex Wang, Senior Attorney Legal Office
Alex Yiu, Staff Air Pollution Specialist, Program Operation Section, ISD

CALIFORNIA ENVIRONMENTAL PROTECTION AGENCY:
Secretary Jared Blumenfeld

ALSO PRESENT:
Sarah Aird, Californians for Pesticide Reform
Joy Alafia, Western Propane Gas Association
Tom Babineau, Rypos
Graham Balch, Green Yachts
Rebecca Baskins, California Advanced Biofuels Alliance
Christine Batikian, Port of Los Angeles
Shawn Bennett, Baydelta Maritime, LLC
Sylvia Betancourt, Long Beach Alliance for Children with Asthma
Michael Breslin, American Waterways Operators
Steven Brink, California Forestry Association
Teresa Bui, Pacific Environment
Jennifer Case, New Leaf Biofuel
Connie Cho, Communities for a Better Environment
Max Cohen, Curtin Maritime Corp.
APPEARANCES CONTINUED

ALSO PRESENT:

Dave Cook, Rail Propulsion Systems
Jon Costantino
Charles Davidson, ICSR
Sarah Deslauriers, California Association of Sanitation Agencies
Jerry Desmond, Recreational Boaters of California
Jaime Diamond, Stardust Sportfishing
Martha Dina Argüello, Physicians for Social Responsibility, LA
Harvey Eder, Public Solar Power Coalition
Evan Edgar, Edgar & Associates, Inc.
Tim Ekstrom, Royal Star Sportfishing
Supervisor Nathan Fletcher, San Diego County
Ken Franke, Sportfishing Association of California
Tim French, Truck and Engine Manufacturers Association
Catherine Garoupa White, PhD, Central Valley Air Quality Coalition
Josh Gaylord
Elliot Gonzales, Sierra Club
Richard Grow
Lauren Gularte, Water Emergency Transportation Authority
Leah Harnish, American Waterways Operators
Scott Hedderich, Renewable Energy Group
APPEARANCES CONTINUED

ALSO PRESENT:
Julie Henderson, Director, California Department of Pesticide Regulation
Jim Holden, Fish for Life
Matt Holmes, Little Manila Rising
Regina Hsu, Earthjustice
Gary Hughes, Biofuelwatch
Greg Hurner, Hurner Government Relations and Advocacy
Virginia Jameson, Deputy Secretary, California Department of Food and Agriculture
Steve Jepsen, Southern California Alliance of Publicly Owned Treatment Works
Kristin Joseph, RE Site Engineering, Inc.
Donna Kalez, Dana Wharf Sportfishing
Ryan Kenny, Clean Energy
Ameen Khan, California Environmental Voters
Wayne Kotow, Coastal Conservation Association of California
Nilda Langston
John Larrea, California League of Food Producers
Julia Levin, Bioenergy Association of California
Andrea Lueker, California Association of Harbor Masters and Port Captains
Rick Luliucci, The Vane Brothers Company
Jim Luttjohann, Love Catalina Island, Catalina Island Tourism Authority
APPEARANCES CONTINUED

ALSO PRESENT:
Ryan Mack, MP Strategic Group
Bill Magavern, Coalition for Clean Air
Paul Mason, Pacific Forest Trust
Julia May, Communities for a Better Environment
David McCloy, San Francisco Bar Pilots
Barry McCooey, M&H Engineering
Art Mead, Crowley Maritime
Jeanne Merrill, California Climate and Agriculture Network
Scott Merritt, Merritt Waterline Solutions
Jacqueline Moore, Pacific Merchant Shipping Association
Lynn Muench, The American Waterways Operators
Graham Noyes, Low Carbon Fuels Coalition
George Peridas, Lawrence Livermore National Laboratory
Rick Powers, Golden Gate Fishermen's Association
Ernie Prieto, Oceanside Sea Center
Leela Rao, Port of Long Beach
David Reynolds, PTL Marine
Will Roberts, Foss Maritime
Max Rosenberg, Vane Line Bunkering, LLC
Laura Rosenberger Haider
Mariela Ruacho, American Lung Association
Peter Schrappen, American Waterways Operators
APPEARANCES CONTINUED

ALSO PRESENT:
Harry Simpson, Crimson Renewable Energy Holdings
Mikhael Skvarla, California Council for Environmental and Economic Balance
Richard Smith, Westar Marine Services
Steven Smith, Phillips 66
William Smith, Riptide Charters
Robert Spiegel, California Manufacturers and Technology Association
Misagh Tabrizi, Nett Technologies
Sharifa Taylor, Communities for a Better Environment
Alison Torres, Eastern Municipal Water District
Frank Ursitti, H&M Landing
Jim Verburg, Western States Petroleum Association
Floyd Vergara, Clean Fuels Alliance America
Virgil Welch, California Carbon Capture Coalition
Sam Wilson, Union of Concerned Scientists
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PROCEEDINGS

CHAIR RANDOLPH: Thank you very much. Good morning. The March 24th public meeting of the California Air Resources Board will come to order.

Board Clerk, will you please call the roll?

BOARD CLERK ESTABROOK: Yes.

Dr. Balmes?

BOARD MEMBER BALMES: Here.

BOARD CLERK ESTABROOK: Mr. De La Torre?

Mr. Eisenhut?

BOARD MEMBER EISENHUT: Yes, here.

BOARD CLERK ESTABROOK: Senator Florez?

BOARD MEMBER FLOREZ: Florez, here.

BOARD CLERK ESTABROOK: Assembly Member Garcia?

Ms. Hurt?

BOARD MEMBER HURT: Present.

BOARD CLERK ESTABROOK: Mr. Kracov?

BOARD MEMBER KRACOV: Here.

BOARD CLERK ESTABROOK: Senator Leyva?

Dr. Pacheco-Werner?

BOARD MEMBER PACHECO-WERNER: Here.

BOARD CLERK ESTABROOK: Mrs. Riordan?

BOARD MEMBER RIORDAN: Here.

BOARD CLERK ESTABROOK: Supervisor Serna?

BOARD MEMBER SERNA: Here.
BOARD CLERK ESTABROOK: Professor Sperling?
BOARD MEMBER SPERLING: Here.
BOARD CLERK ESTABROOK: Ms. Takvorian?
BOARD MEMBER TAKVORIAN: Here.
BOARD CLERK ESTABROOK: Supervisor Vargas?
BOARD MEMBER VARGAS: Vargas, here
BOARD CLERK ESTABROOK: Vice Chair Berg?
VICE CHAIR BERG: Here.
BOARD CLERK ESTABROOK: Chair Randolph?
CHAIR RANDOLPH: Here.
BOARD CLERK ESTABROOK: Madam Chair, we have a quorum.
CHAIR RANDOLPH: Thank you very much.
I'd like to begin with a house -- few house keeping items. In accordance with Assembly Bill 361, as extended by Governor Newsom's Executive Order N-1-22, we are today's meeting remotely using zoom with public participation options available both by phone and Zoom.
A closed captioning feature is available for those of you joining us in the Zoom environment. In order to turn on the subtitles, please look for a button labeled CC at the bottom of the Zoom window, as shown in the example on the screen now. I would like to take this opportunity to remind everyone to speak clearly and from a quiet location, whether you are joining us in Zoom or
calling in by phone.

Interpretation services will be provided today in Spanish. If you are joining us using Zoom, there is a button labeled "Interpretation" on the Zoom screen. Click on that interpretation button and select Spanish to hear the meeting in Spanish. I want to remind all of our speakers to speak slowly to allow the interpreters the opportunity to accurately interpret your comments.

(Interpreter translated in Spanish)

CHAIR RANDOLPH: I will now ask the Board Clerk to provide more details on today's procedures.

BOARD CLERK ESTABROOK: Yes. Thank you, Chair.

Good morning, everyone. My name is Katie Estabrook and I am one of the Board Clerks. And I will provide some information on how public participation will be organized for today's meeting. If you wish to make a verbal comment on one of the Board items or during the open comment period at the end of today's meeting, you must be joining using Zoom webinar or calling in by phone. If you are currently watching the webcast on CAL-SPAN, but you wish to comment, please register for the Zoom webinar or call in. Information for both can be found on the public agenda for today's meeting.

To make a verbal comment, we will be using the raise hand feature in Zoom. If you wish to speak on a
Board item, please virtually raise your hand as soon as the item has begun to let us know you wish to speak. To do this, if you are using a computer or tablet, there is a raise band button. If you are calling in on the phone, dial star nine to raise your hand. Even if you previously indicated which item you wish to speak on when you registered, you must raise your hand at the beginning of the item, so that you can be added to the queue and so that your chance to speak will not be skipped.

If you will be giving your verbal comment in Spanish and require an interpreter's assistance, please indicate so at the beginning of your testimony and our translator will assist you. During your comment, please pause after each sentence to allow the interpreter to translate your comment into English. When the comment period starts, the order of commenters will be determined by who raises their hand first.

I will call each commenter by name and will activate each commenter's audio when it is your turn to speak. For those calling in by phone, I will identify you by the last three digits of your phone number. We will not be showing a list of commenters. However, I will be announcing the next three or so commenters in this queue, so you are ready to testify and know who's coming up next. Please note that you will not appear by video during your
testimony.

I would also like to remind everyone to please state your name for the record before you speak. This is important in the remote meeting setting. And it is especially important for those calling in by phone to testify. There will be a time limit for each commenter. That normal time is three minutes, though that could change based on the Chair's discretion. During public testimony, you will see a timer on the screen. For those calling in by phone, we will run the timer and let you know when you have 30 seconds left and when your time is up. If you require Spanish interpretation for your comment, your time will be doubled.

If you wish to submit written comments today, please visit CARB's, "Send Us Your Comments", page or look at the public agenda on our webpage for links to send these documents electronically. Comments will be accepted on each item until the Chair closes the item.

If you experience any technical difficulties, please call (805)772-2715 so an IT person can assist you. This number is also noted on the public agenda.

Thank you, Chair, I'll turn it back to you.

CHAIR RANDOLPH: Thank you.

The first item on the agenda today is Item 22-5-1, proposed amendments to the commercial harbor craft
regulation. If you wish to comment on this item, please click the raise hand button or dial nine -- dial -- sorry, dial star nine now. We will call on you when we get to the public comment portion of this item.

Today, the Board will hear staff's proposal to expand emissions-related requirements for commercial harbor craft that operate in regulated California waters. The proposed amendments would build on the current Commercial Harbor Craft Regulation by expanding the requirements to additional vessel types and proposing more stringent engine performance standards, including technology forcing zero-emission requirements for marine vessels.

As the Board knows, California needs to continue to reduce emissions from mobile sources in order to meet critical community, clean air, and climate goals. Achieving these goals will provide much needed public health protection for the millions of Californians that still breathe unhealthy air, reduce the public's exposure to toxic air contaminants, and help meet California's State Implementation Plan commitment to attain national ambient air quality standards.

To attain these health-based standards, we must reduce oxides of nitrogen in the South Coast Air Basin by 45 percent by 2023 and an additional 55 percent by 2031,
and an additional 70 percent by 2037. The proposed amendments are additionally designed to reduce emissions of greenhouse gases and are consistent with Governor Newsom's Executive Order N-79-20, which directs CARB and other State agencies to develop strategies to achieve 100 percent zero emissions from off-road vehicles and equipment by 2035, where feasible.

This is the second of two Board hearings for the proposed amendments. At our hearing in November, we heard testimony from a range of stakeholders regarding this regulation. Many stressed the importance of the health benefits from these emissions reductions, while others expressed concerns about potential negative impacts on their businesses.

CARB staff listened to everyone carefully and deeply, and at our direction, continued working with stakeholders to identify ways to ensure that this regulation can achieve the emissions reductions we need, support the advancement of clean technology, and respond to concerns raised by stakeholders.

Following up from that meeting, our staff met with many stakeholders, and our office met virtually -- our Chair's office met virtually with other regulated sectors. And as part of their work, CARB staff, along with Mr. Corey and one of my senior advisors, traveled to
San Diego where they met with staff from San Diego Air Pollution Control District, advocates from the Environmental Health Coalition, and the local commercial sports fishermen.

The trip allowed staff the opportunity to better understand the challenges faced both by community residents and the local commercial sports fishermen. As a result of the continued dialogue and work of staff, I'm confident that the regulation before us today will ensure cleaner air in port communities across the state and do so in a way that allows industry partners the time to not only overcome key challenges, but also be partners in the advancement of new cleaner technology.

The 15-day changes proposed by staff will provide the commercial sportsfishing industry greater time to implement cleaner engines and collaborate with CARB staff to advance hybrid and zero-emission technologies.

Following today, staff will continue to consider zero-emission contingency measures for commercial harbor craft like tugboats to bring critical emissions reductions to our state's most impacted communities.

Finally, I want to thank the legislators who have engaged with me on this item, including Assembly Member O'Donnell, former Assembly Member Burke, and Senator McGuire. These partnerships and communications help build
better outcomes, such as the inclusion of a work group in the proposed resolution as recommended by Senator McGuire, and streamline compliance deadline extensions as recommended by former Assembly Member Burke.

Mr. Corey, would you please introduce the item?

EXECUTIVE OFFICER COREY: Yes. Thanks, Chair.

In 2008, the Board adopted the initial Commercial Harbor Craft Regulation which reduces emissions from diesel engines on commercial harbor craft. The regulation was amended in 2010 to include additional vessel categories. And in 2017, the Board directed staff to provide concepts to control pollution from large freight facilities including seaports. In response to the Board direction and projected public health benefits, staff has developed the proposed amendments for your consideration.

The proposed amendments we're presenting to you today further expand in-use requirements for commercial harbor craft to more vessel categories, create more stringent performance standards for diesel engines, introduce mandates and incentives for zero-emission harbor craft, and establish requirements for facilities to provide supporting infrastructure and increased reporting to CARB.

The proposed amendments reduce emissions of criteria pollutants and toxic air contaminants in
communities near seaports, marinas, and harbors, where residents are often disproportionately exposed to air pollution. Many of these communities are AB 617 selected communities and are recognized as disadvantaged due in part to impacts from marine-related air pollution.

Reducing harbor craft related emissions helps to reduce the cumulative exposure to toxic emissions and is critical to meeting California's federal clean air standards.

That being said, we acknowledge and recognize that what is proposed will be challenging for some California businesses, especially certain small businesses. As such, we followed Board direction from the November hearing and are reporting back. Staff has conducted extensive outreach since we were last in front of you for this item, including a four-and-a-half hour webinar to discuss incentive opportunities and ways to respond to your direction, and as you noted, a trip to San Diego, which I had the opportunity to participate in. Various avenues for streamlining extension requests for fleets that experience financial and technical challenges in meeting the requirements have been explored and will be discussed as part of the staff presentation.

In some cases, the extensions being proposed could extend out to approximately 2034 to provide more
time for compliance. In addition, we're proposing an additional extension pathway for commercial passenger fishing vessels that have upgraded all their engines to meet the tier three standards.

We have assembled, released, and discussed information with stakeholders regarding funding programs available for harbor craft. We're also introducing a proposed technology and implementation review, a commitment to continue collaborating with the sportfishing industry and release a mid-term review by 2028, as well as a commitment to explore a zero-emission contingency measure.

Today, staff is reporting back on how your direction from November has been achieved and is presenting the proposed amendments for your consideration and final vote.

I'll now ask Melissa Houchin of the Transportation and Toxics Division to begin the staff presentation.

Melissa.

(Thereupon a slide presentation.)

TTD AIR RESOURCES ENGINEER HOUCHEIN: Thank you, Mr. Corey and good morning, Chair Randolph, and members of the Board. Today, I'll be going over staff's proposed amendments to the Commercial Harbor Craft Regulation and
staff's response to Board direction from our first hearing in November.

--o0o--

TTD AIR RESOURCES ENGINEER HOUCHIN: As a quick reminder, I'll start with the current commercial harbor craft or CHC Regulation which sets requirements for harbor craft to help the state meet clean air commitments and protect communities near ports, marinas, and harbors. It includes requirements for reporting using ultra low-sulfur diesel fuel and accelerating turnover to Tier 2 or 3 engines for some vessel categories.

The compliance dates in the current regulation run from 2009 to 2022. At the end of this year, the current Harbor Craft Regulation will be considered fully implemented. For the past few years, staff has been developing a proposal to amend the regulation. This process has resulted in the proposed amendments released this past September, which would require zero-emission marine technology for vessels where feasible and cleaner combustion on all other vessel types. Staff presented the proposed amendments on November 19th, 2021, where we heard public comments and received direction from the Board.

--o0o--

TTD AIR RESOURCES ENGINEER HOUCHIN: This figure was shown in our November presentation and is important to
touch on again. It illustrates that in the absence of the proposed amendments, commercial harbor craft would emit 165 tons per year of diesel particulate matter, or DPM, and 15.1 tons per day of oxides of nitrogen, or NOx, in 2023. Harbor craft are one of the top three emissions sources at ports and result in a near source cancer risk of greater than 900 chances in a million.

--o0o--

TTD AIR RESOURCES ENGINEER HOUCHIN: Now, I'll recap the proposal. In support of Executive Order N-79-20, zero-emission requirements were a top priority of the proposal and are established where feasible, including in 2025, new excursion vessels must be zero emission capable. And in 2026, all short-run ferries must transition to full zero-emission.

We also estimate that over 100 vessels will be operating with zero-emission capability by the 2030s through two compliance options in the proposal that allow and encourage zero-emission operations through alternative controls, which will be discussed in a few slides.

--o0o--

TTD AIR RESOURCES ENGINEER HOUCHIN: Where zero-emission is not yet feasible, the amendments propose cleaner combustion standards. To achieve the greatest emission reductions and public health benefits, the
proposed amendments would not only require the cleanest U.S. EPA certified engine available, but also the use of a diesel particulate filter, or DPF.

The proposal also requires that Tier 4 engines must be purchased if they are certified for the size and duty cycle of an engine. The PM standards required by the proposed amendments would harmonize with the newest on-road engine standards.

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TTD AIR RESOURCES ENGINEER HOUCHEIN: This graphic from our November hearing shows the originally proposed compliance dates for each vessel category and potential extensions available for feasibility and financial hardship. Compliance dates shown in green depend on the vessel type, engine tier, and engine model year, with dirtier engines having earlier compliance dates.

The blue bars show the possible compliance extension periods if vessel replacement is required. The dark squares mark when vessel replacement may be required after the extensions start to expire. Most extensions expire December 31st, 2034, which is shown by the vertical black line at the right end of the figure.

Note that commercial fishing vessels are required to upgrade Tier 1 and older engines to Tier 3, which is a feasible modification on virtually all in-use vessels and
therefore no compliance extensions for feasibility are necessary. These compliance extensions provide opportunities for fleets dealing with technical and financial difficulties additional time to comply; in some cases, up to 13 years from now.

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TTD AIR RESOURCES ENGINEER HOUCHIN: As presented in November, staff has built in two alternative compliance options into the proposed memberships. The first is called alternative control of emissions. This is a plan created by an operator that will result in equivalent emission reductions as following the model year compliance schedule. The proposed amendments also include credits to incentivize the adoption of zero-emission technologies. An operator deploying a zero-emission or zero-emission capable vessel would receive additional compliance times for another vessel in the fleet, three years for a zero-emission capable vessel and seven years for a full zero-emission vessel. Operators could pick one of these two options for their fleet or groups of engines.

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TTD AIR RESOURCES ENGINEER HOUCHIN: Staff also proposed that vessels with a home base in or adjacent to disadvantaged communities have additional stringency under the proposed amendments.
Disadvantaged communities would be identified as the highest scoring 25 percent of census tracts from CalEnviroScreen. Vessels with a home base in or adjacent to disadvantaged communities would have more stringent low-use thresholds. The proposed amendments also require a demonstration of no increase impacts on disadvantaged communities from alternative compliance plans or zero-emission credits. The proposal requires that the additional compliance time given to diesel-powered vessels must not operate in these communities.

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TTD AIR RESOURCES ENGINEER HOUGHIN: As you know, it is extremely important that we reduce emissions from all harbor craft in order to attain federal air quality standards and protect portside communities. Since November, we've released the Draft State SIP strategy, which identifies a shortfall in emission reductions needed to meet the ozone standard in South Coast.

These figures from the November hearing reiterate the estimated emissions in 2035 with and without the implementation of the proposed amendments with diesel PM emissions on the left in tons per year and NOx emissions on the right in tons per day. Statewide, the proposed amendments would result in an 89 percent reduction in diesel particulate matter emissions and a 54 percent
reduction in oxides of nitrogen emissions in 2035.

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TTD AIR RESOURCES ENGINEER HOUCHIN: In November, we also showed you the cancer risk from harbor craft in the South Coast and San Francisco Bay Area air basins. Here, we show you again how far the emissions from harbor craft are felt in these high pollution area.

The next slide shows the reductions in cancer risk the proposed amendments would have on these two air basins.

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TTD AIR RESOURCES ENGINEER HOUCHIN: As you can see, the area of impact and cancer risk level are drastically decreased. The proposed amendments reduce cancer risk to over 22 million residents, reduce the population weighted cancer risk from greater than 10 to only 1 chance per million, and they eliminate cancer risk of greater than 100 chances per million in the two study areas.

This image of the South Coast Air Basin shows many disadvantaged communities shaded gray that would no longer have an exposure to cancer risk from harbor craft.

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TTD AIR RESOURCES ENGINEER HOUCHIN: The Board discussion in November directed staff to explore and
report back on four topic areas. The first was to continue outreach to stakeholders on funding opportunities available for harbor craft and to reach out to funding programs to help facilitate harbor craft owners' participation in the programs, specifically looking at small businesses and sportfishing vessel operations to facilitate the transition to cleaner technology for these operators.

The second was to reevaluate the compliance extension process, specifically looking at lowering the cost and workload necessary to utilize extensions.

The third was to regularly evaluate the status of marine technology, both zero emission and cleaner combustion, and report on the progress of commercial technology and implementation of the amendments.

The fourth was to evaluate the opportunity for a zero-emission contingency measure to support State Implementation Plan progress.

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TTD AIR RESOURCES ENGINEER HOUCHIN: Before our November hearing, staff conducted over 400 meetings, site visits, calls, and emails with stakeholders. We released draft cost materials and regulatory text for feedback from the public and conducted five workshops.

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TTD AIR RESOURCES ENGINEER HOUCHIN: After the November hearing, the Board's direction regarding additional outreach, staff conducted over 30 virtual meetings and two in-person site visits with stakeholders.

Staff also held a four-hour webinar in January to discuss funding available for harbor craft, as well as staff's proposed response to Board direction from November. In addition, staff participated in over 80 additional calls and emails with stakeholders.

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TTD AIR RESOURCES ENGINEER HOUCHIN: In response to requests from stakeholders for public records, staff also posted additional materials on our website, such as the emission inventory, final cost workbooks, informational fact sheets, health analysis methodology, and air dispersion modeling input and output files.

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TTD AIR RESOURCES ENGINEER HOUCHIN: Key topics raised by stakeholders through the outreach since November broadly include comments related to feasibility, affordability, and emission reductions. The next few slides will cover these and staff's responses.

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TTD AIR RESOURCES ENGINEER HOUCHIN: Many
operators have expressed concern over the availability and performance of Tier 4 plus DPF technology. As highlighted in our rulemaking package and at the November hearing, there are 22 models of Tier 4 marine engines commercially available. In addition, there are several U.S. EPA certified Tier 3 engines that come with a DPF that are available for auxiliary use.

Tier 3 and 4 engines and DPFs are proven technology already in use in other sectors and will continue to be subject to U.S. Coast Guard design standards and inspections.

We also received comments on the affordability of replacement vessels and the viability of these costs, particularly for small businesses. Operators with these concerns would be able to apply for the feasibility compliance extensions for up to six or eight additional years to comply. Staff included extensions in the original proposal to allow small businesses to plan for compliance costs and develop price structures to pass these costs on to consumers.

Several comments also touched on the difficulty of obtaining incentive funding. Although there are funding opportunities. In order to provide the most conservative estimate of compliance costs, the analysis assumes no incentive funding is granted for any vessel
TTD AIR RESOURCES ENGINEER HOUCHIN: We've received comments regarding the accuracy of vessel population inputs in the emissions inventory. Staff used data and other inputs from extensive industry dialogue and considered all relevant governmental database sources when finalizing vessel population and other emission inventory inputs.

We've also received comments from the articulated tug barge, or ATB industry, indicating that ATBs should be included under the ocean-going vessels category. ATBs are comprised of two vessels, a tugboat and a barge vessel, that operate in tandem. They typically carry refined petrochemical products such as fuels. Although ATBs can perform similar duties to ocean-going vessels, particularly medium-range tankers, ATBs are harbor craft and compete with other types of harbor craft directly. In addition, the U.S. Coast Guard establishes separate requirements for ATBs than it does ocean-going vessel tankers.

In response to the Board resolution from the new At Berth Regulation adopted in 2020, staff has worked extensively with ATB industry, and incorporated dedicated provisions in the alternative control of emissions section.
for ATBs to use capture and control systems on auxiliary engines while at the terminal.

Staff's proposal to continue regulating ATBs as CHC would also achieve significant emission reductions while the vessels are in transit within California waters. We have also received comments requesting that commercial passenger fishing vessel, or CPFVs, only be required to turn over to Tier 3 now and zero emission later for the final transition. As documented in our staff report, the CPFV category has the lowest feasibility of any vessel category for repowering to meet the Tier 4 plus DPF performance standard.

In addition, the majority of CPFVs are owned and operated by small businesses, which are generally not in a strong position to finance feasibility evaluations to apply for compliance extensions.

Because of the unique feasibility issues, many of these companies would be granted compliance extensions based on engine technology available today. Therefore, for this category of vessels only, early upgrade to Tier 3 followed by a transition in 2034 to the Tier 4 plus DPF performance standard, or zero emission, would provide a unique opportunity for early emission reductions while preserving the long-term emission benefits of the rule, as discussed in more detail on the next slide.
TTD AIR RESOURCES ENGINEER HOUCHIN: These recommended changes would apply to CPFVs. First, staff proposes a 15-day change to establish a compliance option for CPFVs to receive an extension to the end of 2034, if vessels are upgraded to Tier 3 by the end of 2024. This option would require some additional data gathering as part of the already required annual reporting to help staff understand financial impacts of upgrading technology and it would require a commitment to collaborate with CARB on zero-emission advancement.

This new compliance pathway would give operators additional time before the next compliance step, while providing near-term reductions through Tier 3 upgrades by 2024 and providing a streamlined, less expensive extension process.

Second, through resolution, staff is proposing a mid-term evaluation which will provide an opportunity to discuss if zero-emission technology should be proposed as the next step instead of Tier 4 plus DPF. Staff would provide the Board with the mid-term evaluation by 2028.

TTD AIR RESOURCES ENGINEER HOUCHIN: Now, we will transition into staff's response to Board direction from November. As previously mentioned, the first area of
focus was outreach with stakeholders on funding. The Board directed us to continue outreach with the affected industry, which we have done by hosting our January webinar and holding over 30 individual meetings with stakeholders since our November hearing.

At our webinar, we provided detailed information on four funding programs and invited experts to answer questions from industry on their respective programs. We will continue to have expanded dialogue with our funding program partners to identify, communicate, and maximize the use of funding opportunities.

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TTD AIR RESOURCES ENGINEER HOUCHEIN: The second area the Board directed staff to reevaluate was the compliance extension process, specifically looking at ways to lower burdens on operators. As a reminder, the proposed amendments include five compliance extensions that operators may apply for, if they meet the extension criteria.

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TTD AIR RESOURCES ENGINEER HOUCHEIN: Staff has accordingly reexamined the compliance extension procedures and believes that those provisions conform to the Board's directives.

Staff has determined the current proposed
procedures already provide owners the flexibility
demonstrate the technical and feasibility of modifying
existing vessels by using readily accessible information
in lieu of contracting with a third-party naval architect
for an individualized assessment for a specific vessel.

If applicable for their vessel category, such as
sportfishing vessels that cannot be modified due to their
the wood or fiberglass vessel hull material, an owner
could use the study published by the California Maritime
Academy to demonstrate it would not be technically
feasible to modify their vessel, assuming no new engines
have become certified that change the CMA studies
conclusions. The $62,000 feasibility study estimate in
our cost analysis was conservative, if an operator would
have needed to perform their own independent
vessel-specific study.

Staff commits to continually informing, updating,
and communicating with affected industry on issues
regarding all aspects of the proposed amendments, and
especially regarding the compliance extensions and
existing studies that meet requirements. Staff will also
be available to assist owners during implementation when
applying for extensions.

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TTD AIR RESOURCES ENGINEER HOUCHIN: The Board
discussion also highlighted a need to regularly report back on technology advancement. Zero-emission technology is advancing rapidly, but it remains unclear how soon it will be technically and economically viable for the wide variety of harbor craft to operate in this state.

Staff proposed a technology review to be completed every two years beginning in 2024, which would include a newly formed technical working group, including sportfishing and other industries to coordinate on demonstrating zero-emission operations. This review would cover the advancement of zero-emission technologies and infrastructure, as well as the advancement and commercial availability of Tier 4 plus DPF technology.

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TTD AIR RESOURCES ENGINEER HOUCHEIN: The last area the Board directed staff to evaluate was a zero-emission contingency measure, if zero-emission technology becomes feasible and available for harbor craft. Staff is proposing to explore a contingency measure for non-attainment areas, if zero-emission technology advances in the marine sector.

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TTD AIR RESOURCES ENGINEER HOUCHEIN: A draft environmental analysis, or EA, was completed for the proposed amendments that was released in September. Staff
determined that implementation of the proposed amendments may have potentially significant indirect impacts to some resource areas. However, these impacts are mainly due to short-term construction-related activities.

The Draft EA was released for a comment period of at least 45 days, which ended on November 15th, 2021. Staff prepared a final Environmental Analysis and written response to all comments received on the Draft EA and posted them on our website earlier this month.

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TTD AIR RESOURCES ENGINEER HOUCHIN: With that, staff would like to remind the Board of the health benefits and cost effectiveness of the proposed amendments. From 2023 to 2038, the amendments would save an estimated 531 lives and result in hundreds of avoided trips to a hospital for breathing related emergencies. Furthermore, the benefits outweigh the cost of the amendments by $3 billion, which is by a factor of two.

Due to emission standards for marine engines lagging behind other sectors, they remain one of the highest contributing emission sources at ports. It is imperative that the marine sector reduces its emission contribution and prioritizes near-term reductions.

This regulation is highly cost effective and ensures that industry invests in clean air compliant
technologies that achieve substantial emission reductions and public health benefits.

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TTD AIR RESOURCES ENGINEER HOUCHIN: Staff's recommendation is to approve the written responses to environmental comments, certify the Final EA, and make the required CEQA findings and Statement of Overriding Considerations.

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TTD AIR RESOURCES ENGINEER HOUCHIN: Additional elements of the proposed resolution include language to continue facilitating incentive opportunities and streamline compliance extensions, as well as establish a technical working group, including members of sportfishing and other industries to advance and collaborate on deployment of zero-emission technology and reported findings in a biennial technology review.

The resolution also includes language to direct staff to conduct a mid-term review by 2028 on the requirements for the sportfishing fleet and return to the Board. The Board would consider the findings of the review and could direct staff to begin the process of adjusting regulatory requirements.

And finally, the resolution proposes language to explore a zero-emission contingency measure for extreme
TTD AIR RESOURCES ENGINEER HOUCBIN: We further recommend that the Board votes to adopt the proposed amendments with recommended 15-day changes.

After releasing proposed change for a 15-day period, staff will finalize the rulemaking package, which includes responding to public comments in the Final Statement of Reasons and the package will be submitted to the Office of Administrative Law.

Thank you for your time.

CHAIR RANDOLPH: Thank you.

Before we move to public comment on this item, I wanted to call on our former colleague who worked very hard on this regulation, Supervisor Nathan Fletcher wanted to say a few words.

SAN DIEGO SUPERVISOR FLETCHER: Thank you. Thank you, Chair. It is -- IT IS wonderful to see you all. I miss you all. I thoroughly enjoyed and loved and appreciated my time on CARB and thrilled to see my colleagues, Supervisor Nora Vargas who will do a much better job than I could have ever done joining your Board and doing wonderful.

But I just want to commend the CARB staff around issues of the passenger sportfishing fleet and some of the
changes that have come about, along with a number of Board members. I know I've spoken to many of you about this issue, and many of you were engaged. And I really want to commend Richard and team coming down, being on the ground, seeing the circumstances, and making reasonable accommodations that will achieve our environmental goals and our clean air goals, but will do it in a way that is real, and is sustainable, and that this really and important industry can accommodate and move forward with.

So just in full support of what you all are doing and really just want to commend everyone. These issues are difficult and hard, and we know that we have to clean up our environment. We know we have to clean up the air and we know we have to do it in a responsible way that takes into account some of the unique circumstances that industry has faced.

And so just in full support of these amendments, and again want to thank everyone for all of the hard work, and listening, and engagement that went on. And I think as a former Air Resources Board member, I'm very proud of this regulation in total and the direction it's headed. I'm particularly proud of how this industry was treated. So thank you very, very much Chair Randolph and thank you to all of you for the work you continue to do.

CHAIR RANDOLPH: All right. Thank you Supervisor
Okay. We will now hear from the public who raised their hand to speak on this item. We have at least 50 speakers lined up to speak. And as this is the second hearing on this regulation package, our time to speak will be two minutes. So, Clerk, could you please call the commenters and set a time of two minutes per commenter.

BOARD CLERK ESTABROOK: Yes. Thank you, chair.

Our first three speakers will be Ken Franke, Jaime Diamond, and Sam Wilson. Just a reminder to everyone that with the number of hands that are up in the queue, if you lower your hand and then reraise your hand, it will put you to the bottom. So please just continue to keep your hand raised until I call on you.

And if you are going to be giving your comment in Spanish, please plan on speaking slowly and pausing after each sentence. And we will have an interpreter that will assist you for consecutive translation.

So, Ken, you may unmute and begin.

KEN FRANKE: Good morning, Chair Randolph and members of the Board. I'm Captain Ken Franke, President of the Sportfishing Association of California. The SAC membership comprises a majority of the Southern California Coast Guard inspected passenger fishing vessel fleet. We in the CPFV community appreciate all of your comments at
the November Board meeting, and recognizing the consequential impacts to families of the draft rule. We also appreciate Mr. Corey and the executive leadership team touring our vessels and hearing directly from our family owners at how they will be impacted.

I also want to thank former Member Nathan Fletcher for helping to take his knowledge of our fleet and CARB's charge emission[SIC] to facilitate a conversation and understanding between the fleet and the professional team at CARB. The proposed resolution recognizes the contributions of the fleet to continuously upgrade to lower emissions engines, imposes an aggressive schedule for the balance of the fleet to use best available technology, and sets definitive benchmarks for continuous development of new technologies to encourage engine of manufacturers to meet the future needs of our fleet.

This won't be easy and is dependent on support from you as Board members the Legislature to access the resources necessary to meet this aggressive schedule and future innovation. Critical to this also is the fleet's cooperation with CARB to conduct technology review. And you have our commitment to maintain that cooperative effort.

SAC and GGFA have discussed with staff that we
want to ensure that the technology review is comprehensive, so that we can identify emissions and reduction opportunities, and provide an economically technical -- technologically feasible path to continuously lower emissions and eventually meet the state's long-term zero-emissions goals. This would include, but not limited to: updated emissions data and modeling; certification of engines in horsepower class; space constraints on vessels; safety of technologies, including stability and heat concerns; advanced hybrid and zero-emissions retrofit development status; dockside infrastructure; and finally monetary and non-monetary impacts to ocean education and resource protection and conservation.

On behalf of the SAC Board of Directors, we are in support of the draft resolution and staff presentation on 15-day changes for commercial passenger fishing vessels. Again, this is not giving the fleet a pass. It is recognizing the fleet's early actions in environmental stewardship, in setting and aggressive schedule for continuous improvement. I'd like to finally also comment that we've been in discussions with CARB staff regarding certain ecotourism vessels --

BOARD CLERK ESTABROOK: Thank you.

KEN FRANKE: -- that are not required to purchase CPFV licenses. SAC and GGFA are committed to working with
their members to meet the near-term goals working with
CARB staff to identify --

BOARD CLERK ESTABROOK: Thank you. That
concludes your time.

KEN FRANKE: Thank you.

BOARD CLERK ESTABROOK: Thank you.

Our next speaker is Jaime Diamond. Jamie, you
may unmute and begin.

JAIME DIAMOND: Good morning, Chair Randolph and
members of the Board. I am Jaime Diamond, owner of
Stardust Sportfishing in Santa Barbara. As a women in
this industry, I worked hard to build my family business.
Everything we have is on the line, including the jobs of
all of our employees. Maintaining our family business
through this time, and after having just survived COVID
shutdowns, has been frightening experience. That said, I,
along with other family boat owners were relieved when we
heard of the extension path proposed in the resolution.

Having the CARB staff meet with us and talk about
what could be done to reduce emissions without removing
out boats from service was important and much appreciated.
I know there's much to be done to help fellow owners meet
the aggressive timeline and I look forward to -- and look
towards future emissions reductions.

I'm on the Board of Directors of SAC and have
been involved through much of the process, and I'm committed to assisting all of my fellow owners comply and to work with CARB on future reductions. I also know the men and women on our board and all of the captains and crew are strong advocates of environmental protection. They will be strong allies going forward to continue to upgrade machinery to better models.

We are all in support of your efforts here today. A positive outcome will save so many jobs and the ocean access for so many people in our communities that do not have the money to buy their own boats. Our kids programs, marine labs for students, the veterans fishing programs all will be saved with an approval of this resolution.

Looking to the future, our fleet will be right there to help work with CARB to communicate, research, and continue to upgrade engines. I look forward to your approval of the resolution.

My three kids ages 15, 12, and 4, who hope to take over our family business some day, thank you, and look forward to your approval of the resolution.

Thank you. Have a great day

BOARD CLERK ESTABROOK: Thank you.

Our next speaker will be Sam Wilson. After Sam will be David Reynolds, Richard Smith, and then Ameen Khan.
Sam, you may unmute and begin.

SAM WILSON: Hi. Good morning, everybody. My name is Sam Wilson. I'm a Senior Vehicles Analyst with the Union of Concerned Scientists. Thanks so much for the opportunity to comment today.

UCS appreciates the time and hard work put into this proposal and we support CARB's efforts to reduce emissions from commercial harbor craft. We urge the Board to adopt this proposal today.

Emissions from harbor craft are currently one of the primary cancer risks for Californians living closer to ports. The proposed rule would provide a nearly 90 percent reduction in diesel particulate emissions and an over 50 percent reduction in nitrogen oxide emissions from the commercial harbor craft in our state. This will reduce cancer risks and other negative health outcomes for millions of Californians resulting in hundreds of fewer premature deaths, hospital visits, and respiratory illnesses, and also billions of dollars in related health savings.

This is particularly impactful for those communities living close to ports, which already bear disproportionate exposure to cumulative air toxins. Zero-emissions technologies are ready and available today and UCS suggests that CARB continue to consider and expand
incentives in funding for small businesses that operate vessels to transition quickly and equitably to a clean transportation future.

California has a very rich history of adopting effective regulations that spur innovation while reducing toxic air pollution. We encourage the Board to continue this history by adopting a strong public health focused regulation today to further expand existing zero-emissions vehicles technologies -- or vessels technology, excuse me, affecting a more equitable access to clean and healthy air, and significantly reducing exposure to cancer causing air pollution for millions of Californians.

Thanks again for your hard work on this proposal.

BOARD CLERK ESTABROOK: Thank you.

David Reynolds, you may unmute and begin.

(Conversation in the background.)

DAVID REYNOLDS: Thank you for this opportunity --

(Conversation the background.)

BOARD CLERK ESTABROOK: David.

DAVID REYNOLDS: Thank you for this opportunity --

BOARD CLERK ESTABROOK: Just a reminder to Board members. We'll start your clock over. Sorry, David.

DAVID REYNOLDS: No problem.
BOARD CLERK ESTABROOK: Just a reminder to everyone to continue to stay on mute.

And David, you may go ahead and begin.

DAVID REYNOLDS: Thank you for this opportunity.

My name is Davie Reynolds and I work at PTL Marine. PTL marine operates and services the major ports in California, including San Diego, LA/Long Beach, Port Hueneme, and the Bay Area markets. We are an industrial distribution and services provider with an emphasis on fuels, lubricants, chemicals and last mile logistics. We employ approximately 60 California residents and our organization has been operating in California since 1956.

The maritime industry understands and appreciates the long term viability of renewable diesel as a drop-in fuel to be used instead of conventional distillates. Current production capabilities require a great majority of the renewable diesel fuel utilized in the State of California to be imported primarily from the Gulf Coast or Asian markets.

Current production capacity of renewable diesel in the United States is around 600 million gallons per year with only five plants producing the product. On the positive side, production is expected to scale up as there are at least six new plants in progress that will add an additional two billion gallons per year of production.
capacity by 2024.

The downside is that even with this incremental production, this still only represents a very small portion of the overall United States refinery capacity.

There are two California refineries, one in Martinez, and the other in the Bay Area that are being converted to renewable diesel production. These conversions will not be completed until 2023 and 2024 best case scenario. Until these conversions are completed, product availability and reliability will remain at risk. When supply is tight, there's an additional cost passed on to consumers, all consumers, not just those maritime industry operators. We request that you extend the renewable diesel fuel requirement for California harbor crafts until January 1st --

BOARD CLERK ESTABROOK: Thank you.
DAVID REYNOLDS: -- 2024.
BOARD CLERK ESTABROOK: Thank you. That concludes you time.
DAVID REYNOLDS: Thank you.
BOARD CLERK ESTABROOK: Our next speaker is Richard Smith. Richard, you may unmute and begin.
RICHARD SMITH: Good morning. My name is Richard Smith and I am commenting on behalf of Westar Marine Services. Westar is women-owned tugboat and water taxi
company based in San Francisco that has been in existence since 1976. Westar operates 10 small tugboats and five water taxis, and ploys about 50 women and men, many of whom are represented by the Masters, Mates & Pilots Union. Westar's market niche is marine construction support, keeping the maritime infrastructure of peers, docks, bridges, et cetera, maintained and working.

Westar has invested millions of its own dollars plus Carl Moyer funds over the past 20 years upgrading the engines on its vessels to reduce emissions. The company's investments demonstrate its ongoing environmental commitment. The proposed regulations will directly impact Westar and threaten the liability of the company.

The regulations call for the installation of engines and equipment that do not exist and physically could not be installed in the small vessels that Westar operates.

Loss of a company such as Westar will directly impacts the maritime supply chain issues for the State. Westar endorses the comments that will be made by the American Waterways Operators, and Westar urges the Board to vote no on this item and to direct staff to work with the maritime industry to develop regulations that are feasible.

Thank you.
BOARD CLERK ESTABROOK: Thank you.

Our next speaker will be Ameen Khan. After Ameen will be Christine Batikian, Jacqueline Moore, and Jim Holden.

Ameen, you may unmute and begin.

AMEEEN KHAN: Good morning, Chair Randolph and Board members. My name is Ameen Khan and I am the Regulatory Affairs Advocate for California Environmental Voters, formerly the California League of Conservation Voters.

We thank the Board members and CARB staff for all your hard work and diligence in this issue. We are calling in support and to urge CARB to pass the strongest possible Commercial Harbor Craft Rule today. Harbor craft is one of the top resources of cancer risk around the ports of Los Angeles, Long Beach, and Oakland. We have the busiest ports in the nation. The communities closest to those ports have a 900 chance in 1 million developing cancer from the harbor craft emissions alone. This is 90 times above levels what EPA deems safe. This rule will save more than 300 -- 530 California lives and protect 9.7 million Californians from elevated levels of air pollution.

The technology exists today for zero-emission boats and ships. No industry should be given a free pass
ways at the price of our frontline communities and the environment. The time is now to electrify everything.

California's Harbor Craft Rule is an essential step towards addressing the harms of fossil fuel shipping and extend California's zero-emission transportation deep into the seas.

On behalf of California Environmental Voters, I urge you to pass the strongest possible version of the Commercial Harbor Craft Rule today.

Thank you for consideration of my comments.

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BOARD CLERK ESTABROOK: Thank you. Christine Batikian, you may unmute and begin.

CHRISTINE BATIKIAN: Christine Batikian representing the Port of Los Angeles. The Port of Los Angeles submitted written comments on the draft rule in a joint letter with the Port of Long Beach in November 2021. Our comments provided in that letter remain relevant and important, but we'll focus our verbal comments today on funding availability for harbor craft.

We have concerns with the funding programs CARB staff presented during the January meeting. Carl Moyer funding has been pointed as a main source of funding. However, Carl Moyer funding prioritization is currently set aside by the air districts. Historically, air
districts have provided limited, or in the case of some air districts, no funding to harbor craft through Carl Moyer.

Additionally, harbor craft that must meet regulations prior to 2025 will be ineligible for Carl Moyer funding as they will not meet the useful life requirements. Harbor craft that do not meet the useful life requirement may also not meet current cost effectiveness. Many vessels that currently have Tier 2 or 3 engines will not be able to accommodate a Tier 4 engine in their existing vessel and will need to be replaced. Unfortunately, replacing a Tier 2 or 3 engine with Tier 4 will not meet current Carl Moyer cost effectiveness.

We request that CARB staff set aside funding for the air districts specifically for harbor craft in Carl Moyer, adjust cost effectiveness regulation -- cost effectiveness calculations to allow for harbor craft replacements, and increase the funding amount overall. Additionally, CORE -- another program presented was CORE. CORE requires that the equipment must be verified and listed and eligible for participants to get funding. There is currently no listed harbor craft equipment or shore power infrastructure on the list of eligible equipment. Therefore, no CORE funding can be used at this time.
EPA's DERA funding was named as a funding source. DERA is a competitive grant against projects throughout the Entire EPA Region 9, which is four states. The funding availability is relatively small for DERA projects. We thank you for all the hard work, but the funding is not there to meet the timeline that CARB has set. CARB must set aside funding specifically for harbor craft or adjust existing funding programs in order for them to be --

BOARD CLERK ESTABROOK: Thank you.
CHRISTINE BATIKIAN: -- of any use to harbor craft owners and operators.
Thank you.
BOARD CLERK ESTABROOK: Thank you. That concludes your time.
Jacqueline Moore, you unmute and begin.

JACQUELINE MOORE: Hi. Good morning. My name is Jacqueline Moore and I'm from the Pacific Merchant Shipping Association and our members have appreciated the opportunity to work with CARB staff on the development of the amendments over the past few years. I offer three outstanding comments. And I will leave the technical comments to the many hard working harbor craft operators participating in this meeting today.
One strategy in various recent regulations and
amendment CARB is adopting are holding owners and
operators jointly responsible are not being obligated to a
specific party at all. CARB staff have said to let the
industry work it out, but unfortunately, that's not how
business works. We must rely on formal contracts and
agreements.

Seaports have established procedures and
contractual obligations. For the zero-emission
infrastructure a vital component of this regulation, it
will certainly cause confusion and likely conflict
regarding who will be responsible for purchasing and
maintaining infrastructure, and who even owns it in the
end.

I would also like to highlight that, yes, there
are some funding programs available. However, they are
nowhere near offering the multi-millions of dollars
required for every vessel. I highly support the comments
Ms. Batikian from Port of LA just shared on the funding
complications. I respectfully urge CARB and the law
makers to propose and support such additional
appropriations within the budget.

As for my main comment, the Clean Air Act
requires that California obtain a waiver from EPA prior to
enforcing any off-road emissions standard. This Harbor
Craft Rule is just that. It is not an in-use standard.
The emissions standard requirement and opacity limit places a numerical limit on emissions that go beyond approved standard limitations. EPA must provide a waiver to legally enforce this. This issue has already been litigated with CARB. And thus, we respectfully urge CARB to declare your intention to obtain a waiver prior to implementation of the amendments.

And that concludes my comments. Again, I am Jacqueline Moore of PMSA and thank you for allowing me the time to speak today.

BOARD CLERK ESTABROOK: Thank you. Our next speaker will be Jim Holden. After Jim will be Peter Schrappen, Regina Hsu, and Ernie Prieto. Jim, you may unmute and begin.

JIM HOLDEN: Well, good morning. My name is Jim Holden I'm the founder of Fish for Life, which is a 13-year program that takes special needs children and their families ocean fishing, unlike any program of its kind. Our home court is Dana Point. We've also had trips from Long Beach, San Diego, and we'll be expanding to Northern California this fall and the Bay Area.

We have a hundred people per voyage that includes 30 special needs kids, a variety of condition, autistic kids, down kids, cerebral palsy, they're all welcome, 30 chaperones, and 40 volunteers that involve non-special
needs kids, marine biologists, wounded warriors, firemen, EMTs. We have -- it's loaded with entertainment. The trips begin with red art -- red carpet introductions down the gangway to introduce our guests as they board the boat, a fire boat escort, kites we fly as we're heading to the fishing grounds, educate them, you know, about whales, dolphins, the difference between seals, sea lions, et cetera. We even surprise them with a mermaid out in the ocean while we're under dock -- or anchor.

As you can imagine, you know, the trips a feature rich, but therapeutic benefits are tremendous for our honored guests, the chaperones and all the volunteers. I want to take this time to thank CARB for your compassion and substantive changes to the harbor craft engine regulation. The demands for our program is overwhelming and this will allow Fish for Life to pursue our expansion plans to serve more families with special needs children.

Thank you.

BOARD CLERK ESTABROOK: Thank you.

Peter Schrappen, you may unmute and begin.

PETER SCHRAPPEN: Thank you. My name is Peter Schrappen, Vice President for the American Waterways Operators, which represents the tugboats, towboats, and barges. California is a critical part of our trade association. The Golden State ranks fourth among all
states in maritime jobs and contributes a whopping $12.2 billion annually to California's economy. If I could, I'd like to brag about our strong environmental record.

Our members represent the greenest, and most fuel efficient transportation system. Goods moved by tugs and barges mean 43 percent less greenhouse gases than rail moved freight and about 1,000 percent less than moving the same freight by semis. We're not resting on our environmental bonafides however. We are continually pushing the envelope as is the entire industry to get to zero emissions.

Unfortunately, we find ourselves at an impasse with this draft rule. These regulations are economically infeasible with dangerous modifications based on technology that has not been invented. I'm talking about DPFs. Unlike trucks, boats can't pull to the side of the road and call 911 and wait for a fire truck. They're at see and if they catch fire, it places their crew and the ships they escort at risk.

Tugs, towboats, and barges are part of the nation's critical infrastructure and I don't want to bury the lead. This rule will disrupt and already supply -- strained supply chain and devastate a critically important part of California's infrastructure, the workhorses of the working waterfront that supply Californians with their
groceries and fuel.

If you think times are tough now with (inaudible), in the market, wait until we all feel the pain that this rule will bring.

We have made our positions clear with our comment letters. We stand ready to work with CARB, but let's not jeopardize the lives of mariners. Let's pick better path. One that gets to zero emissions in a safe manner, one that allows DPFs a chance to get approved by the Coast Guard with a six-year grace period, one that exempts non-harbor craft like ocean-going tugs and ATBs because of the already in place At Berth Regulation where they are better suited, and let's seize the moment to get outdated technology out of the environment before we leave to require an unproven and dangerous technology.

Thank you for your time.

BOARD CLERK ESTABROOK: Thank you.

REGINA HSU: Good morning Chair Randolph and members of the Board. My name is Regina Hsu and I'm an attorney with Earthjustice. Thank you for the opportunity to comment today.

We urge CARB to adopt the Commercial Harbor Craft rule, the culmination of years of work by staff. By adopting this rule, CARB will fulfill a promise to
front-line communities to clean up harbor craft, which staff identified as a growing source of diesel pollution four years ago.

Since then, our portside communities have been suffering from an onslaught of toxic pollution due to increased activity at the ports. This growth at our ports means that we need to act now to clean up these various sources of port pollution.

The harbor craft rule is an opportunity for CARB to pass a critical public health measure that will save over 500 lives and bring much needed relief to our port communities. We appreciate staff's hard work and glad to see the first zero-emission requirements for harbor craft in this rule. We support the biennial technology review as well. Zero-emissions technology for harbor craft is developing quickly and these frequent technology reviews will be important to ensuring that we are achieving all of the emission reductions we can from this sector.

We also support the commitment to pursue a contingency measure. Additional zero-emission requirements for harbor craft will be critical for non-attainment areas, such as the South Coast and San Joaquin Valley.

Again, we'd like to thank staff for their hard work and urge CARB to stand with communities and adopt
this rule. Thank you.

BOARD CLERK ESTABROOK: Thank you.

Our next speaker will be Ernie Prieto. After Ernie will be Jerry Desmond, Laura [SIC] Gularte, and David McCloy.

Ernie, you may go ahead and begin.

ERNIE PRIETO: Good morning. My name is Ernie Prieto, Captain of the Chubasco II in Oceanside, California. The regulations that were considered at your November hearing are not economically or structurally feasible. We would be forced to build a new vessel at an estimated cost of $5 million forcing me to triple the price of one of our half-day trips, likely eliminating my marine education and fishing outreach programs. There is no way we could sustain current passenger loads at those prices. No way we could stay in business.

In stark contrast, I can support the resolution being considered today that proposes an alternative compliance path for commercial passenger fishing vessels, otherwise known as sportfishing boats. With its passage, boat owners, like myself, will be set on a compliance path that is tough, but manageable.

Once more, millions of Californians will be assured affordable access to fishing. This is important for all Californians, especially since there's been an
increase in fishing participation with significant growth amongst families. The recreational boating and fishing foundation recently reported that fishing participation rates have increased to a 12-year high with notable growth amongst non-traditional participants that are younger, more urban, and more diverse with significant -- significant gains amongst women, African Americans, Hispanics, and Latinos.

But I do not need a report to tell me this. My passengers are diverse and multi-cultural, representative of what makes California so special, a culture full of smiles and excitement when they have hooked a fish or experienced the ocean for the very first time.

With the adoption of the resolution, I can continue to support my family, my family of employees, and California's community of anglers.

Thank you.

BOARD CLERK ESTABROOK: Thank you.

Jerry Desmond.

JERRY DESMOND: Good morning, Chair and members.

This is Jerry Desmond on behalf of Recreational Boaters of California, RBOC, a non-profit advocacy organization that has pro -- been promoting and protecting the interests of the State boaters for over 50 years. We were a signer on the November 3rd comment letter to the Board on this
issue. And we appreciate and understand the achievements that have been accomplished in terms of the proposed regulation since that date, and we align ourselves with the comments that Ken Franke and the Sportsfishing Association of California, and the other sportfishing folks that are testifying today. We appreciate the effort to engage with our community.

Thank you.

BOARD CLERK ESTABROOK: Thank you. Lauren -- go ahead.

CHAIR RANDOLPH: We going to close the queue for public comment, so if you have not yet raised your hand or dialed star nine, please do so now. And 10:10, the queue will close.

Thank you very much.

BOARD CLERK ESTABROOK: Thank you. Lauren Gularte, you may unmute and begin.

LAUREN GULARTE: Good morning, Chair Randolph and commissioners. My name is Lauren Gularte representing the Water Emergency Transportation Authority, which operates San Francisco Bay Ferry Services. Thank you for the opportunity to comment today.

WETA is supportive of the goal of the proposed amendments and is committed to operating the cleanest vessels possible. In partnership with CARB, WETA
staff have worked throughout the last year plus to develop
an alternative control of emissions plan that will shift
50 percent of our vessel fleet to zero emissions by 2035.
We appreciate the time and effort your staff has committed
to working with us and developing this plan and addressing
our concerns with previous versions of the proposed
amendments.

In advance of the November 19, 2021 hearing, we
submitted a letter outlining two remaining requests for
changes to the proposed amendments. First, we requested
CARB to clarify language which discussed language
regarding funding restrictions for an operator's ACE plan.
And we requested that CARB make changes to limit the use
of grant funds -- I'm sorry, to -- rather than limiting
the use of grant funds to implement an operator's ACE
Plan, we suggest that the restrictions on the use of grant
funds come directly from the granting agency.

Secondly, we requested CARB to address the
situation of an in-process vessel repower project that
will occur -- well, that will have an engine out of a
vessel on December 31st, 2022, which is the date that is
used to document the engine model year of the vessel and
therefore sets the compliance year for that vessel. We
will have a vessel in the shipyard at that time and
requesting the language to be included to address that
situation.

We hope that CARB's Commission will direct staff to address these two remaining requests for changes to the proposed amendments today. In addition, we also want to urge CARB to act promptly in reviewing an operator's ACE plan, once these regulations go into effect. We have a lot of work to secure funding and expediting approval will help position WETA to bring these projects closer to reality. Thank you for the time.

BOARD CLERK ESTABROOK: Thank you.

Our next speaker will be David McCloy. After David, will Donna Kalez, Shawn Bennett and Tim Ekstrom.

David, you may unmute and begin.

DAVID MCCLOY: Good morning. My name is David McCloy. I'm with the San Francisco Bar Pilots. Thanks for the opportunity to speak. My company owns and operates 5 of the 10 pilot vessels in California.

We support the efforts of CARB to improve air quality in California. The Bar Pilots, along with our ratepayers, are currently building the first Tier 4 powered high-speed pilot vessel in the U.S. It will replace our current Tier 2 vessel. Delivered in November of this year, it will be ahead of the proposed compliance date for that vessel.

The current regs now require emissions compliance
upon new construction of vessels or repowers, along --
similar to EPA U.S. EPA requirements. The new proposed
regulations will require the Bar Pilots to prematurely
replace our fleet by the end of 2025. That's only three
and a half years from now, at the cost of approximately
$50 million to us and our industry ratepayers.

The design and engineering requirements timeline,
along with the financial impact on such a short timeline
will create an unreasonable burden on the piloted
infrastructure. We embrace the concept and efforts to
improve air quality in our area and the State as well, but
we just need more time to renew our fleet and comply with
the regs. So our request is to have additional time for
our vessels to meet the requirements. The current
proposed regs don't allow much extensions for our
particular fleet.

Thanks for your time. That's it.

BOARD CLERK ESTABROOK: Thank you.

Donna Kalez, you may unmute and begin.

DONNA KALEZ: Thank you. Good morning, Chair
Randolph and members of the Board. My name is Donna Kalez
and I, along with my family, own and operate Dana Wharf
Sportfishing here in Dana Point.

As a fleet, we always have and will remain in
support of economically and technically feasible emission
reduction efforts. As noted in the January workshop, our fleet has comprised about 80 percent of the marine projects over the last number of years, giving our fleet a significant jump on early implementation of lower emission technologies.

Many owners have taken advantage of grant programs to upgrade their vessels, two and even three times, as lower emission engines were developed. The grant funding has been critical to these improvements. The inspected fleet stood at about 295 Tier 0 vessels in 1998, while the economics of the fleet has resulted in the loss of about a third of those inspected vessels. Since then, the grant programs have allowed 87 percent of the remaining 193 full-time vessels to be upgraded to one of the two latest tiers approved for our vessels, and over 41 percent were the latest available tiers as of February 1st, and more upgrades have taken place since then. All around, this is a huge involuntary emission reduction effort in partnership with the fleet, CARB, and our local AQMDs that have offered marine grants.

We look forward to the approval of this resolution and the 15-day comment period changes to continue this important work and partnership. Your support today and support of legislative funding will allow the full-time commercial passenger fishing vessel
fleet to meet the aggressive timelines in the changes and send --

BOARD CLERK ESTABROOK: Thank you.
DONNA KALEZ: -- the signal to engine manufacturers. Thank you so very much for your time.
BOARD CLERK ESTABROOK: Thank you. That concludes your time.

Our next speaker will be Shawn Bennett. And it is now past 10:10 so the list to sign up is now closed.
Shawn, you may unmute and begin.
SHAWN BENNETT: Great. Thank you so much for the time to speak here. My name is Shawn Bennett.
BOARD CLERK ESTABROOK: Shawn.
SHAWN BENNETT: Can I stop you there and ask that you mute the device in the background.
SHAWN BENNETT: I'm not sure what that device is, but how is that?
BOARD CLERK ESTABROOK: That sounds great. Thank you.
SHAWN BENNETT: Does that work?
BOARD CLERK ESTABROOK: No, now there's feedback again.
SHAWN BENNETT: I'm not sure.
BOARD CLERK ESTABROOK: It sounds like it's off now. Are you --
SHAWN BENNETT: Yeah, if I try to talk.
BOARD CLERK ESTABROOK: Oh. So there's a --
SHAWN BENNETT: I'm not sure --
BOARD CLERK ESTABROOK: Is the audio coming through somewhere else and it's picking it up. If you have a headset or headphones and then I can maybe come back to you.
SHAWN BENNETT: Yes, please. I'll try.
BOARD CLERK ESTABROOK: Okay. All right. Let's go to Tim Ekstrom. Tim, you may unmute and begin.
TIM EKSTROM: Okay. Can you hear me now?
BOARD CLERK ESTABROOK: Yes, I can. Thank you
TIM EKSTROM: Good morning, Chair Randolph and members of the Board. I am Captain Tim Ekstrom with the sportfishing vessel Royal Star based in San Diego.
I am in support of the proposed extension path and resolution for our sector. The overnight fleet in California departs our harbors for trips from 1 through 16 days offshore. While the presence of offshore vessels like Royal Star in California waters is far less than coastal vessels, we share the desire for reduced emissions.
Many boats in our fleet are already powered by Tier 2 and tier 3 engines and more are transitioning now.
Our fleet history of voluntarily upgrading machinery and reducing emissions is well established. I am incredibly appreciative that the CARB staff joined us in San Diego to discuss a logical path for emissions reductions while maintaining the viability of our fleet.

The owners, captains, and crews are a small portion of the individuals who will be impacted by a positive outcome today. Hundred of thousands of people who visit our coastal communities will continue to enjoy coastal and offshore voyages, learn about the ocean and cherish the ability to sustainably harvest fresh seafood for their families from value-based sportfishing voyages.

Hotels, restaurants, and numerous other support businesses will remain in tact and thrive while our fleet reduces emissions through machinery upgrades and technology on a clear path towards an ultimate zero-emissions goal. This is a shining example of what productive collaboration can produce.

On behalf of my crew, our family, and the entire fleet of commercial passenger fishing vessels, thank you to CARB staff and you for your consideration of this important resolution.

BOARD CLERK ESTABROOK: Thank you.
All right. Shawn Bennett let's try again.

SHAWN BENNETT: Okay. How is that?
BOARD CLERK ESTABROOK: That's perfect.

SHAWN BENNETT: Okay. Great. Sorry about that. Thanks for your time. I'm name is Shawn Bennett. I'm the owner of Baydelta Maritime. We are a tugboat company that runs tugs and boats in San Francisco Bay and LA/Long Beach. And we employ about 40 people. We're a small business.

And you know, our specific role in the tugboat business is really running purpose-built tugs that are meant to prevent oil spills just to put it bluntly. They're very much designed specifically to the requirements of the Oil Spill Prevention Act of 1990. And that requires best achievable technology. We tether to the back of tankers that come in and out of San Francisco Bay and LA/Long Beach. And our job is to stop them if a pilot, you know, requests the need for any sort of issues with mechanical or, you know, navigational or anything to the effect. And we've made a lot of progress doing that over the years and I think water cleanup has been a really big focus.

Now, one of the issues and concerns we have with this regulation is it requires a lot of power and a lot of stability in the design of our vessels to do that, you know, carry out that duty. We do -- we turn basically sideways to stop the tanker when we need to and there
hasn't been enough really looked into how this DPF equipment will affect the stability of our vessels. I know there's been some collaboration and a lot of meetings, and -- but specifically to that concern, we need some more time to look at that, because it will change the stability of our vessels, and that is a critical part.

Also, it can affect the horsepower. And, you know, obviously a lack of horsepower would change our capabilities there. And so I think for us what we'd like to see is really, you know, some time spent with the naval architects, the engine manufacturers, and everybody, you know, along with CARB to take a very close look at that topic.

The other issue we have is shipyard capacity. It's hard to even get enough time right now to get our ship -- our tugs painted. I get really concerned by this ability to get the work done.

BOARD CLERK ESTABROOK: Thank you. That concludes your time.

SHAWN BENNETT: Okay. Thank you.

BOARD CLERK ESTABROOK: Thank you.

Our next three speakers will be Barry McCooey, Art Mead and Leela Rao.

Barry, we have your slides that you submitted in advance, and so we will go ahead and pull that up. I will
run the timer and let you know, because you will not be able to see it on the screen while your presentation is up.

Go ahead and begin.

BARRY MCCOOEY: Thank you very much. I'm Barry McCooey from M&H Engineering.

Next slide, please.

--o0o--

BARRY MCCOOEY: We have developed and designed a set of marine engineered -- engines that are certified to EU Stage 5 and U.S. Tier 4, and will also CARB's Tier 4 plus DPF regulations. Our design -- our engines are designed to meet and exceed all present and future marine emissions. We start with 55 to 317 kilowatts this year being launched in Q3 and 350 to 680 kilowatts in Q3 next year. Our engines are designed propulsion, generators, or auxiliary applications, and are cooled as normal marine engines would be.

Next slide, please.

--o0o--

BARRY MCCOOEY: Our engines, again we designed the package to be as a replacement engine for all the Tier 2, Tier 3 engines out there being used today. They're ideal for commercial passenger fishing vessels with wooden and fiberglass construction or aluminium. We're aware of
these construction. We also have these constructions in the UK and Europe. And this equipment will fit into it. We understand weight, balance, trim is critical. Again, our engines are designed to be direct replacements.

The layouts, configurations are exactly the same as what you're used to, that 12 and 24 volt options. We have front PTO options for hydraulics and generators --

BOARD CLERK ESTABROOK: Thirty seconds remaining.
BARRY MCCOOEY: -- designed to operate at sea safely without compromising vessel handling.

Next slide, please.

--o0o--

BARRY MCCOOEY: The aftertreatment can be remotely fitted in void spaces, or on deck, or behind the engines. All our engines are packaged and protected, so there's no hot surfaces, no fire risks, things like that. The size of the aftertreatment on the 9-liter is equivalent to two 25-liter drums. We've also gotten engines designed for hazardous area applications, the petrochemical barges, and hazardous applications.

Next up.

BOARD CLERK ESTABROOK: Thank you. That concludes you time. We do have your slides. We have them saved and received, and so they will be available. If you submit them to the docket, we will also have them posted
electronically for others to see, but we do have your slides and staff has them as well.

Art Mead, you may unmute and begin.

ART MEAD: Yeah. Thanks, Katie. Art Mead, Crowley Maritime. Overall Crowley has almost no objection to the proposed amendments to the Commercial Harbor Craft Rule. However, there remains one material issue that must be addressed. The proposed language includes a very generalized definition of an articulated tug barge, known as ATBs that includes ocean-going vessels.

Not all ATBs are the same and Crowley operates several ocean-going vessel ATBs engaged in interstate commerce along the United States west coast. These vessels exceed 700 feet in length and transport in excess of 120,000 barrels of bulk liquid energy. These vessels are not harbor craft and spend only a small portion of their operating hours in regulated California waters.

In fact, our OGV ATBs which do not separate are longer than the U.S. Navy's Ticonderoga class guided missile cruisers, hardly harbor craft. This is not a new issue. With the passage of the At Berth Rule two years ago, Crowley objected to exempting. OGV ATBs from that rule. The resolution adopted by the Board at that time directed staff to engage the ATB industry to determine the best options for cost-effective emissions reductions that
recognize the unique nature of ATBs during the harbor

craft update.

In fact, the proposed harbor craft rule will
force Crowley's operations in California to cease by 2024. The capacity reduction of two million barrels will be
replaced by less efficient foreign tankers, which are not
regulated as harbor craft, traveling across the globe,
increasing harmful air emissions with other unintended
harmful economic consequences to western states.

Crowley urges the Board to direct staff to
develop a pathway to acquire OGV ATBs to comply with shore
power requirements. Rather than drive Crowley's American
flag OGV ATB fleet out of the state, the CHC Regulation
should include more flexible and effective alternative
compliance pathways to achieve the emissions reductions
mandated. We look forward to continuing --

BOARD CLERK ESTABROOK: Thank you. That
concludes your time.

ART MEAD: -- discussions with the Board and staff
on addressing this important issue.

BOARD CLERK ESTABROOK: Our next speaker will be
Leela Rao. After Leela will be Scott Merritt, Rick
Powers, and Wayne Kotow.

Leela, you may unmute and begin.

LEELA RAO: Thank you, Chair Randolph and members
of the Board for the opportunity to make comments on the proposed amendments to the commercial harbor craft regulation. My name is Leela Rao and I'm with the Port of Long Beach.

The Port supports the intent of this regulation, substantial emission reductions from harbor craft, and appreciates the efforts by CARB staff to engage stakeholders throughout this rulemaking process. Together with the Port of Los Angeles, the Port of Long Beach has met with staff numerous times and submitted several comment letters.

However, the issues from our most recent comment letter remain unaddressed and staff propose 15-day changes. Those comments still apply, but I'll focus my comments today on the most significant issue for compliance with the proposed amendments, the lack of sufficient incentive funding for replacement of harbor craft used at ports.

Although CARB staff continues to highlight several funding programs as being available for harbor craft projects, the reality is that these programs aren't accessible to harbor craft operators. A prime example is the Carl Moyer Program. While significant dollars are allocated to Carl Moyer each year, the districts don't often prioritize harbor craft. In addition, meeting the
cost effectiveness -- effectiveness requirements will be very difficult for vessels requiring new builds, which includes many tugboats due to their individualized and compact designs.

Vessels required to be replaced or upgraded by 2025 will also be completely ineligible for Moyer funding due to the cost-effectiveness requirements. DW funding is similarly difficult to access, because it only incentivizes retrofits instead of new builds and the incentives are far too low. The ports are committed to reducing emissions from harbor craft as evidenced by our harbor craft technology advancement projects underway.

However, harbor craft continues to be one of the most challenging sources of emission, in large part, because many vessels need to be replaced, not retrofitted, to provide enough space on board for emission control technology, and the cost for the cleanest vessel technologies is upward of $20 million per vessel.

We respectfully ask the Board to direct staff to ensure sufficient dedicated harbor craft funding sources to aid in compliance with these proposed amendments.

Thank you.

BOARD CLERK ESTABROOK: Thank you.

Next will be Scott Merritt. Scott, you may unmute and begin.
SCOTT MERRITT: Thank you. My name is Scott Merritt. I've spent my entire 39-year professional career serving the tug and barge industry. I've served as COO of Foss Maritime, Chairman of the Board of AWO, Vice Chair of the Harbor Safety Committee of San Francisco Bay. I've spent the last three years supporting the towing industry and attempting to understand the proposed rules and to provide meaningful input to CARB staff in support of a responsible regulation.

Unfortunately, the rule as written will be difficult, if not impossible, to comply with, challenging to administer and enforce, and disruptive to the supply chain, lead to the loss of living wage jobs, and most importantly be counterproductive to the goal of achieving zero emission.

Because I understand my time is limited, I'm going to start with an ask, one we've made to staff and Board members, and follow with supporting notes as time allows. They are all included in my written comments.

We ask that you allow low-emission, Tier 3 and 4, engines to operate without modification for their useful life of up to 25 years from the engine model year. When adjusting for life expectancy of tugs versus trucks, this is consistent with CARB regulations governing Class 8 trucks.
We propose an exchange when time is up that vessel owners will retire those vessels and replace them with zero-emission vessels or provide a penalty that would fund zero-emission tug projects to ensure we made that transition. This would all guarantee a steady transformation from diesel to zero emissions starting in the early 2030s and completing by the mid-2040s. Short of this, we'd ask for the same consideration given the commercial passenger fishing vessels by including us in the Resolution 22-6 pathway.

We -- the justifications I'm going to run out of time to go into, but I'd ask you to read our comments and read the comments of AWO. And I thank you for your time.

BOARD CLERK ESTABROOK: Thank you.

RICK POWERS: Thank you, Chair Randolph and members of the Board. I am Captain Rick Powers, President of the Golden Gate Fishermen's Association. Our association membership comprises the majority of the Northern California Coast Guard inspected passenger fishing vessels. Thank you for your comments at the November Board meeting and your appreciation for the impact and consequences of the rule on the lives of our members.

Our organization is in support of the draft Board
Resolution as it pertains to our sector. We share everyone's desire for clean air and emissions reductions. The fleet has been upgrading machinery for years as new technology is available, and over 40 percent of the fleet is using the best available technology that is safe to use on our vessels. However, many in our fleet have not previously been eligible for grant funding.

Critical to the solution that is now presented is that there is an appropriate compliance path for us to work with the CARB Board and the Legislature to expedite lowering emissions for the fleet coast wide. This funding support is critical, especially for our operators out of the smaller ports that haven't had grant opportunities in the past. We are fishermen, educators, and environmental stewards. We care tremendously about the long-term sustainability of our air and ocean resources. Working together on a coast-wide solution provides our fishing culture a future and will help to maintain our coastal communities dependent on tourism.

The draft resolution will also ensure that while we continue to work towards zero-emissions goals, we can still operate and provide the valuable service of ocean access to the regional community. This is especially important for our marine education trips and sportfishing services to those that economically are unable
to afford their own boat.

We look forward to working with the CARB staff in the future to discuss next steps. Please approve the changes related to CPFVs.

Thank you.

CHAIR RANDOLPH: Thank you. Our next speaker will be Wayne Kotow. After Rain -- Wayne will be Steven Brink, Kristin Joseph, and then Jim Luttjohann. Wayne, you may unmute and begin.

WAYNE KOTOW: Good morning, Chair Randolph and members of the Board. I'm Wayne Kotow, Executive Director for Coastal Conservation Association of California. CCA Cal represents the recreational angling community throughout the state. Ocean access is paramount in the efforts of our organization. We have worked for years with SAC, Captain Rollo's Kids at Sea, CDF, and many other organizations to provide opportunities to take kids for their first fishing trip.

Several hundred thousand kids have been positively impacted over the years by this effort. We are also here to advocate and protect our resources, environment, habitat, and the people who enjoy them. The passenger sport fishing fleet is the gateway for so many of our community to the ocean. Enjoyment, healthy environment, and food for the table are all positive
impacts -- (clears throat) -- excuse me -- of the gateway.

I'm here today to share our support for the resolution and compliance path presented to the commercial passenger fishing vessels. It just makes sense. It results in continued emissions reductions that still meet our shared goals. It also maintains our critical ocean access that we now know is so viable -- valuable since coming out of our COVID lockdowns.

Thank you.

BOARD CLERK ESTABROOK: Thank you.

Steven Brink, you may unmute and begin.

Steven, are you there?

Okay. It doesn't look like you have unmuted, so I will come back to you.

Kristin Joseph, you may unmute and begin.

KRISTIN JOSEPH: Good morning. My name is Kristin Joseph and I represent R.E. State Engineering. R.E. State is a small family-owned heavy marine construction company headquartered in San Diego.

The proposed CHC amendments impact every single piece of marine equipment we own. So needless to say, we've been an engaged partner in the review process. We've provided detailed comments to staff throughout the process as well as to the Board in November, but we still feel like our concerns have not been adequately addressed.
They include allowing reasonable time for upgrades and extensions, providing funding for upgrades, and providing flexibility and grant application requirements. We'd like to see incentive-based compliance, so something like the DOORS Program, and we'd like a small business phasing plan included that allows for more time for small businesses.

In addition to the items that we just listed, we'd like to request that CARB staff employ a maritime expert that knows our vessels and their capabilities and can serve as a liaison between stakeholders and CARB staff to assist with the implementation of this new rule.

We would encourage the Board not to improve the proposed regulations today. Although, we do recognize that in the proposed resolution before you today, that there is reso -- language that would allow staff to keep working with stakeholders. If this item is approved today, we would hope that the items I identified can be work through before final adoption.

Thank you.

BOARD CLERK ESTABROOK: Thank you.

Steven Brink, let's try one more time. Can you unmute and begin. It looks like you were unmuted briefly and now you're muted again.

STEVEN BRINK: There we go.

BOARD CLERK ESTABROOK: There we go.
STEVEN BRINK: I think we can hear me now.
Thank you very much.
BOARD CLERK ESTABROOK: Yes, we can.
STEVEN BRINK: Thank you. So good morning, Chair
Randolph and Board members. I'm Steve Brink, California
Forestry Association, Vice President, Public Resources.
Today, I'm representing forest products shipments from the
port at Humboldt Bay on the north coast. And that's the
extent of my comments will be focused on that low-use
port.

We provided written comments back in November.
And they were catalogued and received and there's been no
written response that I can find about our comments, and
so that's why I'm here today verbally.

So the port at Humboldt Bay. Two inventoried
towing vessels, that's one percent of the statewide total,
one percent. CARB used the Port Emissions Inventory Data
from Port of Angeles, Port of Long Beach, Port of Oakland.
CARB did not use any data from the Port of Humboldt Bay,
which is not surprising, because the airshed at Humboldt
Bay is in attainment, and always has been, and will
continue to be in attainment for the foreseeable future.

With one percent of the towing vessels air
quality in attainment, only five to six freighters a year
at that port, a low-use port, I don't see any data that
would indicate that the Port of Humboldt Bay should be administered the same as the Port of Long Beach or Los Angeles, or any other major California port.

Humboldt Bay should be exempt from the commercial harbor craft rule, period. Thank you for the opportunity to comment.

BOARD CLERK ESTABROOK: Thank you.

Next will be Jim Luttjohann. After Jim will be Max Cohen, Will Roberts, and Elliot Gonzales.

Jim, you may unmute and begin.

JIM LUTTJOHANN: Good morning. I'm the President and CEO of Love Catalina Island, Catalina Island's tourism authority, which encompasses the local chamber of commerce, visitors bureau, and film office. I'm also a life-long asthmatic, so I see all sides of the issue at hand.

Love Catalina has over 250 businesses as members working and residing on Catalina Island that are a hundred percent dependent on visitors at tourism drives our local economy. Those businesses and visitors need reliable and affordable daily transportation to and from Catalina Island. In a typical year, Catalina Island welcomes about one million visitors, the majority of which traveled via passenger ferry.

On behalf of Love Catalina and more than 1,000
petition signatories, who reside, work, and travel to and from Catalina Island, all of which have been submitted -- sorry, lost my place there -- all of which have been submitted as written testimony will remain deeply concerned over CARB's proposed Harbor Craft Rules. The lack of certainty of dedicated funding for commercial ferries like Catalina Channel Express, and other passenger ferries, to comply with the new regulatory mandates being proposed is very troubling.

Without a new dedicated funding stream, Catalina Express and other passenger ferries will not be able to reach compliance and it's difficult to see how this regulatory program will succeed without ferries like Catalina Express as part of the solution.

Without State funding to make this transition feasible, the current proposed regulations place an impossible financial burden on Catalina Express and the other ferry services as privately operated utilities regulated by the CPUC. The negative consequences of these new, swift, and costly regulations, without sufficient funding for the transition to new vessels equipped with Tier 4 engines, will negatively impact transportation, safety efficiency, reliability --

BOARD CLERK ESTABROOK: Thank you.

JIM LUTTJOHANN: -- and affordability.
BOARD CLERK ESTABROOK: Thank you. That concludes your time.

JIM LUTTJOHANN: Thank you.

BOARD CLERK ESTABROOK: Next will be Max Cohen. You may unmute and begin.

MAX COHEN: Hi. My name is Max Cohen. I'm a Cal Maritime grad and I'm a Policy Analyst here at Curtin Maritime. Curtin Maritime is a tug and barge operator located in Long Beach, California. We operate primarily in the marine construction sector and will be bringing online the largest clamshell dredge on the west coast, which is also a Tier 4 hybrid.

I would first like to thank CARB Board members for engaging with us, specifically Vice Chair Sandra Berg. I would also like to personally thank CARB staff Nick Taylor for answering my nuanced questions regarding this rule.

I would like to use my time to put on record some of the concerns we have discussed and would like to work with staff on the Board to continue to address.

First, we are concerned that the commercial harbor craft compliance dates paired with the Carl Moyer Program funding surplus regs requirements will not allow vessel operators to get even half the lifetime out of their engines, if they want to take advantage of these
funds. All 2009 engines and prior will already be disqualified from Carl Moyer Program due to its surplus requirements. The 2012 engines will not even be allowed to get the half of their useful life, if they are to be eligible for Carl Moyer Program funds.

We are also concerned that South Coast AQMD is not allocating Moyer funds for marine projects this year. This is one of the most impacted air districts per CARB's own assertion. This decision not to fund marine projects this year is congruent with the implementation of the Commercial Harbor Craft regs. We are concerned that this is an unfunded mandate. The lack of concrete language in the Moyer Program makes it difficult for commercial harbor craft operators historically to apply for funding to go zero emissions or to upgrade to cleaner diesel technology as required by these regulations.

Next, we have concerns regarding safety and stability. We want CARB to continue to be open and transparent with the U.S. Coast Guard and an accreditation body like American Bureau of Shipping to address the following:

First, fire hazards due to increased temperature from the aftertreatment systems required by the Commercial Harbor Craft Rule.

Second, consider the vertical stability issues
for towing vessels as raised by the very CMA study which is being used to justify these regulations.

The CMA study states that the --

BOARD CLERK ESTABROOK: Thank you.

MAX COHEN: -- towing vessels out of Code of Regu

-- federal regulation for subchapter (m) vessels.

BOARD CLERK ESTABROOK: Thank you. That concludes your time.

MAX COHEN: Thank you.

BOARD CLERK ESTABROOK: Next will be Will Roberts. You may unmute and begin.

WILL ROBERTS: Good morning. Thank you for the opportunity to testify on the draft Harbor Craft Rule. My name is Will Roberts and I am the President of Foss Maritime Company. I also serve on the board of the American Waterways Operators as the Chair of the Pacific Region. In California, we work out of both the Bay Area and LA/Long Beach with over 12 vessels and over 160 employees.

For the last three years, we have met with the CARB staff on the proposed rules. You may be surprised that none of our industry's recommendations are reflected in this draft. While I'd like to be able to cover all of my concerns, I'll instead point to the American Waterways Operators comments, which I support and will highlight
what I believe is the biggest issue with this rule. Our industry has a proven track record of adopting the cleanest technology when feasible. My company, Foss Maritime, introduced the first two hybrid tugboats to California in 2009 and '11 and has carbon canister filtration systems installed on our bunker barge fleet to reduce carbon emissions during load operations, both well ahead of the regulatory requirements to do so.

Over the last three years, Foss has spent over $16 million equipping and operating four new Tier 4 tugboats for California. All of these tugboats will now need to be retrofitted. The engineering and upgrades will cost millions of dollars for what are considered some of the most environmentally leading tugboats in the world. We have also upgraded multiple other vessel within our fleet and those will need to be retrofitted as well.

A single retrofit could cost close to $4 million and a new harbor tug costs close to $20 million. These are significant investments, which will devastate companies like mine, as we have recently spent so much to retrofit.

My ask is will you create an exemption for vessels currently with Tier 3 and above engines and allow them to operate for their full useful life, with a requirement that they'll be replaced after they're
Please pass this current rule with these critical modifications as to not destroy or already weakened supply chain in California.

Thank you for your time.

BOARD CLERK ESTABROOK: Thank you.

Next will be Elliot Gonzales. After Elliot will be Leah Harnish, Lynn Muench, and Rick Luliucci.

Elliot, you may go ahead and begin.

ELLIOT GONZALES: Good afternoon, good day. I did just want to just make a really belief comment about -- in support of the Harbor Craft Rule. I'm here today as a member of the Sierra Club My Generation staff. We signed on to a joint letter of some of our coalition partners led by Earthjustice. And what we included in our letter is, you know, basically we just reiterated the fact that we want to reduce cancer risk. Here, where I live in about -- about a mile from the Port of Long Beach, we have high risk of cancer. We are in severe non-attainment. It's very common for people to have respiratory ailments, whether they're in adulthood, whether they're children, any stage of their life. And we just take cancer, and asthma, and pollution very seriously.

And so we're asking CARB to do the same. We
thank you for including constituents that may not be
front-line communities, but we ask that you prioritize
those who are actually suffering from severe ailments like
cancer when you make this decision. So we are here to
encourage this Board to do the right thing and to require
a 100 percent zero-emission at a certain further point
next time you reevaluate a harbor craft. And that we just
want to remind you that a harbor craft is critical to
addressing our -- our climate goals. So thank you for
hearing us out and we do ask that you support this item
today. Thank you.

BOARD CLERK ESTABROOK: Thank you.

Leah Harnish, you may unmute and begin.

LEAH HARNISH: Can you guys hear me?

BOARD CLERK ESTABROOK: Yes, we can.

LEAH HARNISH: Great. Thank you.

Good morning. My name is Leah Harnish and I'm
the Government Affairs Associate at the American Waterways
Operators, or AWO, as you've heard, and I am our
specialist in clean air and water policy. Thank you for
the opportunity to testify.

AWO represents the largest portion of the
tugboat, towboat, and barge industry in the country with
over 300 members. Over the last three years, AWO and our
members have met with CARB staff and Board to discuss the
Commercial Harbor Craft Rule.

During these meetings, we've expressed our concerns about the rule and our desire to help CARB improve air quality, and reach our shared zero-emissions goal.

AWO has submitted comments to the document, but I'd like to highlight our concern about the data that was used to craft this policy. When AWO first started meeting with CARB -- CARB staff, we notified them that the data they were relying on was not an accurate representation of the number of vessels operating in California. Staff uses a U.S. Coast Guard database that reports vessel ownership and regulatory status. However, where a vessel is registered does not necessarily equate to where they operate.

AWO commissioned an independent vessel inventory using the automatic identification system, or AIS. AIS tracks the movement of vessels and this report found that over 200 towing vessels operated within 100 nautical miles of the California coast. Nearly -- or only 200, nearly 30 fewer than CARB had estimated.

Policies must be built on accurate information. And while staff has told us that they are regularly updating, their model, the proposed rule does not reflect this. We ask that this rule not be approved, but instead...
reviewed and updated with health benefits and cost
effectiveness to better reflect the numbers and impact
that vessels have that operate in California regulated
waters. Thank you for your time

BOARD CLERK ESTABROOK: Thank you.
Lynn Muench, you may unmute and begin.
LYNN MUENCH: Good morning, Madam Chair and CARB
Board members. My name is Lynn Muench. I'm the Senior
Vice President of The American Waterways Operators, the
national trade association for the tugboat, towboat, and
barge industry.

I'm pleased to report that we share CARB's and
Governor Newsom's goal of zero emissions. The towing
industry has embraced continual improvement over our
76-year history, especially when it relates to safety and
the environment. As an industry, we want what's best for
California and the nation's environment and its economy.

Unfortunately, this draft rule is not something
AWO can support. We ask you to take the unusual step in
voting no on it, pressing pause, and incorporating our
industry's input to improve this rule and make it
practical, possible, and safe for mariners.

The amendment before you have been written
without meaningful collaboration with the towing industry.
As Leah had mentioned, the vessel counts are wrong and the
total emissions are also wrong. When we tried to review
the work and provide input to the staff, no substantive
changes were made and the databases that we were given to
evaluate were mislabeled.

As I said on the outset, the towing industry
embraces the same goal as the board, zero emissions. Our
industry is ready to go to zero emissions as soon as
possible, so we respectfully request that CARB vote no on
this, and add an exemption to the rule that allows vessels
currently with Tier 3 engines or above to operate for the
rest of their useful life with the stipulation that they
will be retired or become a zero-emission vessel once the
engine's life is up. In fact, we ask also for
consideration that has been given to other harbor craft in
this today.

We stand ready to work with CARB. And thank you
on behalf of the towing industry, the industry that moves
goods to California residents with the least amount of air
emissions per ton.

Thank you.

BOARD CLERK ESTABROOK: Thank you.

Next will be Rick Luliucci. Rick, you may unmute
and begin.

RICK LULIUCCI: Good morning. This is Rick
Luliucci with The Vane Brothers Company.
The tug, towboat, and barge industry is committed to reaching zero emissions in the safest and most efficient manner. However, the timeline proposed under the new Harbor Craft Rule gives companies less than four years to repower all of our vessels, and less than six years to modify Tier 4 engines with diesel particulate filters, which has not been invented for marine use.

This framework is neither financially feasible, operationally achievable, nor responsible, as it jeopardizes the safety of mariners and the viability of businesses. Companies will rush the critical components and not take the time necessary to ensure the retrofits are completed and in a safe responsible manner.

While there is a one-year scheduling extension in the proposed rule, the reality is this process goes through multiple steps, including the United States Coast Guard, which necessitates a much longer window. For the sake and safety of our mariners and the sustainability of this industry, we urge you to vote to amend the rule to ensure that a safe timeline exists for mariners. Please amend the deadline for complying with the diesel particulate filter installation to no sooner than six years from the date of the full approval of the United States Coast Guard, the American Bureau of Shipping and the engine manufacturers.
I'd like to touch upon an unfunded mandate of DPFs within this Harbor Craft Rule. Without the availability of manufacturer-approved diesel particulate filters, CARB is requiring the adoption of untested, unproven, and unavailable technology. How does CARB see moving forward with Tier 4 engines when DPFs are not feasible on current vessels. They make the leap because they do not understand the industry, the importance of mariner safety in their desire to make a farce of this public process.

This technology currently does not exist, cannot fit in vessels, and it's a known safety hazard in other modes of transportation. As a solution, please do not move forward with this bad public policy. In its place, amend the deadline for complying with DPF installation to no sooner than six years from the date of approval by Coast Guard, American Bureau of Shipping, and the engine manufacturers.

BOARD CLERK ESTABROOK: Thank you.
Next will be Graham Balch. And then Michael Breslin, and Max Rosenberg.

GRAHAM BALCH: Hi. My name is Graham Balch with Green Yachts.
CARB Board members and especially Davina Hurt,
who represents the San Francisco Bay Area, I am speaking about ensuring that short-run ferries are zero-emission without exceptions, an issue we were unaware of before the November 19th Board meeting and thus unable to comment on until now.

I've spoken to CARB staff and they have said that the direction for addressing this issue must come from you the Board members to be changed. We are proud that California's the first state in the nation to require some vessels to be zero-emission through these proposed CHC regulations.

However, as written, the short-run ferry definition in these regulations allows diesel boats to game the regulations by adding legs or adding one long leg, and by doing so operate a diesel boat on a short-run route for which vessels are required to be zero-emission. This loophole will cause over 2,000 tons of increased CO2 emissions in the San Francisco Bay every year.

Board members, please direct CARB staff to include language in the 15-day change that close the loophole in the short-run ferry definition that currently allows diesel boats to operate diesel boats -- sorry -- on zero-emission short-run ferry routes. We have submitted a detailed written comment, but the direction has to come from you.
Thank you.

BOARD CLERK ESTABROOK: Thank you.

Next will be Michael Breslin. Mike, you can unmute and begin.

MICHAEL BRESLIN: Thank you, Chair Randolph and Board members. My name is Michael Breslin. I'm the Director of Safety for the American Waterways Operators. I am the safety expert for the tugboat, towboat, and barge industry. My testimony is about diesel particulate filters or DPFs. A simple Google search for DPFs for California will return a record of the dangerous history and ongoing issues with these devices. This mandate, if passed unchanged, will require vessel owners to install these unsafe devices, increasing the chance of a fire aboard their boats.

Before you require -- (clears throat) -- Excuse me. Before you require DPFs, I would ask that you better understand these devices, which frankly do not exist in a way that they could be safely installed in the proposed marine applications. DPFs do not reflect best available technology to support the advancement of clean technology. Rather, it will cause and untenable burden on mariners and possibly increase the carbon footprint of California by 14 boat owners to build new vessels or complete major overhauls of their current vessels. This rule does not
meet its goal to reduce carbon output.

I would like you to know there is not the space needed for these devices on existing vessels. There's no room to install the large filters. And if somehow you could build the space, it would impact that stability of the vessel as established by Cal Maritime study, which raised this concern.

Again, even if we could build in room for the DPFs and we somehow made the vessel stable and had it certified by a marine engineer, the pressure created by the DPF would damage the engines, and the heat generated by the DPFs may make the vessels unsafe to operate. DPFs, even once approved, will not be ready use and will require extensive engineering studies to determine if and how they can be safely integrated into existing vessels.

It is unreasonable to require the implementation of unproven and untested technology. As I indicated a moment ago before any work is started to figure out how to install DPFs and engineering study must determine its safe installation of the specific make and model of the engine. This is a cost that must be absorbed by our maritime operators adding to the financial burden your rule is imposing without consideration to the economic devastation it will bring to America's supply chain by forcing operators out of business, reducing capacity --
BOARD CLERK ESTABROOK: Thank you. That concludes your time.

MICHAEL BRESLIN: -- without (inaudible).

Thank you.

BOARD CLERK ESTABROOK: Next will be Max Rosenberg. After Max will be Rebecca Baskins, Misagh Tabrizi, and Frank Ursitti.

Max, you may unmute and begin.

MAX ROSENBERG: Hello. My name is Max Rosenberg, a Bay Area native and engineering manager with Vane Brothers. I thank you for the opportunity to comment today.

The rule before you for a vote today is very disappointing. It avoids opportunities for meaningful incentive-based development of real emissions-reducing technologies. Instead, it promotes de minimis emissions reductions at huge costs that put California commerce, jobs, and mariner safety at risk. This regulation is not a bridge to zero-emissions. It is an off-ramp that we take at great cost. The regulation requires equipment that is unsafe, unproven, and frankly unavailable. CARB expects major vessel refits in a completely unrealistic timeline with very little account for lack of feasibility.

Tug and barge movement generates less than half the emissions of alternative modes, such as road or rail.
However, this rulemaking is predicated on the false inference that commercial harbor craft are a leading emissions contributor.

The inclusion of ocean-going articulated tug barges in the harbor craft regulation ignores a prior Board resolution to work with the industry in considering their unique nature. This vessels perform most of their work offshore competing with other vessels that are not covered by the CHC regs.

We ask for a regulation that sets rational goals for harbor craft to effect meaningful emissions reductions, modify compliance deadlines for in-use Tier 3 or better engines, so that operators can realize a reasonable portion of useful life, and allow adequate time for engineering safety reviews and project timelines.

Postpone the requirement for diesel particulate filters until a vessel's major -- next major shipyard period after the equipment has been certified is safe. Require the articulated tug barges to meet ocean-going vessel At Berth Regulations instead of regulations for harbor craft, which they are not. Provide an alternative compliance pathway to promote the development of zero-emissions technologies by allowing owners of vessels with Tier 3 or better engines to run them for the full usable life for operators that commit to replacing or
refitting vessels --

BOARD CLERK ESTABROOK: Thank you. That concludes your time. Rows

MAX ROSENBERG: -- with the best available zero-emissions technology at the end of that period.

BOARD CLERK ESTABROOK: Our next speaker is Rebecca Baskins. Rebecca, you may unmute and begin.

REBECCA BASKINS: Good morning, Chair and Board members. Rebecca Baskins on behalf of the California Advanced Biofuels Alliance. We are the state's trade association for renewable diesel and biodiesel.

First, I would like to thank the staff for the inclusion of renewable fuels in these amendments to the Harbor Craft Regulation, but we would like to see the inclusion of other renewable fuels, like biodiesel and renewable diesel blends.

Blending renewable diesel and biodiesel together maximizes the environmental and economic profiles of both fuels. For example, a blend of renewable diesel at 80 percent and biodiesel at 20 percent is similar in NOx reductions, but reduces more particulate matter than R99. Blends can also help alleviate cost and supply concerns.

I also want to note that the proposed Appendix E regarding biodiesel reflects outdated and false data on biodiesel. Thus, we believe it should be removed or
updated to reflect the current data in the 15-day change. Again, we thank you for your hard work on this, but we believe the State is missing out on important emission reductions by the exclusion of biodiesel in this regulation.

Thank you.

BOARD CLERK ESTABROOK: Thank you.

Next is Misagh Tabrizi. You may unmute and begin.

MISAGH TABRIZI: Thank you. My name is Misagh Tabrizi, representing Nett Technology, a Canadian manufacturer of mature emission technologies, such as DPFs and SCRs. The Board might be interested in hearing about our recent successful CHC retrofit demonstration project and how we worked with the U.S. Coast Guard on the design and safety approval processes.

Currently, we are pursuing CARB verification for this mature retrofit technology for CHC market aiming to meet the proposed and future emission reductions of oxides of nitrogen and diesel particular matter.

In short, our coordinated efforts with Coast Guard resulted in our retrofit technology to meet applicable codes on construction material both in terms of the thickness and choice of material meeting applicable electrical wiring codes, and meeting the skin surface
temperature requirement; additionally, the design products
with net weight increases of less than five percent; a
modular compact design with adequate thermo management,
available for all CHC applications ranging from low to
high duty cycles; comparable back pressure on engines
pre-, post-retrofit; and a fully automated system with the
least amount of operator engagement.

Separately in terms of the market readiness, I'm happy to report that Nett Technologies has internal plans
for direct sales to end-users and fleets, to distribution
channels, and licensed in the technology to be able to
reduce the time it takes to provide this mature technology
to California, after granting the CARB verification.

Thank you.

BOARD CLERK ESTABROOK: Thank you.

Next will be Frank Ursitti. After Frank will be
Andrea Lueker, Catherine Garoupa White, and then Bill
Magavern.

Frank, you may unmute and begin.

FRANK URSITTI: Good morning. Thank you, Chair
Randolph and members of the Board. My name is Frank
Ursitti, owner of H&M Landing, California's largest
sportfishing terminal. I also serve on the Board of
Directors for the Sportfishing Association of California,
and have been directly involved in this process throughout
its evolution.

On behalf of myself and others in our fleet, we are in support of the CPFV extension path presented in the resolution before you. This has been a long and difficult process for our vessel owners. Their life's work and legacies are on the table. Also, on the regulatory menu is the future of affordable ocean access for all who endeavor to venture forth upon the sea.

Both concerns have been addressed today by what's been presented. I feel the effort is now positive, constructive, and most important emission reductions are achievable. There is an absolute willingness by our fleet to collaborate with CARB and strive for continued reductive measures in the future. The past 24 years of emissions reductions using clean air attainment grants is proof of the CPFV fleet's resolve.

I want to recognize Mr. Richard Corey, and Edie Chang, and the CARB staff who took the time to engage stakeholders here in San Diego. The information exchange was sincere and brought everyone together towards a shared and common goal.

I also want to acknowledge former Board Member Nathan Fletcher. His willingness to support our sector helped facilitate dialogue for an equitable resolution.

I ask that you approve the amendments as
proposed. Thank you.

BOARD CLERK ESTABROOK: Thank you.

Andrea Lueker, you may unmute and begin.

ANDREA LUEKER: Good morning. Are you able to hear me?

BOARD CLERK ESTABROOK: Yes, we are.

ANDREA LUEKER: Perfect. My name is Andrea Lueker. I am the President of the California Association of Harbor Masters and Port Captains. Our Association has been around for 74 years and our membership includes over 70 harbors, ports, and marinas in California, as well as a number of marine-related businesses.

While we acknowledge that there is still work to do, we're relieved that the originally proposed regulations have been amended to be more feasible and relative. Thank you in advance for your vote on this.

One important point I want to leave with you today is just a comment on the process. What we've all gone through on the Harbor Craft Regulations for the past many months has been difficult and debilitating for many of those who were rightfully so fearful of losing their businesses. We've all heard those gut-wrenching testimonies. And for those of us in the trenches, we've spoken to business owners in person who were basically ready to throw in the towel prematurely.
On a positive note, we're glad where we are today on this issue. We do thank you for your efforts on this -- on this issue. We look forward to your vote on the resolution, working with you in the future, and have a good rest of your meeting.

Thank you.

BOARD CLERK ESTABROOK: Thank you.

Next will be Catherine Garoupa White. Catherine, you may unmute and begin.

DR. CATHERINE GAROUPA WHITE: Good morning. This is Catherine Garoupa White with the Central Valley Air Quality Coalition. CVAQ, with partners, submitted a letter supporting expeditious adoption and enforcement of this rule to provide necessary relief to already overburdened communities like the Port of Stockton and surrounding areas.

I'm going to share comments from CVAQ's Stockton based environmental justice intern who couldn't be here today due to class, Nahui Gonzalez Millan.

"According to the Centers for Disease Control, 1 in 12 children in the U.S. have asthma, but in the San Joaquin Valley where I live, research shows that 1 in 4 children have asthma. The high levels of fine particles in the valley contributes to poor air quality and higher
rates of asthma.

"I work as a pre-school teacher assistant in Stockton. There are 16 children in my classroom and four have asthma. These children have so much energy for learning and school. They love to dance and blow bubbles when they're outside. They play chase during their outdoor play and love to be with their friends. In one moment, all of that changes. Activity becomes too much for their bodies, their faces drop, and their breathing becomes desperate. They have to slow down and stop.

"The children in my classroom have done nothing except breathe the air around them and that has caused a condition they will have to manage for as long as they live. In Stockton Unified, approximately 30 percent of children live in poverty. Their families live in areas that are close the pollutants, such as railroads, industrial areas, and the port.

"Our government institutions must protect the children and families in our city from factors that damage their health and quality of life. As a concerned Stockton community member who is also impacted by pollution from ships and other
sources, I urge CARB to adopt a strengthened
Commercial Harbor Craft Rule to hold commercial
harbor crafts accountable for the pollutants that
they bring to the area, and to expedite the
transition to zero emissions for all commercial
harbor crafts to ensure the air quality of the
area and the health of residents in Stockton.

Thank you”.

BOARD CLERK ESTABROOK: Thank you.

Next will be Bill Magavern. After Bill will be
Mariela Ruacho, and Floyd Vergara, and Teresa Bui.

Bill, you may unmute and begin.

BILL MAGAVERN: Good morning. Bill Magavern with
the Coalition for Clean Air in support of the resolution
in front of you today. At the November Board hearing, I
asked that you adopt these amendments to the rule early in
2022 with no weakening and you're now poised to do exactly
that.

We appreciate that the staff have run a process
that gave every opportunity for public participation and
was very inclusive and certainly lengthy. This rule will
save over 500 lives and hundreds of hospitalization, and
reduce both toxic particulate matter and also regional
smog.

It puts the cleanest engines into place that are
available today to replace dirty old diesel engines and
also requires the use of renewable diesel to lower
emissions further. It also includes added protection for
disadvantaged communities that are bearing the worst
burdens of air pollution.

So we support the change that's proposed here for
the sportfishing fleets, because it will reduce emissions
sooner and greater overall, and then allow that
flexibility that we hope will result ultimately in those
vessels going to zero emission.

Thank you very much.

BOARD CLERK ESTABROOK: Thank you.

Mariela Ruacho, you can unmute and begin.

MARIELA RUACHO: Hi. I'm Mariela Ruacho with
American Lung Association. Thank you, Chair, for the
opportunity to comment here today. We see this rule as a
critical public health measure and an important
opportunity to address health inequities. We urge its
adoption today. Health and medical organizations like the
American Lung Association, the American Cancer Society,
the California Medical Association, the Long Beach
Alliance for Children with Asthma and others have
previously weighed in in -- to support the Commercial
Harbor Craft Rule.

To shift to -- the shift to cleaner and
zero-emission engines from the commercial craft sector will cut smog and particle-forming NOx and most importantly reduce cancer risk to portside communities, which is not included in the monetization of health benefits.

In addition, the rule will provide the following avoided health outcomes as highlighted by staff, which is the 531 premature deaths, 161 hospital emissions, 236 emergency room visits, and an estimated $5.25 billion in health benefits between 2003 and 2038.

We want to thank the staff's diligent work to continue the conversation with stakeholders and find innovative pathways to ensure a strong rule, delivers near-term and lasting health benefits. We support the proposed amendments and ask the Board to approve the rule -- to finalize the rule today.

Thank you.

BOARD CLERK ESTABROOK: Thank you.
Floyd Vergara, you can unmute and begin.
FLOYD VERGARA: Great. Can you hear me?
BOARD CLERK ESTABROOK: Yes, we can.
FLOYD VERGARA: Great. Thank you. Good morning, Chair Randolph, Board members and CARB staff. Thank you for the opportunity to speak today. I'm Floyd Vergara with Clean Fuels Alliance America, the U.S. trade
association representing the entire supply chain for biodiesel, renewable diesel, and to a growing extent sustainable aviation fuel. My comments will reinforce the comments you heard earlier from Rebecca Baskins with the California Advanced Biofuels Alliance.

We believe the proposal requiring the use of 99 percent renewable diesel blends, or R99, is an important step in the right direction, and we appreciate the staff's willingness to discuss ways in which the proposal can be improved. Unfortunately, the proposal remains unnecessarily restrictive, in that it only allows R99 exclusively.

As laid out in our written comments, we believe the optimal solution would be to allow the use of other blends, such as 80 percent renewable diesel and 20 percent biodiesel blends or R80/B20 in addition to R99. Both fuel -- both fuel blends reduce GHGs and NOx by significant degrees, and both fuels reduce particulates substantially, R80/B20 by about 29 percent and R99 in the proposal by about 27 percent, according to CARB data.

It's that additional benefit of reducing diesel PM with R80/B20 that I want to highlight for the Board, since any additional reductions in diesel PM will greatly benefit environmental justice communities, many of which are located near the ports.
I also note that many of the very lowest carbon pathways for liquid biofuels are made in this state by California biodiesel producers, including New Leaf Biofuel in San Diego, Crimson Renewable Energy in Bakersfield, and Imperial Western Products in Coachella. In-state biodiesel producers employ many Californians and support million of dollars in economic activity. Excluding biodiesel from this proposal would prevent these California producers from being able to bring their lowest polluting fuels for use in harbor craft to benefit all Californians.

There's a number of factual errors we address in our written comments. We urge you to direct staff to provide a minor 15-day change to allow the use of R80/B20 and other biodiesel blends --
knowledge all the hard work done by staff to get to this point.

We greatly appreciate all the stakeholder outreach that has been conducted. And while we had ultimately hoped for a hundred percent zero-emission mandate for all vessel segments out of this ruling, given the urgency of ending toxic fossil fuel pollution in California and moving all transportation sources off fossil fuel, we feel the final rule is still a meaningful step forward to end ship pollution and are in support.

This is the first-in-the-nation standard on commercial harbor craft and want to thank CARB for your leadership on this rule to set zero-emission standards for short-run ferries and excursion vessels. Harbor craft is one of the top three sources of cancer risk around the ports of LA, Long Beach, and Oakland and they're work is not over yet. We need to get all the other vessel categories to zero emission as well.

We especially need zero-emission vessels in the areas that are in non-attainment with the Clean Air Act. And we are excited to see the frequent technology review and the tech -- technical working group, as we're seeing rapid market maturation for electric boats, ferries, and vessels in South Korea, China, Singapore, and the EU and beyond. We look forward to working with you all to
rapidly transition the rest of the vessel segments to zero
emission. And than you again.

BOARD CLERK ESTABROOK: Thank you.

Next is a phone number ending in 977. Please
state your name for the record and then I will let you
know when you have 30 seconds remaining and when your time
is up.

And you will need to press star six to unmute.

TOM BABINEAU: Thank you. I want to thank staff
and Board members for this opportunity to provide support
for this regulation. My name is Tom Babineau. I
represent Rypos and active DPF manufacturer. Since 1996,
Rypos has produced tens of thousands of active DPFs that
have operated for more than 50 million hours to date
without a safety incident.

Like many of the previous regulatory efforts,
regulations and technologies are necessarily advancing in
parallel, so there's a natural tendency for us all to ask
are these technologies ready? Have they been tested?
Will they work?

I've attended all the public workshops and this
is a constant theme. Given that DFP's effectiveness to
reduce PM is proven, I'd like to spend my time today on
readiness and durability, which by extension, speaks to
safety.
DPFs, if sized properly and used on compliant engines, have accommodated all forms of engine load cycles for years. They're successful in the ports and RTGs offloading container ships and are successful on TRUs that deliver food across the nation. They've been around for years. They've been tested over time and they're proven to uncover -- the ARB process of verification has been tested over time and has proven to uncover and weed out problems.

In order to find the uncharted problems, however, testing is not only required by ARB through the verification process, but we do our own of course. So we don't need the headaches that threaten our very existence.

So in 2006, Rypos retrofitted a U.S. Navy barge, which operated for over 19,000 total combined hours without incident. In 2014, the U.S. Office of Naval Research in partnership with UC Riverside --

BOARD CLERK ESTABROOK: Fifteen seconds.
TOM BABINEAU: -- independently tested these DPFs and found them to be operating as designed. Again, zero operational safety issues have occurred.

We presently have --

BOARD CLERK ESTABROOK: Thank you.
TOM BABINEAU: -- two DPFs --
BOARD CLERK ESTABROOK: That concludes your time.
If you could state your last name for the record again, that would be great.

TOM BABINEAU: Yeah. Thomas Babineau.

BOARD CLERK ESTABROOK: Thank you.

TOM BABINEAU: I will submit these in writing too. Thank you.

BOARD CLERK ESTABROOK: Okay. Sounds great. Thank you.

Next will be Matt Holmes. You may unmute and begin.

MATT HOLMES: Good morning, Chair Randolph and members of the Board. I'm Matt Holmes. I'm a portside resident of Stockton, California, and I am, of course, in strong support of passage of the strongest possible Commercial Harbor Craft Rule.

This is an easy one for me, because I'm in Stockton, where there aren't any leisure craft or fisher fleets to speak of. We just have industrial operations that are filling their bank accounts on the daily while foot dragging on upgrading their equipment to maximize profits, while we die more or less ten years earlier than everyone else on this call.

We're the state's industrial colony and we live in constant non-attainment with the Clean Air Act. This rule is one more measure California can put in place to
let the Feds know that at least CARB is doing its parts to address non-compliance, since we know we can't count on our regional air district to take the Clean Air Act seriously.

And I really sympathize with some of the smaller operators we've heard from today and I wish there was a more nuanced application of the rule that acknowledged this difference. I'll be the first person to sign a waiver for the guide taking disabled youth out on the water. Lumping him in with somebody dragging the ocean floor should give everybody on here pause. You know, maybe we could figure out how to do that based on annual operating costs. And while there should maybe be a public benefit assessment for compliance deadlines for some of these folks, no doubt for the rest of them I'd say if someone can't afford to run a safe boat, then maybe they're in the wrong line of business.

You know, I'd like to live in Lake Tahoe, but my capacity to do so remains challenged by the cost. Is there a CARB program that can make my unnecessary dreams come true? I don't think so.

For the concerns we've heard today, I'll just gut check the Board, that these pleas that we're hearing, you know, they aren't un resistance to your rule. It's about the stinging awareness that they've never really paid all
of their own bills. This self-reliance crowd seems to be addicted to externalizing their costs in the portside communities. It's high time welfare-addicted businesses in California learned how to pay their own bills and stop pretending to get their businesses to pencil out by burying their unaddressed pollution in our bodies. No one has a right to run a dirty business, while we all have equal protection under the law and a right to an entire first-world lifespan.

Please center in your minds the stats on cancer and other respiratory distress that your team has and while these operators pull out their pockets demanding subsidies.

I'll closeout by reminding you that you've never subsidized our hospital bills.

BOARD CLERK ESTABROOK: Thank you. That concludes your time.

Next will be Jennifer Case. After Jennifer will be Nilda Langston, Sylvia Bentancourt, and then a phone number ending in 990.

Jennifer, you can unmute and begin.

JENNIFER CASE: Good morning. Thank you, Chair Randolph and the Air Resources Board members. Our business New Leaf Biofuel in San Diego recycles used cooking oil from San Diego restaurants and converts it to
biodiesel fuel, an ultra low carbon fuel that achieves an 80 percent reduction in carbon emissions compared to petroleum diesel.

We commend the Board for continuing to push for regulations to some day achieve a fully zero-emission fleet of vehicles both on-road and marine. However, we believe that CARB is missing a huge opportunity by not recommending biodiesel as an alternative to achieve improved air quality goals in this regulation.

As mentioned by a previous speaker, the renewable diesel supply is already very strained and we're all experiencing extreme hardship right now with the rise in fuel prices. Biodiesel is readily available in San Diego and all up and down the coast of California and it's priced at a substantial discount to petroleum and renewable diesel.

Blending renewable diesel and biodiesel together maximizes the environmental and economic profiles of those fuels. For example a blend of RD and -- at 80 percent and bio at 20 percent is similar in NOx reductions, but reduces more particulate matter than R99. It is also the best available solution to address asthma and cancer concerns while the state waits for zero emission to be fully implemented. We urge CARB to reconsider the exclusion of biodiesel in this important regulation for
the benefit of the environment, the economy, and small businesses.

Thank you.

BOARD CLERK ESTABROOK: Thank you.

Nilda Langston, you may unmute and begin.

NILDA LANGSTON: Good morning, everyone. I am Nilda Langston. I operate a glass-bottom boat in Long Beach. And as the only Latina-owned company, I can tell you that the -- I support the green goals that we have for the State. And these are aggressive goals. But at the same time, I ask you to consider that with a aggressive goals comes the need for aggressive funding, and that's not available.

Even to get to Tier 3, with the new -- with the new guidelines today, my funding to move to Tier 3 reduced to 20 percent of the project. And to be able to amortize a loan in a short amount of time, I won't be able to even get the life of the engine out of that type of loan on funding.

And while we support -- we're just a small team, small operators, we a hundred percent support the goals of the State. And we want to do everything we can to produce clean emissions. But at the same time, I ask you to consider all the aspects that this includes. We're just coming out of a hard, hard couple of years, all of us
having to deal with COVID, having to deal with labor
issues that has happened as a result of COVID, and the
lack of -- or the generalization of the problem is where I
ask staff -- which they've been great. They've been great
on certain questions, and emails, and providing the
extensions. That's a relief to hear about the extensions
today, because I -- to tell you the truth, I didn't know
what was going to happen to our little company here.

And so I just ask you to reconsider and maybe put
a pause, because with -- like I say, with the aggressive
goals requires aggressive funding that is not available
for all of us.

Thank you.

BOARD CLERK ESTABROOK: Thank you.

Next will be Sylvia Betancourt. After Sylvia
will be a phone number ending in -- oh, it looks like
Sylvia just dropped off.

So a phone number ending -- Oh, Sylvia, I see
your hand went back up. Okay. Sylvia Betancourt and then
a phone number ending in 990, and William Smith.

Sylvia, you can go ahead and begin.

SYLVIA BETANCOURT: Good morning. Sorry. I
dropped my hand in anticipation of getting my comment.

My name is Sylvia Betancourt. I work at the Long
Beach Alliance for Children with Asthma. We're based at
Miller Children's and Women's Hospital of Long Beach and we're part of the Asthma Center of Excellence, which is one of two centers on the west coast. And we take on this particular illness as we know that there is a high asthma rate in our region and that we have the challenge of air pollution.

I want to also thank the California Air Resources Board and staff for all of your hard work on this particular ruling and on this -- on this issue. I'm calling in support. And I urge the Air Resources Board to pass the strongest possible Commercial Harbor Craft Rule today.

I want to highlight the work that we do is directly on the front lines working with children who have asthma. Our hospital serves 70 percent -- 70 percent of our patients are Medi-Cal patients. And the majority of our families that we serve are in the harbor region. And many of these children face diesel exposure daily. We know that diesel exposure has a huge impact on children's health. We know that this regulation would dramatically reduce diesel pollution in Southern California, and where harbor craft constitute one of the top resources of DPM in the region.

We know that medicine is a solution for illness, but medicine is a reaction. What we need is to address
the problem at the source. We need to have children in school, not in the hospital or the ER. We need their parents and their caregivers at work and not at home taking care of children, missing work, and putting themselves in more vulnerable position to having to miss work. So we ask that the Board take action to safeguard current and future generations in the harbor region.

Thank you for your time.

BOARD CLERK ESTABROOK: Thank you.

Next will be a phone number ending in 990.

Please state your name for the record before you begin. And next after the phone number ending in 990 we will hear from William Smith, Tim French and Harry Simpson.

You should be able to press star six to unmute and then you can begin.

HARVEY EDER: Hello. Am I being heard?

BOARD CLERK ESTABROOK: Yes, you are.

HARVEY EDER: Okay. Good afternoon -- I mean, good morning. My name is Harvey Eder. I'm speaking for myself and for the Public Solar Power Coalition and like-minded folks and entities.

I'm not as up on the details of this as I should be. I heard a number that -- with this rule that 500 deaths are going to be prevented. Okay. I don't know if that's 500 over -- per year or over 10 years, 50 a year.
Okay. But here's -- here's the things that -- that we've been working on and have brought to you all.

The history of the cost of premature deaths, in the '07 plan, it was 7 -- 3 -- 3.5 million for premature deaths. And in the '12, plan it was -- it was seven million for premature death. And in the '16 plan, based on '15, it was nine million for premature death, okay?

Now, with the Indirect Source Rule, they're using like Rule 10 to 12 million, all right? A thousand times a thousand is a million. A thousand times -- a million times a thousand is a billion. So that's $10 billion per thousand deaths. The State says there's 7,500 that's for air pollution, 5,000 in the South Coast, okay?

The real numbers, okay -- Lancet in '18, we got this from Pedro Piqueras, a doctor for the South Coast specializing in health air pollution law. They said there's 1.1 to 1.5 million premature deaths in the United States per year.

A million times a million --

BOARD CLERK ESTABROOK: Twenty second remaining.

HARVEY EDER: -- is a trillion. Okay. That's from 10 to 15 trillion for the U.S. cost. Ten percent of that goes here. That's the whole economy of the State basically. That's a half to two-thirds of the economy just using those numbers without -- we got -- we got 85
percent in schools of kids that have asthma. They don't
get paid when they don't go to school.

BOARD CLERK ESTABROOK: Thank you. That
concludes your time.

HARVEY EDER: All this other -- these costs are
real --

BOARD CLERK ESTABROOK: Thank you.
Next will be William Smith. You may unmute and
begin.

WILLIAM SMITH: Good morning. Can you -- am I
being heard?

BOARD CLERK ESTABROOK: Yes, you are.

WILLIAM SMITH: Okay. Good morning. My name is
William Smith. I am the owner of the CPV vessel Riptide
in have Half Moon Bay. And I have just, just finished
repowering to a Tier 3 motor. And I support the SAC and
the GGFA position on this. I want to be allowed to
operate and maximize my use of this engine. My vessel was
small and I am -- would be unable to put the converter in
here. So my position is that I would like you to support
the position of both the GGFA and the SAC coalition.

Thank you.

BOARD CLERK ESTABROOK: Thank you. Our next
speaker will be Tim French. And then I'll just read off
the list of the last speakers for this item. Tim French
and then Harry Simpson, Josh Gaylord, Scott Hedderich, Greg Hurner, and Ryan Mack.

Tim, you can unmute and begin.

TIM FRENCH: Good morning. Thank you. My name is Tim French and I'm speaking on behalf of the Truck and Engine Manufacturers Association. And EMA would like to reiterate five points.

First and foremost, while EMA fully supports the deployment of the most advanced propulsion systems that are commercially available, we still have a number of significant concerns regarding staff's proposal, especially given the very short lead time before the proposed amendments would take effect, which can occur as early as next year.

Second, manufacturers currently produce very clean SCR-equipped Tier 4 commercial marine engines in a broad range of power and displacement categories. However, the types of Tier 4 Plus engines that the amended regulations would mandate are not commercially available across the regulated power range nor are sufficient verified Level 3 DPF retrofits.

Third, instead of trying to compel the deployment of unavailable hybrid Tier 4 Plus systems, CARB should work to foster the accelerated installation of available Tier 4 systems. Those Tier 4 products could include
engine families certified at emission levels compliant with the Euro 5 stage -- excuse me, the Euro Stage 5 standards. And significantly, Euro Stage 5 systems are equipped the DPFs.

Fourth, CARB should fully coordinate any final CHC amendments with the U.S. Coast Guard. Without that full coordination and without accounting for the new burdens on vessel owners to obtain additional Coast Guard approvals, this rulemaking will face many significant obstacles.

And fifth and finally, all aspects of the proposed amendments will require a preemption waiver from U.S. EPA before CARB attempts to enforce them. Given the demonstrated lead time and cost effectiveness concerns at issue, a preemption waiver should not be viewed as a foregone conclusion in this case.

Thank you for the opportunity to testify today.

BOARD CLERK ESTABROOK: Thank you.

Next is Harry Simpson. You may unmute and begin?

HARRY SIMPSON: Hi. My -- can you hear me?

BOARD CLERK ESTABROOK: Yes, we can.

HARRY SIMPSON: I'd like to thank Chair Randolph, and the members of the Board, and CARB staff for the opportunity to comment on the proposed Commercial Harbor Craft Regulations. My company, Crimson Renewable Energy,
is the largest producer of biodiesel in California.

For nearly a decade, we have produced consistently over 50 percent of the biodiesel produced in California, specifically we produce ultra low carbon biodiesel from -- produced from 50 -- sorry, produced from used cooking oil and other inedible waste and byproduct raw materials. We play a significant role in helping California and our customers decarbonize challenging transportation emission sectors, such as heavy-duty trucking, rail, agriculture and construction equipment.

Crimson and the biodiesel industry can play a similar role in the marine sector to decarbonize and reduce harmful particulate matter and hydrocarbon emissions associated with marine fuels. As members of the California Advanced Biofuels Alliance and the Clean Fuels Alliance of America, we wish to align ourselves with the comments they have submitted as well as comments submitted by the Renewable Energy Group.

In particular, the proposal unnecessarily limits biodiesel content in marine diesel fuels and prevents 100 percent renewable alternative marine fuel blends such as the renewable diesel, 80 percent biodiesel, 20 percent blend from being used in the marketplace for marine fuels. For the communities hardest hit by negative help impacts associated with diesel fuel in California's ports.
and harbors, this means those communities will be deprived of the reductions in harmful PM and hydrocarbon emissions that can be delivered by biodiesel fuel blends.

Additionally, we are disappointed by the tone taken towards biodiesel within Appendix E of the proposed amendments to the regulations, especially in light of the fact that Air Resources Board has approved biodiesel for in-state use in California for over a decade and we have seen (inaudible) --

BOARD CLERK ESTABROOK: Thank you. That concludes your time.

HARRY SIMPSON: -- four billion gallons of biodiesel in California.

BOARD CLERK ESTABROOK: Thank you. Next will be Josh Gaylord. You may unmute and begin.

JOSH GAYLORD: Good morning. I'm Josh Gaylord with Flagship Cruises here in San Diego. We operate a harbor tours, whale watching, and ferries on the bay serving as an affordable access point to our bay for the community.

As Californians are experiencing higher gas prices through the nation, we need to keep alternative and less polluting per capita transportation methods affordable.

The Governor has announced providing free public
transportation for three months to help commuter ferries -- or -- are an important component of the public transportation system and critical to reducing the traffic, and congestion, and emissions from our roadways. These are roadways that transect our most vulnerable communities and are demonstrated by the greatest pollution burden on these communities. We are more than willing to continue to invest in lowering emissions for our ferries, but the technology must be available. It must include State funding to maintain the affordability that will incentivize consumers to abandon their cars. And most importantly, we need to be -- we need a reasonable time frame to work with shipyards and technology providers to construct and deploy new systems as they become available.

We carry about 800,000 passengers a year that would normally drive the six miles through the community we are trying to protect. We feel that this isn't really considered in the carbon impact. We have up -- repowered to Tier 3 and reduced speed to minimize our impact on the environment. Tier 3 has also removed us from some of the grant opportunity, which kind of works backwards on the whole thing we're trying to achieve here with lower emissions.

We've engaged an engineering firm to look at the
zero emissions opportunities. And so far, it's not feasible for us to maintain our service and feasibility as an affordable alternative to driving across the bridge and driving through these communities.

BOARD CLERK ESTABROOK: Thank you. That concludes your.

Our next speaker is Scott Hedderich. Scott, you may unmute and begin.

SCOTT HEDDERICH: Good morning. Good morning, Chair Randolph and members of the Board. My name is Scott Hedderich. Appreciate staff trying to spell it or pronounce it. I'm with the Renewable Energy Group, a leading manufacturer or renewable and biodiesel in the U.S. I do want to make sure that we associate our comments those of CABA, CFA, and the other in-state biodiesel manufacturers.

I want to talk about something very specific that hasn't been mentioned, except I think by one of the last speakers around Appendix E and that's explain why the proposed language addressing biodiesel in Appendix E should be removed, excuse me, from the rule, or failing that should be thoroughly edited and rewritten to reflect valid factual information and evidence. Many of the claims made about biodiesel in that section are simply wrong. They're based on antiquated studies dating from
2006 to 2012, and they are no longer relevant nor accurate in light of new data.

For example one statement in the ISOR reads, "Biodesel, which is a methyl ester compound that should not be used in high quantities with retrofit aftertreatment". We've simply found no evidence to support this claim whatsoever that biodiesel cannot be used in high quantities with aftertreatment devices. We've been using B20 in NTDEs on road for a significant amount of time, and no it's not a problem.

CARB's own finding in the 2015 ISOR for the ADF determined that engines that meet the latest emission standards through the use of selective catalytic reduction have been shown to have no significant difference in NOx emission based on the fuel used. And it should be pointed out that that study included testing 100 percent biodiesel.

It's disappointing that CARB would choose to present such misleading and inaccurate information on a fuel that's approved for in-State usage, has had over 1.4 billion gallons consumed, and has delivered 12.3 million credits of carbon reduction in the LCFS. We again ask that this section be deleted, short of that working with industry to ensure that it at least reflects current data and not data that's 12 to 15 years old.
Thank you.

BOARD CLERK ESTABROOK: Thank you.

Greg Hurner, you can unmute and begin.

GREG HURNER: Thank you.

Thank you, Chair Randolph and members. Again, I want to reiterate from the sportfishing communities, your thanks for your comments at the November meeting. Additionally, Chair Randolph, I want to thank you for your personal involvement and the involvement of the legislative staff and your advisors that were -- that engaged with us, and also definitely want to thank Richard and Edie, Heather, Bonnie, and David for their engagement with us and their professionalism.

Dr. Balmes made a statement in November that really struck me, and that was about the impacts from the rule and the effects that it can have on those that are subject to the rule. And we need to consider those impacts. That's part of the non-monetary impacts that we've discussed with your staff and with you, and we really appreciate the engagement in that regard, and think we have found a very good path.

We are very interested in working with the engine manufacturers through the technology review to find out what they can bring to the table. We know there's future promises. We also know that there are zero-emission
technologies out there that are coming forward and we look forward to working with the Pacific Environment and the Coalition for Clean Air on helping the transition of all harbor craft.

And lastly, I just want to thank the bipartisan groups, some of legislators, some of those that the Chair mentioned at the beginning of the meeting. This has been a collaborative and productive effort. And it's truly appreciated, and we look forward to continuing to engage in the future.

Thank you.

BOARD CLERK ESTABROOK: Thank you.
Next will be Ryan Mack. And after Ryan, Beau Biller, I saw that your hand went back you, that it was up earlier, and you're able to speak now.
So, Ryan, you may unmute and begin.
RYAN MACK: Is it still morning?
Hello, everybody. Can you hear me?
BOARD CLERK ESTABROOK: Yes, we can.
RYAN MACK: All right. Hello and good morning.
My name is Ryan Mack. I'm the founder and owner of MP Strategic group. It is a think tank comprised of Cal Maritime grads from different disciplines such as marine transportation and engineering, as well as policy. Myself and my colleagues love maritime policy and hope to one day
develop better maritime policy for the mariner.

I was proud and excited to see a Cal Maritime feasibility study cited in the commercial harbor craft methodology for the rulemaking. However, the Cal Maritime study clearly states that Tier 4 plus DPF is only attainable on the largest newest tugs.

Considering -- I'm going to repeat this from Max Cohen's point, but considering the vertical stability issues for towing vessels that are raise in the very same CMA study, which is used to justify the regulations, towing vessels in subchapter (m), according to 46 CFR 170 will be put out of compliance for the regulation. It specifically states that it is not meant to put vessels out of compliance with CFRs, but it may, in fact, be doing so.

It would be naive of me to think that the CHC Regulation will be overturned. But moving forward, I employ CARB staff to work with the United States Coast Guard on vessel stability, safety, and heat with these new DPF systems. Recently, there was a fire on board the Miss Dorothy, a tug located on the Mississippi River. The cause of that fire, according to the NTSB was due to diesel spray on an exposed exhaust manifold. While this vessel did not have a DPV or SCR, addition a heat on the exhaust manifold will raise the likelihood of a fire on
board these vessels.

And I would just like to conclude and say that I have a -- I have a unique responsibility as a mariner to protect my fellow mariners in ensuring that vessel stability, safety, and reliability is paramount. So thank you so much for your time.

BOARD CLERK ESTABROOK: Thank you.

Beau Biller, you can unmute and begin.

Beau, are you there?

It doesn't look like you're unmuted.

Okay. Sorry, Beay. We're not able to hear you.

You can please submit your written comments on the website. We're unable to -- it looks like you're not unmuted on your end. Sorry about that.

Chair, that concludes the commenters.

CHAIR RANDOLPH: Thank you. Staff, are there any issues raised in the comments that you want to address?

EXECUTIVE OFFICER COREY: Nothing to add, Chair.

CHAIR RANDOLPH: Okay. Thank you.

EXECUTIVE OFFICER COREY: Excuse me. There's a comment that legal wants to make.

BOARD CLERK ESTABROOK: Alex Wang, are you on?


Yeah. This is Alex Wang. I'm a staff attorney assisting staff on this rulemaking item.
Chair Randolph and members of the Board, nearly all of the comments provided today do raise issues that had been previously submitted and considered by staff. Specifically in regards to environmental comments received, we have already provided you with comprehensive responses to those comments, in a response to comments on the Draft Environmental Analysis, which include comments submitted again today. Staff has not identified any new significant -- sorry, staff has not identified any new significant information in the comments today that have not already been addressed.

Staff would, however, like to provide an additional response to the comment letter submitted today from the Clean Fuels Alliance America and California Advanced Biofuels Alliance. While that letter does not identify a significant environmental effect, the regulation, it states that the responses we provided to comments 3196-1 and 3196-2 in the response to comments document appear to have been based on misconceptions and misunderstandings regarding the R99 proposal. Specifically, the letter states that the proposed R99 requirement would result in fewer particulate matter emission reductions versus the renewable 80 and biodiesel 20 fuel blend.

Staff believes that the responses provided for
comments 3196-1 and 3196-2 in the Final Environmental Analysis response to comments document reflects the most recent information and accurately reflects the reductions of particulate matter, NOx, and life-cycle greenhouse gas benefits that would have been achieved by the proposal to require use of R99 or higher blends of renewable diesel.

We're aware that there may be some PM reductions from R80/B20 blend compared to R99 or greater, but those potential benefits must be weighed against the potential relative NOx increases from the biodiesel and the blends, in addition to other performance concerns. And those concerns are responded to in comments 3235-4 in the Final Environmental Analysis response to comments document.

There is no other diesel fuel blend than R99 or higher that provides a greater amount of NOx reductions, and, as outlined in our staff presentation, there is a shortfall on the NOx reductions needed to meet the goals of the State SIP Strategy. Comments regarding PM reduction benefits from use of B80/B20 do not -- do not indicate that a significant environmental effect would be caused by the proposed regulation.

In addition to achieving less NOx reductions, use of blends of biodiesel by more than five percent would not comply with the standards for CARB diesel, according to ASTM D-975. The proposed amendments require use of
verified diesel emission control strategies verified pursuant to 13 California Code of Regulations 2700 to 2711 et seq., which requires additional analysis and testing for use of alternative diesel fuels, such as biodiesel.

The use of biodiesel could also conflict with requirements of vessels that travel internationally or into international waters, such as the MARPOL Annex VI regulation 18 requirements, that require testing to ensure no increases in NOx emissions.

All right. Thank you.

CHAIR RANDOLPH: Thank you. I will now close the record on this agenda item. Any written or oral comments received after this hearing date will not be accepted as part of the official record on this agenda item.

If the Executive Director -- I'm sorry, if the Executive Officer determines that additional conforming modifications are appropriate, the record will be reopened and a 15-day Notice of Public Availability will be issued. If the record is reopened for a 15-day comment period, the public may submit written comments on the proposed changes which will be considered and responded to in the Final Statement of Reasons for the regulation. The Executive Officer may present the conforming modifications to the Board for further considerations if warranted, and if not, the Executive Officer shall approve or disapprove such
modifications and take final action to adopt the
regulation after addressing all conforming modifications.

All right. Ready to bring this to the Board. If
any Board member has a question or comment please raise
your hand if in person or click the raise hand symbol, if
you are on Zoom.

I'm going to kick off with a question. And this
seems to me, you know, kind of the most key issue in this
process. So I wanted to kind of set it out at the
beginning. And I think the commenter Shawn Bennett
articulated it best with kind of the fundamental questions
about technological feasibility and safety. You know, he
mentioned issues around power stability, and safety, and
other concerns related to DPFs. And so I thought it would
be important for staff to sort of discuss with the Board
kind of the process and safety considerations that go into
the approval of engines and DPFs. So if staff could
respond to that, that would be --

EXECUTIVE OFFICER COREY: Yes. David Quiros will
respond, Chair.

TTD FREIGHT TECHNOLOGY SECTION MANAGER QUIROS:
Well, thank you, Chair Randolph and members of
the Board. Safety is a top priority for us as an air
quality agency when we're requiring the use of
technologies like Tier 4 engines and diesel particulate
filters. We've worked with other bodies like the U.S. Coast Guard a number of times, and we're going to continue to work with them as we go into the implementation of this rule, if approved.

One thing to keep in mind is that there are DPFs that are certified by the United States Environmental Protection Agency for marine use to the Tier 3 standards that have DPFs on them, and those have been certified since 2017.

On CARB's role of that, we verify the aftermarket DPFs through a rigorous procedure that you heard about today from Rypos and Nett Technologies called the verification process. And through that process, in addition to verifying levels of emissions reductions of diesel PM of 85 percent or more, we also require the applicants to demonstrate the potential safety and failure modes associated with their strategies, and what mitigation measures that they're supposed to be using to make sure that those DPFs are safe.

So CARB would not verify something with a known performance issue with a DPF. In our recent conversations with the Coast Guard, we've also learned that they too are asking at the local level what type of safety measures are in place on these marine DPFs as they're beginning to be tested and verified for use in the rule.
So one such project that Nett Technologies is involved with the S. Bass tug that's operating down in San Diego. And that is currently undergoing verification, and the Coast Guard is being looped in, and it could be potentially a technology that would be used to comply with this rule.

CHAIR RANDOLPH: Okay. Thank you.

All right. Any other Board members would like to comment or ask questions?

Vice Chair Berg.

VICE CHAIR BERG: Thank you. And thank you staff and everybody who have been stakeholders that have been participating in this regulation. It is complicated. There are many duty cycles that we are addressing here and it's a long established industry. And so we know that when we go to the next steps, that that does make industry very nervous. What we also know that is the benefits are overwhelming and we know that we need to be forward.

I thought it would be helpful if staff could clarify a couple of things. One, we heard time and time again about technology not being available specifically in the Tier 4 area and DPFs. I think -- and yet in staff's presentation, they did mention that 22 engines were available. So if we could just have a little clarity on the availability of technology, and if technology is not
available, what's -- what's the process. I think that
would be extremely helpful.

The other thing is the simplification of
extensions. It did seem that I thought I didn't realize
the cost of the $54,000 for the needed documentation for a
small company. That is very extensive. If you have one,
two, three vessels that's a lot of money. So I'd be very
interested in how the simplification has -- is going to
impact positively on this process.

And then I think my last clarification truly is
to address we have very short time frames. This is an
aggressive rule and we have very short time frames, so
there is going to be some barriers. There's going to be
things backing up. This is a lot of engineering. This is
a lot of preparation to retrofit, or to put new engines,
or to get new vessels. And so what's going to be the
process when things do get backed up for these companies?

And then finally, I'd really appreciate to hear
from staff this issue of useful life. I have to say that
I am sympathetic to the useful life issue. We're
asking -- if we only started from now and the amount of
investment, but people have been making investments to get
to Tier 3s and Tier 4s. And so how are you thinking about
that, especially in light of going to zero, which we know
is our ultimate goal. So I would appreciate some thought
about that.

   Thank you so much.

EXECUTIVE OFFICER COREY: David Quiros is going
to take this as well. David.

TTD FREIGHT TECHNOLOGY SECTION MANAGER QUIROS:

   Thank you, Vice Chair Berg. This is David
Quiros. I captured four questions that you raised to
staff. Let me touch on them in order here.

   The first one was on Tier 4 engine availability
and DPF availability. We did have in our staff report, we
said in the staff presentation, that there are 22 models
of Tier 4 engines that are available. That would be
certified by U.S. EPA for marine use today. Not all of
those will fit in the in-use vessels that are operating in
California today. And there might be some combinations of
duty cycle ratings or engine power sizes, where there just
isn't a Tier 4 engine certified.

   So built into the regulation and the proposal in
November, there's an extension pathway that would allow
operators to get extensions, two years at a time, and
there would be no limit to the number of two-year
extensions, if technology is just not certified.

   The separate question is whether it fits in the
vessel, and that's the feasibility extensions that we've
heard a lot about in the staff presentation that are
limited to six years for most vessels and eight years for passenger vessels with earlier compliance deadlines.

On the DPF side, there are some OEM engines, engines made by engine manufacturers that are certified by U.S. EPA with DPFs today. Those are in the Tier 3 class. There are no Level 3 DPFs that could be used with Tier 4 engines today, but we heard from two retrofit manufacturers and one engine manufacturer that is certifying or verifying engines that would meet the Tier 4 plus DPF standard.

Similarly, if there's no DPFs available by a compliance deadline, that's not a feasibility question, that's an availability question. And there's no limit to the number of two-year extensions that would be available to the operators that would need to comply.

The second question you asked was about the simplification of the compliance extension process. The CMA report, after reevaluating the direction in November, can be used by some vessel categories to satisfy the third-party Naval architect analysis. An initial idea that we have is for the first of the two -- the first two years of the six to eight year total of feasibility extensions, that that report would be able to satisfy the technical basis if a vessel is made out of wood or fiberglass. We might be able to use that CMA report in
broader context, but at a minimum, we should be able to use it for the wood and fiberglass vessels.

The third issue that was raised was the short-term time frames for compliance. So in the first five years of the regulation being implemented, 2024 through 2029, vessels were the highest emissions have compliance dates. Tugs, for example, have high activity, large engines, and directly pollute near-shore communities. Ferries are in that category. They have a direct passenger impact. That's why they have early compliance deadlines.

The compliance dates can be extended due to the extensions either availability or feasibility. And if the feasibility extensions are granted in full, that could mean that vessels don't have to take action to reduce their emissions until 2030.

So that leads to the fourth topic you raised about the useful life. We heard requests about useful life of up to 25 years and we don't doubt that a lot of the operators take good care of their engines, have good maintenance practices, and that engines can last that long. With the compliance dates that are proposed in -- back in November, most engines will have at least 10 to 15 years before they have to turn over to something new. And we recognize that those engines might have been able to be
operated longer, but we do need to achieve reductions, especially as there's a need to reduce diesel emissions and then also the promise of zero-emission technology on the horizon.

And the last thing that I'll say is that every year where there's an opportunity to reduce cleaner combustion emissions by 90 percent, it would take 10 years of zero-emission operation to make it up.

So we can't wait for zero to be here for the majority of the harbor craft that are operating where there's an opportunity to achieve the public health protections that we need today.

Thank you.

VICE CHAIR BERG: Thank you, David. My follow-up question is is that given that it is a shorter useful life, that was taken in consideration for the cost analysis? So did you use a 10 or 15 year life in the cost analysis?

TTD FREIGHT TECHNOLOGY SECTION MANAGER QUIROS: The useful life that was assumed in the emissions was also carried forward into the cost analysis. And in many cases, if there was remaining useful life, that's an asset to the company, because they can sell or trade that asset outside of the state. And in many cases, due to the current Harbor Craft Regulation, our engines are equal to
or cleaner than what other states or outside jurisdictions of California are using.

VICE CHAIR BERG: So do I understand that to be no?

TTD FREIGHT TECHNOLOGY SECTION MANAGER QUIROS:
We did use the cost -- the useful life of the engines into the consideration, yes.

VICE CHAIR BERG: Okay. And then may I ask one more question. And I'm not sure it will be of David, but I was intrigued by the -- the speaker that talked about Humboldt Port and the fact that they were in a compliant area. Sounds like a small port operation. Could someone make a comment on that?

TTD FREIGHT TECHNOLOGY SECTION MANAGER QUIROS:
This is David Quiros, I can start responding to that. One thing is that we --

VICE CHAIR BERG: Thank you, David.

TTD FREIGHT TECHNOLOGY SECTION MANAGER QUIROS:
-- recognize is harbor craft do operate across the state. In some cases, certain vessels are dedicated to one region. But we do really need a statewide rule, because even if a region achieves the National Ambient Air Quality Standards, that doesn't mean that the emissions don't adversely impact the communities of where those vessels operate. So in order to assure that vessels that
operate across the state provide public health
protections, we have a statewide rule.

VICE CHAIR BERG: Thank you very much.
CHAIR RANDOLPH: Board Member Hurt.
BOARD MEMBER HURT: Thank you. I'd like to thank
the staff for the additional outreach and all the work on
the regulation since November. I'd like to thank all the
public commenters and just the variety of stakeholders
that I have met with between now and this Board meeting.

Everyone who requested a meeting, I made time.
And so I want to thank all of you for sharing how this
regulation impacts your businesses and your families. And
to Graham Balch of Green Yachts, I've never met you
before, but I'm happy to meet with you. So please reach
out. It would be much appreciated to learn more about
your business around electric yachts.

I do understand how unsettling some of this may
feel for some of the folks that have to have great change
in their business, and in this industry, and that there
are some unknowns around technology feasibility and
availability, but I'm reminded of how we are one community
and where everyone must move through the necessary change
to really meet this unprecedented need to reverse the
negative effects of climate change and improve the air
quality, especially in highly impacted communities. And
so I believe this edited or amended resolution is really threading the needle with many of the stakeholders, and they are diverse in their needs.

With that said, I, too, continue to be concerned, especially in the wake of the pandemic, for small businesses boat owners. And I'm concerned about the implementation process and ensuring that we continue these businesses forward, that in some cases have been around for generations.

But we also must not forget the negative impact to public health that happens every day we wait in making changes, especially in highly impacted communities.

I think of communities near Oakland and LA ports that have bore the burden of everyone's consumption for decades. They, too, have families, and businesses, and generations living under dire conditions. And I note, and I'm very thankful staff showed the cancer risk, while it's still not eliminated with these regulations, there is great improvement in those communities. So this is why we must move forward with this regulation with the appropriate guardrails. I've heard loud and clear that technology for some boat types are in flux or not available, and others just really have grave concerns around funding and implementation.

My ask of the Board and staff is not just a
technical feasibility, but also an implementation review of how this regulation is progressing, how the case-by-case extensions are going. It is BAAQMD's experience today and in the past that it takes months to get sign-off on a case-by-case extension, even in clear cases.

I did ask in my briefing, you know, are we going to increase the budget, are we going to have staff to really meet the need? And I understand that that's in process. But we need to get this right, so that this regulation really serves our end goals.

I also would like for us to assess the industry pace of ship builders and retrofitters. The ability of small boat owners to get in those necessary queues to get the retrofits in new boats I think is absolutely essential and cannot be lost in this process. I think about the Bar Pilots of San Francisco that have a 24/7 business that requires that they're moving, and operating, and guiding freight movement in the Bay. If there's limited pilot service, ocean-going vessels will not be able to come to shore and plug up, and they will idle in the bay around communities again highly impacted, which brings me to funding.

Around the grant funding, I understand that the deadlines and the surplus agreement under Carl Moyer grant
prevents funding -- or rather is not an option for many folks to rely on as it's currently situated. I understand that we are the regulators and we should do our best to shape our funding programs, however, to meet the needs, so that it's a successful regulation. I urge staff to find solutions around that, whether it's a shortening of the surplus years from three to two, or maybe extending that option. And maybe the IPAG group can take a look at how that's affecting the harbor craft folks.

I've also heard that there's folks lobbying the Capitol for more funding. And so this data around implementation, as well as technology feasibility I think will be beneficial. So if we could add those, again the implementation review I think it will helpful in the freight ask.

So with that said, I truly appreciate and support the compliance schedule and the extensions with financial hardship and feasibility at the front, equity centered, is really going to important for me when we talk about the streamlining of those extensions. I said in the last meeting that those who receive funding from Carl Moyer should be able to maximize those efforts with appropriate extensions. And I want to continue to keep that raised up as an important element in this regulation moving forward.

And so just again, if we could, in addition to
the technical feasibility biannual review add an implementation review.

But I'm ready to move forward. I know it's going to be a difficult reg, but I think it's important.

Thank you.

CHAIR RANDOLPH: Thank you. Board Member De La Torre.

BOARD MEMBER DE LA TORRE: Thank you. I want to thank staff as well. This, you know, two-part hearing process a lot has gone on, a lot leading up to the initial hearing and then obviously there's been more meetings, more discussions with industry. And we hear the concern. It's a big leap for many of you.

I am supportive of the adjustment being proposed for the fishing fleets. Those boats are unique. They're small. They're light. They -- you know, they're just different. And so I'm very supportive of getting the immediate air quality improvements that we can get and work with you going forward.

I also am very supportive of the mid-term review on the technological viability. That's very important. I know you don't see us do this all the time, but I want -- I want to be clear. We -- when we do a mid-term review, it is a thorough, real mid-term review. So that isn't just a talking point here. We're going to do it. It will
be thorough. And if we identify things that are missing at the time, technologically, we -- we'll adjust. And we do that regularly here. So I want to -- I want to assure you that that is a real and significant commitment on the part of the Air Resources Board.

The extensions that are being proffered here with across the Board, very unusual. We -- when we do a extensions, they're normally, one-offs that we allow the Executive Officer to determine. In this case, it is a -- an across-the-board extension offer at the -- when the time comes, when your dates come up for your particular vessels, and that is extremely unusual for us.

Yes, we -- I share Vice Chair Berg's concern in terms of the timing of it and Board Member Hurt's concerns about being able to process these. But the fact that we're doing an across-the-board extension is extremely unusual for us, and I think a sign that staff and the Board recognizes that you -- that we are taking this big leap, and, you know, we want to be as flexible as we can.

Finally, on the dollars for -- and this is particularly for the Catalina Ferry. I am -- I've said this before. I'll say it again. I'm very sympathetic to the issue of Catalina. I have not been able to find another scheduled ferry to an island offshore of California. There are charters, but it is -- to my
understanding, it is the only sched -- regularly scheduled ferry service to an island offshore in California.

It is the lifeline to that island for the people who live there and then obviously for the tourists who go back and forth. I've been there many times. It is part of, you know, being in Southern California, or being in California at all. So very, very important that that lifeline is maintained.

I have spoken to Senator Allen and Assembly Member O'Donnell about this. They have committed to work with us on finding the funding to help the Catalina ferry make this transition.

So we've talked about various ways it can be done. You know, it's the legislative process which I know all too well can -- it is -- it is the sausage making that everyone hears about all the time, but there's a few months here to really shape what that proposal looks like and gets some resources particularly to scheduled ferry service to offshore islands in California.

So that's it in terms of my comments. I do have a question on the articulated barge, because I heard this a few times in different meetings, that there was a difference in definition between California and the federal government on articulated barges, whether or not they're harbor craft or ocean-going vessels. So I'd like
an answer to that question. But I am supportive of the measure today for all the reasons I said.

    Thank you.

    TTD FREIGHT TECHNOLOGY SECTION MANAGER QUIROS:

    This is David Quiros. I'll respond to your question, Board Member De La Torre. California, CARB in particular, has regulated ATB tugs since 2009 as harbor craft and the U.S. Coast Guard also classifies ATB tugs as harbor craft as subchapter (m) towing vessels.

    BOARD MEMBER DE LA TORRE: Thank you.

    CHAIR RANDOLPH: Okay. Thank you.

    Board Member Takvorian.

    BOARD MEMBER TAKVORIAN: Thank you, Chair. I just wanted to add that I do support the measure as proposed. And I appreciate the collaborative work of CARB staff and particularly the Sportfishing Association and industry, which seems to have created a pathway that's feasible.

    I understand the concerns that have been raised and I appreciate the addition of the mid-term review, which I hope will respond to many of the questions that have been raised about technology. I do want to emphasize -- we've been focusing a lot on feasibility, and a bit on economics, but I want to emphasize that the reduction of the cancer risk from these vessels and
improvement in the air quality and health is really
significant and especially in environmental justice port
and coastal communities from Oakland to San Diego. It's
quite significant.

In San Diego, these vessels are a significant
emissions source and they are included in the 617 program
CERP. And it accounts for over half of the diesel
particulate matter from off-road sources and 47 percent of
the NOx. And the emissions from these vessels represent
about 28 percent of the cancer risk to portside
communities -- to the portside community of Barrio Logan.
And I just wanted to be really clear about the exposure
for those of you who may not have seen this in -- in
different portside communities, but in San Diego. And we
appreciate that CARB staff were able to come and visit and
see the exposures for themselves. The tug maintenance
yard in Barrio Logan is located right next to the only
peer on San Diego Bay that's accessible to Barrio Logan
and right next to the only bayside park, where students
from the neighborhood elementary school recreate, because
there's no playground at the school. So they walk over a
railroad track and through heavy-duty trucks that are
barreling down the streets in order to get to this park,
because they have nowhere to play at the school.

I was there last week and saw U.S. Navy members
using the park for exercise as well. So make no mistake, there's quite a bit of exposure. The park is well used and we're very hopeful that the tugboats can transition to zero emissions sooner than we're currently anticipating. And again, that's why the mid-year -- mid-term review is quite important and we're -- we're very inspired by the pilot demonstration of zero-emission tugboat in San Diego and the ferry in San Francisco. So we look forward to hearing the results of those pilots.

So again the mid-term review is very good marker to -- to really indicate what the transition can be and I appreciate the addition of that measure.

Thank you.

CHAIR RANDOLPH: Thank you.

Supervisor Vargas.

BOARD MEMBER VARGAS: Thank you. Thank you, Chair Randolph. And I just wanted to add to some of Member Takvorian's comments. First and foremost, I want to thank you for -- you know, as the representative of our San Diego portside community, I want to say thank you to all the staff for all the work up and to this point, and coming to San Diego and to visit the sportfishing fleet, which really compromises small ownerships and family businesses. And I think it was really important that this rule really made sure that for the AB 617 communities had
additional considerations, and that the engagement that took place.

As it was mentioned, our San Diego portside EJ community is the second category of higher pollution sources impacting Barrio Logan, National City. And so this support -- this directly is going to support several of -- several of our CERP strategies and actions. And so the MOU that we have with CARB, our APCD staff is actually ready to assist fleets. And then we'll be planning outreach activities to harbor craft business as well. So I really appreciate the inclusion of our technical working group for the biennial review. I think it's extremely important.

So again, I want to just thank CARB staff, my colleague, Supervisor Fletcher, who spoke earlier today as well for all of his engagement, and the Portside Community steering committee for the work in the CERP. I know it's tough, but I think this rule allows us enough time to transition the fleets. And I'm supportive of the staff's recommendation as well, so thank you.

CHAIR RANDOLPH: Thank you.

Dr. Balmes.

BOARD MEMBER BALMES: Thank you, Chair Randolph.

And, you know, going kind of late in the queue of Board members, much of what I would say has already been
said and said well. I particularly want to highlight Supervisor Hurt's comments. You know, she stole the line that I was going to use, that staff, with the revised proposal, has thread the needle.

You know, there's a tension, which I remarked about and others did in November between trying to maintain small business -- businesses that are impacted by this regulation and the public health benefits that are so important to portside communities.

And I think staff has done a good job in threading that needle. I -- I appreciate Supervisor Vargas for mentioning the technical working group. You know, I think the mid-term review is very important, but the biennial technical working group -- I may have the biennial wrong, but the technical working group where staff and affected industry stakeholders will be working together I think is real -- is key and we really need to make sure that that functions well.

I also appreciate Supervisor Hurt saying that in addition to the mid-term review on technical matters, there should be implementation review as well. You know, I think that probably is what staff is proposing, but the implementation part is important to include the barriers -- economic barriers, as well as the technical barriers to getting cleaner vessels that move us towards
zero-emission ultimately.

And I just want to take this opportunity to praise Executive Officer Corey for his role in threading the needle here. I realize that there's a whole team effort here from Chair Randolph to staff. But since I won't be able to attend the April Board meeting, I want to say thank you for Mr. Corey's effort on this regulation and the many regulations and policies that I have worked with him on over the years. If this is your last hurrah, Richard, it's a good one.

Thank you.

CHAIR RANDOLPH: Thank you.

Board Member Kracov.

BOARD MEMBER KRACOV: Yes. Thank you, Chair Randolph. Coming here at the very end obviously want to thank staff for working so hard for so many years, and particularly the last few months in coming up with a more consensus based rule. You know, kudos to the staff for sure on this, just a great job all the way.

And, you know, support the comments of all my fellow Board members today. And do also want to highlight Counsel Member Hurt's -- I'll call you Supervisor Hurt too, is that okay? Give you the promotion that Dr. Balmes gave you, but Supervisor Hurt's highlighting of the role of the technological assessments, both in terms of the
technology and where it's going, as well as the
implementation. I think Mr. De La Torre raised that as
well.

And, you know, I come from South Coast Air
District. I've heard a lot from the different
stakeholders. All these different categories of vessels,
you know, are in the South Coast District. So it's
important being the rep from the District to hear from
these stakeholders and ensure that the rule and how it's
implemented is done in a fair way to industry, and, of
course, all the folks that have to breathe the emissions
from these vessels.

But I have, you know, heard from some in the
industry, particularly the ferries and the tugs. So I
wanted to ask a question about that, Mr. Executive
Officer. You know, we've made this move now with the
sport fishers to Tier 3 with the technological assessment.
And we see where we go with that.

We have not made that revision or proposed it for
the ferries or for the tugs. And I spoken to folks like
Greg Bombard at Catalina, who, you know, is very concerned
about the costs of this rule on his, you know, really
critical fleets as Mr. De La Torre mentioned.

So I think it's very important that we explain
the reasoning on this. So let me just ask the question,
and then I'll have some other comments, please, Chair.

But for Mr. Corey, and, of course, you can defer that to Mr. Quiros or whoever else ably can describe this in staff in hopefully a detailed and persuasive way. But why are the other categories, particularly the ferries and the tugs and those kind of boats, not being given the same Tier 3 plus treatment as the sport fishers? If we could explain that to the stakeholders today in a persuasive way, in a thoughtful way, I'd really appreciate it.

EXECUTIVE OFFICER COREY: Thanks, Board Member Kracov. David Quiros will take this question as well.

TTD FREIGHT TECHNOLOGY SECTION MANAGER QUIROS: This is David Quiros. Thank you Board Member Kracov. That's a really good question as to why the sportfishing vessel flexibility couldn't be offered to the other sectors. And the stars just really happened to align to provide this opportunity to provide early reductions for the sportfishing sector that overall would not increase emissions over our valuation period.

One thing to keep in mind is that the sportfishing vessels do not have compliance requirements to upgrade engines under the current Harbor Craft Regulation, which means that there's still a decent fraction of them that are Tier 1 or pre-Tier 1 or so-called Tier 0 engine operated. A lot of the
sportfishing vessels have upgraded to Tier 2 or 3, but there were enough of them that also had feasibility concerns as demonstrated by our Cal Maritime feasibility study, because that fleet is mostly all fiberglass and wood construction. We assumed that 99 percent of them, that would have to go to Tier 4 plus DPF would have to be replaced based on current engine technology.

That's not the case with the excursion vessels, with the ferries, with the tugboats. Feasibility is a lot better. They also don't happen to be operated by predominantly a small business industry, and they are mostly Tier 2 or Tier 3 now, which minimizes the opportunity to upgrade to Tier 3 and achieve early reductions that could give a little more time to transition to that Tier 4 plus DPF by 2035.

The final thing I'll say is that the other vessel categories still do have the extension process where they can get to six to eight years of extra time, if they can demonstrate technical and financial infeasibility.

BOARD MEMBER KRACOV: Okay. So thank you for that Mr. Quiros. And, you know, I think it's important that the stakeholders and industry, you know, sort of hear this as the justification for why we're moving in this direction. We do have the compliance extensions. We do have the technological assessment that's going to give us
a sense. And, you know, there might be reasons to revisit this rule after the technological assessment is done in a few years.

But the other key thing, and I know Mr. De La Torre focused on this too as well as others, is the funding. Now, I don't have all the relationships he does to, you know, be speaking with Senator Allen and Assemblyman O'Donnell, but I do know that, you know, all of us have a role in trying to assure that the funding for these sectors is available to the fullest extent possible.

For example, Moyer, you know I know that Moyer dollars are apportioned among the districts and that, you know, how the different sectors get that apportionment also is a decision that's up to the districts themselves. So you have committed to those folks in my Air District, you know, that I personally, you know, want to have a relationship with you. With the folks that we've just met, this is the start of a relationship, but I'll be following up, you know, with you and with District staff to see if there are opportunities to increase the funding, you know, dedicated for the marine sector.

And, you know, I guess this is a question for Executive Officer Corey, you know, as a Board member, you know, in addition to that, you know, whether there are things that we can do, either internally at the agency or
externally with legislative leadership, you know, options for directing additional incentive funds to this category. It seems like we're going to pass this rule today. Folks are going to have some time, but we know there's constraints. So Executive Officer Corey, what do you think, you know, we as Board members can do to try to help get the incentive dollars to this sector as we're encouraging this very significant transition?

EXECUTIVE OFFICER COREY: Yes. Thanks, Board Member Kracov. That's a perfect question. And given the timing as a budget is put together, State budget, and ultimately refined over the next several months, sharing your perspective with legislative leadership, as well as the Administration would be incredibly helpful at this point in terms of the opportunities and need for incentives to pull forward the application of cleaner technologies and get reductions even earlier. That would be incredibly helpful over the coming weeks and months as the budget is refined and ultimately acted on and -- at the end of June.

BOARD MEMBER KRACOV: So we have our work cut out for us and thank you for allowing me to ask those questions, Chair.

CHAIR RANDOLPH: All right. Thank you. Seeing no other comments, the Board has before
them Resolution number 22-6. Do I have a motion and a second?

BOARD MEMBER DE LA TORRE: So moved, De La Torre.
BOARD MEMBER BALMES: Second, Balmes.
BOARD MEMBER HURT: Second, Hurt.
CHAIR RANDOLPH: Okay. I think Board Member Hurt managed to slide the second in right before Dr. Balmes.
So, Clerk, would you please call the roll.

BOARD CLERK ESTABROOK: Dr. Balmes?
BOARD MEMBER BALMES: Yes.
BOARD CLERK ESTABROOK: Mr. De La Torre?
BOARD MEMBER DE LA TORRE: Yes.
BOARD CLERK ESTABROOK: Mr. Eisenhut?
BOARD MEMBER EISENHUT: Yes.
BOARD CLERK ESTABROOK: Senator Florez?
BOARD MEMBER FLOREZ: Florez, aye.
BOARD CLERK ESTABROOK: Ms. Hurt?
BOARD MEMBER HURT: Aye.
BOARD CLERK ESTABROOK: Mr. Kracov?
BOARD MEMBER KRACOV: Yes.
BOARD CLERK ESTABROOK: Dr. Pacheco-Werner?
BOARD MEMBER PACHECO-WERNER: Yes.
BOARD CLERK ESTABROOK: Mrs. Riordan?
BOARD MEMBER RIORDAN: Aye.
BOARD CLERK ESTABROOK: Supervisor Serna?
BOARD MEMBER SERNA: Aye.

BOARD CLERK ESTABROOK: Professor Sperling?
BOARD MEMBER SPERLING: Aye.

BOARD CLERK ESTABROOK: Ms. Takvorian?
BOARD MEMBER TAKVORIAN: Aye.

BOARD CLERK ESTABROOK: Supervisor Vargas?
BOARD MEMBER VARGAS: Vargas, aye.

BOARD CLERK ESTABROOK: Vice Chair Berg?
VICE CHAIR BERG: Aye.

BOARD CLERK ESTABROOK: Chair Randolph?
CHAIR RANDOLPH: Yes.

BOARD CLERK ESTABROOK: Madam Chair, the motion passes.

CHAIR RANDOLPH: All right. Thank you very much. Okay. It is about 12:30 and we will take a 45-minute lunch break, and we will be back at 1:15 for our next agenda item.

Thank you.

(Off record: 12:28 p.m.)

(Thereupon a lunch break was taken.)
AFTERNOON SESSION

(On record: 1:17 p.m.)

CHAIR RANDOLPH: Thank you very much.

That last item on the agenda is Item number 22-5-2, draft scenarios for achieving carbon neutrality in the 2022 Scoping Plan update.

If you wish to comment on this item, please click the raise hand button or dial start nine now. We will call on you when we get to this portion of the item.

This is the second of two informational items scheduled to hear from staff about progress in developing the 2022 Scoping Plan update and details on specific legislation and considerations guiding this process. This item builds on the February Board item that provided an introductory overview to the 2022 Scoping Plan update.

The Board also held a joint meeting with the Environmental Justice Advisory Committee on March 10th to directly engage with Committee members on their recommendations.

Today's item provides the Board, the Environmental Justice Advisory Committee and the public another opportunity to hear from staff as they work towards analyzing options, tools, scenarios, and integrating environmental justice and equity considerations into the Scoping Plan to achieve carbon
neutrality no later than 2045.

Since the Legislature passed the California Global Warming Solution Act in 2006, there have been three Scoping Plans approved by the Board. The first plan outlined actions to return to 1990 emissions levels by 2020, a task at the time seemed impossible without a heavy economic toll, but one that was ultimately achieved ahead of schedule during unprecedented economic stability.

Nevertheless, the climate impacts predicted prior to the adoption of the first Scoping Plan are being realized in California and beyond. The 2021 report by the Intergovernmental Panel on Climate Change, or IPCC, tells us that we must achieve global carbon neutrality by mid-century to avoid the worst impacts of climate change. This means in California and globally, we must achieve deep decarbonization across all sectors of the economy by 2045 requiring that we escalate our mitigation measures in the near term.

The modeling presented today includes four scenarios where fossil fuel dependence is eliminated or drastically reduced. A future that phases out fossil fuel combustion will also deliver the critical air quality benefits needed to address ongoing air pollution disparities for our communities of color and low-income households. This transformation away from fossil fuel
combustion will come with a high cost. Significant investments today are critical knowing that the payback will be in future decades in the form of avoided higher damages from climate change.

Moreover, as we move away from combustion of fossil fuels, we must also continue to cut short-lived climate pollutants, or SLCPs, like methane and hydrofluorocarbons. We need to ensure success in reducing fossil fuel emissions isn't hampered by emissions of these super pollutants. And the modeling you will see today shows how many of the SLCPs persist, even if we phase out all fossil fuel combustion.

The framework for carbon neutrality also highlights the role of natural and working lands, a critical yet underutilized sector, and other mechanical carbon dioxide removal technologies will play in balancing out any emissions remaining in the system. The natural and working lands modeling presented today, is a first-of-its-kind effort to estimate and quantify the role of natural and working lands as part of our toolkit for addressing climate change.

The time to double down on our efforts is now. For communities disproportionately burdened by the impacts of climate change, there is no more time left. In line with statutory direction, this Scoping Plan update is
going to set a cost effective and technologically feasible path to continue our progress towards our 2030 goals and carbon neutrality no later than 2045 that can attract partners and be exported to other regions.

This plan will incorporate the final recommendations from the Environmental Justice Advisory Committee to the extent possible to ensure that all Californians, including low-income communities and communities of color, who continue to be on the front lines of experiencing the negative impacts of climate change are not left behind.

This plan needs to integrate environmental justice and racial equity, while including strategies to protect those most vulnerable from any negative impacts. For this to happen, dialogue and partnerships with the Environmental Justice Advisory Committee and communities of across California is critical.

It will also take international action and strong interstate and jurisdictional partnerships to solve this global threat. As such, building on the partnerships we have cultivated across the country and the globe will continue to be a priority for me and this agency. As has been the case historically, the benefits of this plan will be broader than just climate change. Its implementation will also help improve public health by reducing the
emissions burdens experienced by front-line communities.

Today's item is one of the several opportunities the Board, members of the Environmental Justice Advisory Committee, and the public will have to engage on this important effort.

Mr. Corey, would you please introduce this item.

EXECUTIVE OFFICER COREY: Yes. Thanks, Chair.

And as you noted, the 2022 Scoping Plan represents the third update to the State's Climate Strategy. This plan will assess how our progress towards achieving our Senate Bill SB 32 2030 target and lay out a technologically feasible and cost-effective path to carbon neutrality no later than 2045.

The first draft of the Scoping Plan update will be presented to the Board in June, but today, as you noted, we have another opportunity that builds upon the February Board hearing to hear from staff and the public on the progress and considerations relevant to the plan.

The modeling presented today shows that we'll need to double, triple, or even more our efforts to develop clean technology and energy to achieve our 2030 and longer term targets.

The red flag warnings as noted from hundreds of scientists in the IPCC report have told us we're out of time. We cannot afford to let the perfect be the enemy of
the good and we must consider the science and role of every tool available to us to start the transition away from fossil fuels and start removing carbon from the atmosphere. As such, carbon dioxide removal is included in every scenario staff will present.

The 2022 Scoping Plan must address the scale of the transition and will recommend technologically feasible and cost effective tools to achieve carbon neutrality no later than 2045 as noted. And for the first time, it will layout the quantified role our gnats and working lands will play in achieving that goal. In this update process, staff will continue to work with the Environmental Justice Advisory Committee and other stakeholders to provide meaningful public engagement in support of the building an actionable path to meet our greenhouse gas reduction targets.

We have the tools and we know where we need to be in the next 20 years. The Scoping Plan will outline the path to get there. We must do it in a way that supports our actions being exported elsewhere.

Over the course of the next month, staff will be holding workshops on the economic and air quality modeling for the scenarios being considered. I'll now ask Maureen Hand of the Industrial Strategies Division to give the staff presentation.
Maureen.

(Thereupon a slide presentation.)

ISD AIR RESOURCES ENGINEER HAND: Thank you, Mr. Corey.

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ISD AIR RESOURCES ENGINEER HAND: The Scoping Plan is required by statute and is an actionable plan that lays out a cost effective and technologically feasible path to ensure we meet the statewide greenhouse gas reduction targets through direct emissions reductions for sources in the state.

Each Scoping Plan relies on a suite of policies. Implementing the outcomes identified in the Scoping Plan requires a combination of incentives, regulations, and carbon pricing, many of which are mandated or authorized via statute and that focus on direct emissions sources in the state, with the exception of imported electricity.

AB 32 requires that CARB update the Scoping Plan at least once every five years. This is our fourth Scoping Plan update. At a minimum, each plan leverages traditional air quality policies to provide both greenhouse gas and air pollution emissions reductions. We are required to minimize leakage, which is the situation where production of goods and jobs leaves the state giving the appearance that we've reduced emissions, but in
reality resulting in merely shifting emissions outside of the California border. When production leaves the state, not only does it shift emissions outside of California's borders, but it can also result in a loss jobs and economic activity in the state.

Finally, AB 32 requires that policies in the plan are cost effective with flexible compliance options and it directs CARB to facilitate subnational and national collaboration. Climate change is a global issue and without action from like-minded partners, we will still face the impacts of climate change. For global pollutants, such as greenhouse gases, a reduction anywhere is a benefit everywhere.

Our goal has always been to develop scalable and exportable programs that other jurisdictions can implement and use to reduce emissions within their borders. That is one of our biggest contributions to addressing this global threat.

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ISD AIR RESOURCES ENGINEER HAND: As mentioned, direction on Scoping Plan goals and objectives are informed by statute and Executive Orders. Each Scoping Plan is a high level actionable plan that spans across all sectors. This is the step we are discussing today. After each Scoping Plan is adopted, CARB and other State
agencies start the process of reviewing and updating related programs or developing new programs to align with any outcomes identified in the Scoping Plan.

Aligning these programs relies on multiple divisions across CARB and other State agencies taking action based on their established roles and authority. For CARB, that means we bring forth dozens of regulations and programs to the Board to approve, which will help implement the plan. Each of these has their own public process and detailed technical analyses. For example, that means that some regulations can take at least a couple of years to develop through a public process, go before the Board for adoption, and follow the rest of the required regulatory steps involving approval by the Office of Administrative Law, and filing with the Secretary of State before regulations become effective.

Once regulations and programs are in effect, there is additional time for projects to be constructed, or for equipment turnover, or retrofits to occur. Therefore, the emissions reductions from these actions will take some time to show up in the AB 22 inventory.

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ISD AIR RESOURCES ENGINEER HAND: Since we kicked off the 2022 Scoping Plan update in June last year, we have heard from California stakeholders through public
workshops and Environmental Justice Advisory Committee meetings. We have conducted 12 public workshops including a three-day kick-off series with sector-focused discussions for modeling scenario workshops, and topical workshops covering natural and working lands, engineered carbon removal, short-lived climate pollutants, electricity, building decarbonization, and public health.

We have received many written comments that we used to design both AB 32 sources scenarios and natural and working lands scenarios. We received comments from EJ organizations, industry representatives, individuals, topical experts, and other affected stakeholders. We received written comments from the EJ Advisory Committee for the AB 22 source scenarios and we have explained how these comments were incorporated in the scenario inputs.

In addition, conversations with the EJ Advisory Committee Working Group for Natural and Working Lands informed those scenarios. Last week, on March 15th, we held a public workshop to present the modeling results based on these scenario design inputs.

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ISD AIR RESOURCES ENGINEER HAND: The overlay of carbon neutrality in our long-term climate planning means we need to redefine our scope of sources and sinks in that framework in the 2022 Scoping Plan. Carbon neutrality is
achieved when emissions sources equal sinks. Up until now, every Scoping Plan has focused on reducing emissions from fossil energy and industrial-focused sources defined in the AB 32 inventory.

As we shift to the framework of carbon neutrality, we have expanded the scope to include all sources, which means emissions from the natural and working lands and all sinks.

The circle shown on this slide represents California's greenhouse gas emissions from AB 32 inventory sources, which we continue to ratchet down through air quality and climate policy. Carbon capture and sequestration can also be applied to large emitters of carbon dioxide to mitigate emissions.

Natural and working lands can be a net GHG source or sink, as indicated by the plus and minus signs. The state's separate natural and working lands inventory allows us to track the GHG emissions and sequestration on natural and working lands over time.

Beyond nature-based solutions, there are technological carbon dioxide removal options, such as direct air capture of CO2 coupled with permanent underground storage of CO2 that can remove emissions from the ambient air.

Once we have a sense of GHG emission mitigation
from our sources and the potential role of our natural and working lands, we can begin to think about how to compensate for any remaining emissions in order to reach carbon neutrality. The initial modeling results I'm presenting today were first shown at a public workshop last week. There may be slight adjustments to these results in the Draft Scoping Plan.

First, I'll present the AB 32 sources scenarios followed by the natural and working lands scenarios.

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ISD AIR RESOURCES ENGINEER HAND: In addition to a reference, or business-as-usual scenario, we modeled four draft energy and technology scenarios. Two of the scenarios achieve carbon neutrality by 2035 and two by 2045.

Alternative 1 nearly phases out fossil and biomass combustion completely across the economy. This alternative includes limited engineered carbon removal to achieve carbon neutrality by 2035. This alternative includes ambitious innovation in electric technology and aggressive consumer adoption trends.

Alternative 2 implements a full suite of technology options, including engineered carbon removal at a rapid pace, in order to reduce emissions as much as possible and achieve carbon neutrality by 2035.
Alternative 3 uses a broad portfolio of existing and emerging fossil fuel alternatives and includes achievement of Executive Order N-79-20, eliminating internal combustion engines throughout the transportation sector as much as possible.

Alternative 4 relies on existing and some emerging technologies with slower deployment and consumer acceptance rates. It reflects a higher reliance on carbon dioxide capture and removal technologies to achieve carbon neutrality by 2045 then alternative three.

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ISD AIR RESOURCES ENGINEER HAND: Transitioning our economy away from fossil fuels is truly a transformation of our energy system, and this is evident in all four alternatives. Electrification is a cornerstone of each alternative. The speed at which we need to expand zero carbon electricity capacity is unprecedented. For example, building the necessary solar capacity estimated for each alternative exceeds our recent annual installation rate of 2.7 gigawatts. Similarly, the battery capacity additions needed each year greatly exceed the historic rate of 0.3 gigawatts.

All of the alternatives include a transition from gasoline or diesel-powered vehicles to zero-emission vehicles over time. Because Alternative 1 eliminates
combustion by 2035, this means that millions of vehicles will need to be retired early. For example, 16 million light-duty vehicles and 1.4 million medium- and heavy-duty vehicles would be removed from California's roads by 2035.

For context, the U.S. Cash for Clunkers Program implemented a few years ago cost $3 billion and retired 690,000 vehicles. Early vehicle retirement is largely avoided in the other alternatives by allowing an end-of-life transition, but it -- this extends the need for liquid petroleum fuel.

Similarly, eliminating combustion in homes by 2035 in Alternative 1 requires early retirement of millions of gas appliances to be replaced with electric appliances. Again, Alternatives 2, 3, and 4 retain natural gas supply to allow this transition to electric appliances to occur as the gas appliances reach their end of life.

In addition to the electricity -- or in addition to electricity, hydrogen becomes a primary alternative fuel for the transportation sector. The quantity of hydrogen needed in each of the alternatives to supply California's projected demand is significant and it will also need to be provided by low-carbon sources.

One approach to creating hydrogen involves electrolysis. If all of the hydrogen needed in each
alternative was produced with solar-powered electrolysis, we would need an additional 31 to 47 gigawatts of solar capacity. This level of solar-powered electrolysis represents about 40 to 50 percent of our current electric generation capacity.

The need for petroleum refining in California declines as fewer and fewer internal combustion engine vehicles remain. As I mentioned, all ICE vehicles are retired by 2035 in Alternative 1, therefore refining operations cease.

Alternative 2 accelerates ZEV adoption equally fast without early retirements of vehicles resulting in 25 percent of today's refining capacity remaining in 2035 and eight percent remaining in 2045.

Alternative 4 has the slowest ZEV adoption rate, and therefore retains the most refining capacity of the four alternatives.

To reduce remaining combustion emissions in each alternative, we apply carbon capture and sequestration technology to high temperature industrial operations like cement and to refineries. In Alternative 1, industrial combustion emissions captured with CCS are less than one million metric ton per year. In the other alternatives, CCS is applied to refineries along with some industrial plants. The quantity of CCS needed is related to the
quantity of refining capacity remaining. CCS related to
dispatchable power for grid reliance and for producing
renewable hydrogen with biogas is not included in this
slide.

Finally, after all of the direct emissions
reductions we envision for the four alternatives, there
are residual emissions. Even Alternative 1, which nearly
eliminates combustion of fossil fuels, still has residual
non-combustion emissions like methane. The quantity of
residual emissions in each scenario is related to the pace
at which fossil fuels are shifted to alternative energy
sources.

In Alternative 1, the transition to ZEVs and
electric appliances is aggressive, but it's not complete
in 2035. To reach carbon neutrality would require over a
hundred million metric tons of carbon removal from the
atmosphere. Because Alternative 3 and 4 target carbon
neutrality by 2045, there are no residual emissions to
compensate in 2035, but residual emissions remain in 2045.
Moreover, if we did not pursue CCS on the large emitters,
more carbon dioxide removal would be needed to capture
those emissions from the ambient air.

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ISD AIR RESOURCES ENGINEER HAND: Reliance on
fossil fuels is drastically reduced in all four
alternatives as shown in this traffic. The brown, blue, and black colors reflect fossil fuel energy demand in 2020 on the left compared to each of the four alternatives in 2035 and 2045.

Alternative 1 nearly eliminates fossil fuel energy demand in 2035 by phasing out combustion in vehicles, homes, buildings, and most industrial applications.

Alternatives 2, 3, and 4 allow the transition away from fossil fuels to occur at a pace based on end-of-life replacement of equipment or phased transition -- transition to alternative fuels.

Hydrogen, biofuels, and biomethane use grows to provide energy for hard-to-decarbonize sectors like aviation and high temperature industrial processes. Electricity, which is not shown on this figure, becomes the primary energy source. And reducing fossil fuel supply of electricity is a key aspect of each alternative.

The next slides show how this transition away from fossil fuels is completed in each -- is accomplished in each sector.

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ISD AIR RESOURCES ENGINEER HAND: Liquid petroleum fuels, gasoline and diesel shown in brown, are the primary source of energy for transportation today.
Each of the alternatives ramps up sales of zero-emission vehicles that rely on electricity and hydrogen, shown in light blue and pink, and expand reliance on biofuels to reduce demand for petroleum.

The overall energy demand for transportation is reduced in the near term, along with reductions in vehicle miles traveled, or VMT. Efficiency gains from electric drivetrains, compared to internal combustion engines, also contribute to lower overall energy demands.

Alternative 1 phases out combustion in 2035 with early retirement to millions of internal combustion engine vehicles, such that only ZEVs are on the road. Alternatives 2, 3, and 4 replace vehicles at end of life resulting in continued dependence on liquid petroleum fuels or biofuels as the transition proceeds.

The year in which 100 percent of vehicle sales are ZEVs dictates the pace of the transition and the level of remaining petroleum demand in 2045. Reaching 100 percent ZEV sales earlier results in less demand for petroleum later.

The fossil fuel combustion reductions included in all of these alternatives will significantly reduce the concentration of combustion-associated air pollutants throughout the state. For example, Alternative 3 achieves the Governor's Executive Order to eliminate internal
combustion engines throughout the transportation sector as much as possible.

Liquid biofuels, particularly directed toward production of sustainable aviation fuel, provide energy for aviation, rail, and other end uses that are difficult to electrify.

Biomethane transitions to other sectors, but continues to play a limited role as a transportation fuel. The use of biofuels is restricted in Alternative 1 in concert with minimizing fuel combustion, and it is expanded in Alternative 4, which has the slowest pace of ZEV adoption.

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ISD AIR RESOURCES ENGINEER HAND: The number of light-duty ZEVs on California's roads needs to grow dramatically over the coming decades to achieve the reductions in petroleum demand in each of the alternatives. There are about 29 million internal-combustion-engine LDRs on our roads today and approximately one million ZEVs.

The steep increase in number of ZEVs in the yellow line for Alternative 1 reflects the phaseout of combustion and early retirement of vehicles, such that the entire population of LDVs are ZEVs by 2035.

Alternative 2, 3, and 4 steadily increase the
number of ZEVs relative to the BAU reference. The BAU
reference reflects a case where no additional policies or
incentives accelerate the ZEV adoption.

The Governor's Executive Order for 100 percent
sales of ZEVs by 2035, in the green line for Alternative
3, leads to 11 million ZEVs by 2035. This means that
there will still be millions of light-duty vehicles that
depend on gasoline in 2035.

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ISD AIR RESOURCES ENGINEER HAND: Most of the
gasoline and diesel consumed by vehicles in California is
refined in California, and California produces a
substantial portion of the fuel refined in the State. The
demand for petroleum fuel is directly related to the
number of vehicles that continue to rely on gasoline and
diesel. As the number of ZEVs increase, the demand for
petroleum and the associated greenhouse gas emissions
decrease.

With the phaseout of combustion by 2035 in
Alternative 1, emissions from oil and gas extraction and
from petroleum refining drop to zero.

For the other alternatives, extraction emissions
decline over time as the demand for petroleum fuel drops
and the number of ZEVs grows. Alternative 3 includes a
planned phaseout of extraction operations by 2045. The
portion of crude oil needed to meet remaining demand in 2045 would need to be imported.

Refining GHG emissions also decline over time, along with decreased demand for petroleum fuel for Alternatives 2, 3, and 4, as shown in the dotted lines in the figure on the right. The addition of carbon capture and sequestration technologies to refining operations by 2030 substantially reduces refining emissions in the near term as shown in the solid lines.

Emissions continue to decrease after CCS installation as refining production tracks the reduced demand for petroleum. If we decouple petroleum production from demand and ratchet down on the supply more aggressively, we would need to import petroleum to meet in-state demand. This situation would be leakage for the sector.

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ISD AIR RESOURCES ENGINEER HAND: Fossil fuels used in California's industrial sector are primarily natural gas and other fossil gases used in refining operations. Each of the alternatives represents a transition of industrial operations to equipment powered by electricity, hydrogen, or biofuels to reduce demand for natural gas. Blending hydrogen and biomethane into the pipeline -- pipeline, also displaces fossil natural gas.
The overall energy demand for industrial activities is reduced primarily as refining operations decrease, but efficiency gains from electrification and operational improvements also contribute to reduced energy demand.

Electricity is a suitable alternative for industrial processes that require low-temperature heat, but it may be a more expensive or technically challenging alternative to provide medium and high temperatures for industries like cement, steel, and glass.

Hydrogen combustion, through dedicated pipelines to serve industrial clusters and blended into the pipeline with natural gas, can provide higher temperature heat where on-site combustion may be needed. All four alternatives assume that CCS is used to capture combustion emissions from cement plants that continue to rely on fossil fuel sources.

The pace at which industrial applications are transitioned to electricity or to equipment designed for hydrogen combustion varies across each alternative. Alternative 1 relies almost completely on electricity to meet industrial energy needs to reduce combustion. Alternatives 2, 3, and 4 achieve different levels of electrification and conversion to equipment for hydrogen combustion to reduce reliance on natural gas.
Alternative 4 retains the most legacy equipment that uses natural gas.

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ISD AIR RESOURCES ENGINEER HAND: Natural gas is also the primary fossil fuel used for space and water heating, cooking, and clothes driving in our homes and businesses. Each of the alternatives ramps up sales of electric appliances to reduce demand for natural gas. Blending hydrogen and biomethane in the pipeline also displaces natural gas consumption in buildings.

Across all alternatives, overall energy demand is reduced with efficiency gains from electric heat pumps and tradition energy efficiency measures. Phasing you combustion by 2035 in Alternative 1 leads to early retirement of millions of gas appliances. Alternative 2, 3, and 4 replace appliances at end of life resulting in continued dependence on natural gas as the transition proceeds. By 2045, about 90 percent of the building energy demand is electrified in Alternatives, 2, 3 and 4.

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ISD AIR RESOURCES ENGINEER HAND: Electricity is the primary alternative to fossil fuels currently used in transportation buildings and many industrial activities. While California has actively reduced dependence on fossil fuel for electricity generation over the past decade.
Fossil fuels, primarily natural gas, still supply about 45 percent of electricity generation serving California.

Electricity sector modeling for the Scoping Plan alternative aligned with previous work done by E3, CARB, and the State's energy agencies under SB 100. SB 100 aims to achieve 60 percent renewable electricity generation by 2030 and 100 percent renewable and zero carbon retail sales by 2045, which will be accomplished by installing record levels of solar and wind generation each year.

Even with this increase in renewable generation, reliability concerns require some amount of electricity generation that can be cycled on and off as needed from gas generation. Alternative 1 nearly eliminates combustion in electricity production through reliance on hydrogen fuel cells combined with renewable electricity generation. Electric loads increase about 80 percent relative to today to accommodate the sharp increase in demand to supply the ZEVs, electric appliances, and industrial demand.

Alternatives 2, 3, and 4 include a broader range of technology options to produce zero carbon electricity to meet retail sales while meeting system constraints. Load growth is slower in these alternatives, but it still increases 60 to 80 percent relative to today by 2045. It's important to note that additional electricity
generation beyond what is shown here is likely needed to
produce hydrogen or support direct air capture of carbon
dioxide.

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ISD AIR RESOURCES ENGINEER HAND: Greenhouse gas
emissions don't only originate with combustion of fossil
fuel. Methane, hydrofluorocarbons, or HFCs, and other
greenhouse gases contribute to climate change. These
non-combustion emissions are particularly challenging to
reduce, and in many cases cannot be eliminated.

Methane emissions are reduced in line with the SB
1383 target by 2030 in all four alternatives with
continued reductions through 2045. The four alternatives
employed different strategies to arrive at the same level
of methane reduction by 2030. Organic waste, shown in
green, is diverted from landfills and converted to fuel at
the same level in all scenarios.

Fugitive emissions from oil and gas operations
and pipelines are essentially eliminated in Alternative 1
as the gas grid is retired and oil and gas extraction
phase out. In Alternatives 2 and 3, additional reductions
exceed those anticipated by the current oil and gas
regulation.

Methane emissions from dairy and livestock
operations are addressed with different strategies in each
alternative, balancing energy production from methane captured, manure management, enteric emissions, and herd size reductions in excess of historic levels. Alternative 1 emphasizes manure management, herd size reduction rates, and enteric emission mitigation, while Alternative 2 relies most heavily on methane captured for energy production.

There is an opportunity to introduce low global warming potential refrigerants as building retrofits and newly constructed buildings transition to electric appliances, although this may have high costs.

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ISD AIR RESOURCES ENGINEER HAND: The modeling results show that even after we transition to alternative fuels, there will be residual emissions in all four alternatives. These emissions are primarily associated with methane in the agriculture sector, combustion emissions remaining in the electricity and industrial sectors, transportation fuels to meet remaining demand from internal combustion engine vehicles, and high global warming potential HFCs.

In order to achieve carbon neutrality, these residual emissions must be compensated, by carbon dioxide removal from the atmosphere to get to zero emissions. To be clear, we are modeling scenarios that first push on
clean fuels and technology and carbon dioxide removal is second in that loading order. The extent to which we will need CDR depends on how successful we are at building clean energy production and infrastructure and how quickly we deploy clean technology.

As noted earlier, there are two approaches to carbon dioxide removal, nature-based solutions and technological carbon dioxide removal. I will share the results of our natural and working lands assessment of carbon emissions and sequestration next. However, we do find that both nature-based and technological carbon dioxide approaches will be necessary for California to achieve carbon neutrality no later than 2045.

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ISD AIR RESOURCES ENGINEER HAND: Recognizing the importance of the State's lands for our climate efforts, Governor Newsom issued an Executive Order in October 2020 directing CARB to include a target for natural and working lands in support of carbon neutrality as a part of this Scoping Plan.

Natural and working lands has been a part of California's Scoping Plan since the first one in 2008. At that time, however, only forests were considered and only one study was used to identify the five million metric ton carbon sequestration rate goal.
The next Scoping Plan called for a more thorough look at forest lands, which resulted in California's forest carbon plan. The forest carbon plan did not set any carbon targets, but it does provide a lot of valuable information on actions and mechanisms that California can use within forests.

The 2017 Scoping Plan update took the next step towards developing a comprehensive natural and working lands carbon target. After the 2017 Scoping Plan was adopted, CARB, along with the California Department of Food and Agriculture and the California Natural Resources Agency, developed the draft Natural and Working Lands Implementation Plan.

Through this effort, it was calculated that California could reduce emissions from natural and working lands by 15 to 20 million metrics tons of carbon -- of CO2 equivalent per year by 2030.

Now, as we look to achieving carbon neutrality no later than 2045 and seek to better understand both the potential emissions and emission reductions possible from natural and working lands, we have undertaken the most advanced modeling for natural and working lands to date.

This is really groundbreaking work and the first time this level of assessment of natural and working lands has been undertaken by any government for identifying
carbon targets and climate goals

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ISD AIR RESOURCES ENGINEER HAND: Just as on the industry and energy side, CARB staff have modeled a business-as-usual scenario, as well as four alternative scenarios with different levels of climate action for natural and working lands. In this case, climate action refers to different levels of forest management and fuels reduction, regenerative agricultural practices, urban tree canopy expansion, and a whole host of other actions we can take to address climate change.

These scenarios reflect the input we have received from stakeholders and the public, as well as working with our agency partners and span a wide range of potential levels of action. Each scenario has an overarching objective that informs the level of management.

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ISD AIR RESOURCES ENGINEER HAND: For this assessment, we are trying to model every major carbon pool and ecosystem in the state of California. This is a list of the ecosystems that we were able to include in our modeling and the models associated with that assessment.

No single model can simulate all of the dynamics that we are interested in for all of the land types, and
so you can see that we used a wide assortment of different models. This is because each ecosystem has very different ecological, biological, and other dynamics that require special consideration.

For each land type, we used these models to simulate the effect of varying levels of climate action that we identified in consideration of and consultation with the public and our agency partners.

For forests, shrublands and grasslands for example, we were particularly interested in being able to quantify the GHG emissions from wildfire, and so we chose a model that allows us to estimate potential fire emissions on these landscapes. We also wanted to understand how various levels of management would impact fire emissions, and so we ran scenarios with a range of land management intensities.

We conducted a similar analysis across each landscape assessing the carbon and GHG benefits of different levels of management actions for wetlands, urban forestry, croplands, and deserts.

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ISD AIR RESOURCES ENGINEER HAND: Now, I will show a few example results from our natural and working lands modeling. Displayed are the results for the carbon stock within annual cropland soil. This graph is of
carbon stock, not emissions. So a positive trend means that more carbon is getting stored in soil.

For agriculture, for Scenario 1, we modeled the impact of applying the maximum rate of healthy soils practices physically possible as quantified by CDFA, as well as achieving 30 percent of total agriculture in annual croplands being organic by 2045.

Then the other scenarios have a tiered-down approach to quantify the impacts of varying levels of action. And to add some context, Scenario 1 represents a 10X increase in healthy soils practices from current levels.

You can see here that in the business-as-usual scenario, which includes no healthy soils practices, annual croplands will be net emitters into the future. However, our results indicate that with aggressive climate action, these lands can sequester carbon over the long run.

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ISD AIR RESOURCES ENGINEER HAND: This slide again represents annual croplands. However, this graph shows emissions when N2O emissions are also taken into account. In this graph, values below the zero line mean increasing annual emissions. This graph shows that even though in some scenarios annual croplands can sequester
carbon into their soils when N2O emissions are taken into account, croplands are net emitters of CO2e.

However, with climate action and regenerative agricultural practices, these emissions can be reduced and the curve can be bent towards carbon neutrality.

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ISD AIR RESOURCES ENGINEER HAND: This slide shows the results of forest modeling. Forests hold 85 percent of the state's natural and working lands carbon stock or existing carbon and is by far the largest carbon pool in the state. For this reason, the modeling done to assess forests is our most advanced natural and working lands modeling efforts. This modeling dynamically includes wildfires, drought impacts, management effects, and hydrology. This graph shows carbon stocks above and below ground as well as within harvested wood products carbon pools. Negative trends indicate decreasing carbon within the system and increasing emissions of carbon into the atmosphere.

For the forest sector, we modeled the impact of no further management after 2025 in Scenario 1, so that is to say what if we no longer cut or intentionally burn any trees, shrubs, or grasses anymore. We have not -- we have also modeled the future impact of business as usual, which is about 250,000 acres of forest management per year, as
well as modeling 1 million, 2.5 million, and 5 million
acres of management per year. For context, the State's
current policy objectives is to treat 1 million acres
annually.

Modeling results showed that under all scenarios,
forests will be net emitters into the future. However,
with increasing management and fuels reduction, we can
reduce our wildfire emissions while not substantially
impacting our carbon stock. Reducing wildfire emissions
in California will have significant benefits, particularly
in terms of air quality and health.

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ISD AIR RESOURCES ENGINEER HAND: As part of the
Scoping Plan, CARB staff conducted a meta-analysis and
literature review to catalogue and quantify what previous
research has identified as the future of California's
natural and working lands carbon.

This graph shows the combined results from CARB's
Scoping Plan modeling laid on top of the results of this
meta-analysis and alongside the natural and working lands
inventory trend line. You can see that previous research
indicates a probable decrease of carbon stocks into the
future. The CARB natural and working lands carbon
inventory indicates that we are currently on the low end
of that trajectory. And CARB's Scoping Plan modeling just
presented is in line with previous research in indicating a probable decrease in carbon stocks going into the future. However, even though under all scenarios, natural and working lands modeling indicates decreased carbon stocks, management can increase carbon stocks from the BAU trajectory, reduce GHG emissions from lands, and improve ecosystem and public health.

We also know that uncertainty exists about future climate and the impacts that it may have on our ecosystem, so it is important that the State take decisive and aggressive action to improve and diversify ecosystem structures and management. Modeling and collaborative work we have done with our sister agencies highlight the importance of increasing the pace and scale of natural and working land actions to ensure that our ecosystems are equipped to withstand future climate change and that they continue to provide the services that both nature and society depend upon for survival.

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ISD AIR RESOURCES ENGINEER HAND: As we go about assessing the contribution of natural and working lands to carbon neutrality, we must not only look at long-term trends, but on short-term sequestration and emission rates. This graph shows five-year moving averages at 2 different a time slices for each scenario for the lands
and actions we modeled. Additionally, this graph shows the relative contribution of each land type to the overall sequestration or emissions rate.

In this graph, negative values represent emissions, while positive values represent sinks of carbon. First, you can see that in 2035 our modeling indicates an overall source of emissions for most scenarios. While in 2045, all scenarios are sinks. This demonstrates natural variability within the sector.

You can also see in this graph that forests play the dominant role in determining the contribution that natural and working lands can have on carbon neutrality, followed by shrublands. This indicates the need for more climate action in these lands especially to help us achieve carbon neutrality over both the short and long term.

There are also a number of landscapes and actions for which the GHG benefits increase as we increase action. The modeling shows that we can achieve more carbon benefits and GHG reductions as we scale up wetland restoration, healthy soils practices, organic farming, urban forestry, and land protections.

It is important to remember, however, that carbon is not the only aspect to consider when identifying how well a scenario performs under climate change. So as you
look at these scenarios keep in mind that even though a
scenario might have a high sequestration rate, at a given
time, it may also have high wildfire emissions and worse
public health outcomes.

Finally, we know that the ability of natural and
working lands to support carbon neutrality goes beyond the
specific lands and management actions we modeled here, and
that there are additional strategies that can provide more
carbon sequestration and GHG reductions than what we have
shown here.

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ISD AIR RESOURCES ENGINEER HAND: In summary, we
find that it is possible to drastically reduce fossil fuel
combustion, which will lead to air quality and GHG
benefits. This can be accomplished with aggressive action
in every sector to introduce alternative fuels and
technologies.

Even after all the direct emissions are
quantified residual emissions persist, primarily from
short-lived climate pollutants. Achieving this
transformation of our energy supply and infrastructure
will require unprecedented rates of deployment. This will
impact planning and operations in multiple sectors, as
well as require significant coordination across agencies
and levels of government on actions such as permitting.
Alternative fuels and technologies are available today, but they are somewhat limited in number. It will be important to keep clean energy options open.

On the natural and working lands side, our assessment indicates that decisive and aggressive climate action is needed to improve ecosystem climate resilience. Improved ecosystem climate resilience protects ecosystems against future climate change disruption, ensures their provision of services to nature and society, and protects communities from the negative impacts of climate change.

High levels of actions on forests can decrease wildfire risks and improve forest health and our modeling indicates that this can be accomplished without substantially negatively impacting carbon stock.

Additionally, increasing actions on other lands can improve carbon storage and reduce emissions from those sectors. In some land types, emissions benefits from climate action can occur faster than others. For example, avoiding land conversion away from natural and working systems can immediately preserve that carbon, reducing fertilizer application, or restoring wetlands can have immediate emissions reductions. However, other systems require time for climate benefits to build upon themselves, such as action within forests.

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ISD AIR RESOURCES ENGINEER HAND: In the following slides, I'll touch briefly on some of the work the EJ Advisory Committee is doing to inform the Scoping Plan. The Committee has been meeting twice a month and will continue to contribute multi-day monthly efforts through the end of the Scoping Plan process.

One joint meeting between the Committee and the Board was held earlier this month to discuss the Committee's draft recommendations, and another joint meeting is schedule in September. The EJ Advisory Committee will use their regular meetings to gather information and obtain technical support.

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ISD AIR RESOURCES ENGINEER HAND: The Committee continues to meet in work groups on specific topics in order to inform their recommendations. At Board meetings and public Scoping Plan workshops, the EJ Advisory Committee members are invited to share perspectives after staff presentations. In the event of a workshop with panel speakers, Committee members are invited to participate on a panel.

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ISD AIR RESOURCES ENGINEER HAND: EJ Advisory Committee Members engage local communities through events supported by CARB. These community workshops are intended
to inform Scoping Plan recommendations. These community engagement events are supported with CARB funding and logistical support.

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ISD AIR RESOURCES ENGINEER HAND: One example of a community engagement workshop occurred in February, hosted by the San Joaquin Valley EJ Advisory Committee members. Over 100 participants joined the virtual meeting to share ideas and priorities.

The next events are planned for May.

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ISD AIR RESOURCES ENGINEER HAND: We are conducting a number of analyses to evaluate the alternative scenarios. Now that we have these alternatives scenarios that illustrate how we might use energy in the future, we can begin to evaluate the impacts of achieving that transition away from fossil fuels. The characteristics in each of these alternatives will result in different health and economic outcomes. We are beginning similar evaluations of the land management strategy scenarios as well.

We will explore cost of policies, the social cost of carbon, and estimated air quality benefits as required by AB 197. In addition, we will evaluate public health, economic, and environmental aspects of the Scoping Plan...
alternatives.

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ISD AIR RESOURCES ENGINEER HAND: There are many activities slated for the next two months in preparation for release of the Draft Scoping Plan. In April, there will be a public workshop with air quality, public health, and economic modeling results. We are also planning a transportation sector focused workshop. In May, we plan to release the Draft Scoping Plan for public comment, and in June we will present the Draft Scoping Plan to the Board. The Board may provide additional direction to CARB staff to inform the Final Scoping Plan.

The Environmental Justice Advisory Committee continues to meet regularly. Community meetings are being scheduled to seek input and provide information on how community members can influence the Scoping Plan.

Based on Board direction, additional workshops, EJ Advisory Committee meetings and public input, updated modeling will be conducted this summer in preparation for assembling the proposed Final Scoping Plan.

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ISD AIR RESOURCES ENGINEER HAND: In terms of the overall schedule, staff will present the Draft Scoping Plan to the Board in June. There will be another joint EJAC Board meeting around September and staff is targeting
bringing the proposed Final Scoping Plan to the Board for adoption by the end of 2022.

Chair Randolph, that in -- that concludes the staff presentation. Before inviting guest speakers, does the Board have any questions.

CHAIR RANDOLPH: Not at this time. Why don't you go ahead and invite the guest speakers.

ISD AIR RESOURCES ENGINEER HAND: Okay. Our first invited speaker is Jared Blumenfeld, California Secretary of Environmental Protection.

Secretary Blumenfeld.

CALEPA SECRETARY BLUMENFELD: Hey. Appreciate the opportunity, yeah. So just for the record, my name is Jared Blumenfeld and I serve as the Secretary of California's EPA. And Chair Randolph and CARB Board members, it's a distinct privilege to be with you today to help kick-off the discussions on the modeling for the 2022 Scoping Plan.

As you each know, we live in extremely challenging times. And when I think of the things that I'm most excited about, the Scoping Plan process rises to the top. The reason it gives me hope is because it proposes pathways out of the darkness, it's intentional, it's based on community voices and science, and we're not waiting to solve the planet's largest crisis. We're
meeting the moment with the urgency it demands. And like
cartographers of yesteryear we're charting a course past
the horizon's edge.

I want to start by thanking Richard Corey and
Rajinder Sahota, who, with their incredible teams at CARB
and the contracting folks we just heard from, have created
this multi-faceted three-dimensional decision support
tool. This endeavor has required CARB and many others
working countless weekends and late nights, and is really
important to me that we acknowledge the people and
government who are truly making a difference.

We're not going to solve the climate crisis
without solving the crisis of inequality plaguing
California and the planet. By achieving a quality of
opportunity, a quality of the fundamental right to breathe
clean air, drink clean water, and live on land
uncontaminated by toxic chemicals, we will have the
foundation upon which the solutions we see can be
implemented.

Before we can be trusted as a partner of
communities, we must evidence our ability to listen
empathize and develop new models of power sharing. And
I'm so grateful to the EJAC for your work as a catalyst of
paradigm change.

I know I personally can be exhaustingly slow to
understand, slow, and even uncomfortable to shift my perspectives so that I can even meet you halfway. And yet, together we have all come a long way. Together, we also have a long way to go, but together we're stronger against the forces that want to keep polluting our communities.

With this Scoping Plan, I will be focused on the key actions that will make the most difference for the greatest number of vulnerable Californians.

We all want the Scoping Plan to be everything it can be, but it's also important to define what it is not. The Scoping Plan will not prescribe specific policies, actions, or funding decisions. The Scoping Plan is the beginning not the end of the a process. The Scoping Plan will require regulations, and laws, and Executive Orders, and significant funding to bring it to life. All those processes will engage the public and be informed by new innovations, changing realities on the ground, and by everyone's ideas.

The scale of the opportunity and the scale of the challenge is staggering. There are a few things that stand out for me from the modeling. First of all, the scenarios modeled drastically reduce our dependence on fossil fuels. As Governor Newsom said in this year's State of the State quote, "Drilling even more oil only
leads to even more extreme weather, more extreme drought, more wildfire. Our nation-leading climate investments this year's budget proposes 38 billion will ensure that other innovations will surely follow". He continued, "By not recreating the 20th century by extraction more oil but extracting new ideas, drilling for new talent, by running our economy on a carbon-free engine".

Secondly, getting to our 2030 and carbon neutrality targets will not be easy. Every single sector and subsector will have to make major reductions and/or increase carbon sequestration. At the same time, every single sector must be part of the solution. And with a concerted effort, as we just heard, on natural and working lands, we'll have fewer emissions and sequester more carbon than today.

Our energy and industrial sectors will similarly drive down their emissions. There are, as we know, no silver bullets in achieving these targets. There's no one sector or one action that can do it alone.

Another key takeaway from the modeling is that no matter what we do to drive down combustion, in every scenario some emissions will persist in 2045. As a result, this is not the time to take any tools off the table. I'm committed to working with all of you in developing principles that help us effectively and safely...
deploy new carbon reduction technologies, such as CCS and direct air capture.

California is a leader when it comes to innovation and we will continue to invest in technological development. As you new carbon reduction strategies and technologies come online, they will be taken into account when the Scoping Plan is updated in 2027.

I'm glad that Julie Henderson, Director of the Department of Pesticide Regulation is also providing remarks today. Accelerating a system-wide transition to safer more sustainable ways to manage pests and strengthening the State's pesticide use enforcement are top priorities for this administration. Julie's department is leading the change on both better protecting public health and the environment, particularly in our most vulnerable communities.

I've heard calls during these meetings for pesticides to be included in the Scoping Plan. However, as of now, we don't have evidence that pesticides are an important source of GHG emissions and we must continue to focus the Scoping Plan on its purpose, charting our path to carbon neutrality -- neutrality and assessing our progress towards our 2030 goals.

To those who argue that more research is needed on the connection between pesticides and GHG emissions, I
agree with you, and I'd note that CARB, DPR, and sister agencies alike will be working on research on this subject. I also want to acknowledge the incredibly critical role that other government agencies within California are playing on developing the Scoping Plan, from the California Public Utilities Commission, to the Natural Resources Agency, to C -- to the California Energy Commission, to GovOps, to the California Department of Food and Agriculture. Karen Ross, the Secretary, is here today. All these, and many, many more, led in the Governor's office by the Governor's Senior Policy Advisor on Climate, Lauren Sanchez, are coordinating a very, very large and complex interagency collaboration. And the number of hours that we can look at our CARB employees and CARB Board members is being extrapolated out through government agencies. This really is an all-of-government approach.

Once it's completed, the task of implementing the Scoping Plan will require all of us working together. We must act decisively with courage and urgency, so that communities, ecosystems, and our economy are protected from the worst impacts of climate change, while building a more just and equitable society.

I really appreciate the opportunity to be here with you today and I'm looking forward to the discussion.
Thank you.

ISD AIR RESOURCES ENGINEER HAND: Next. We would like to invite Virginia Jameson, Deputy Secretary for Climate and Working Lands at the -- of the California Department of Food and Agriculture.

Deputy Secretary Jameson.

CDFA DEPUTY SECRETARY JAMESON: Thank you very much having me. Hi. My name is Virginia Jameson. And sorry, Secretary Blumenfeld, you're stuck with me today. Secretary Ross had a conflict.

But thank you. We are grateful to the Air Resources Board's staff for this first crack at difficult modeling in the natural and working lands sector and being so collaborative with CDFA, and Natural Resources Agency staff throughout the process.

Achieving carbon neutrality is an incredible but necessary challenge. As Secretary Blumenfeld mentioned, we know that we will have -- need to have all sectors contribute to our emissions reductions. We are already seek the impacts of climate change, particularly during the current climate change induced drought, which is having such a devastating impact on our farms, ranches, and environment.

The Scoping Plan models we saw today drive home the message that active management of our landscapes for
climate benefits is vital and that there's significant opportunity for soils and other Climate Smart land management practices to support California's climate change goals, and that we will need to increase our efforts toward measuring, monitoring, and verifying our efforts to ensure progress.

Fortunately, many of our State agencies, including CDFA, have been developing programs and initiatives that seek to bolster our natural and working lands as carbon sinks, such as our Healthy Soils Program. We stand at the ready to ramp up our deployment of these efforts and we are confident that our lands are part of the solution.

We've also seen a lot of leadership from our agricultural sector. Last January, we held a series of workshops where we received countless ideas climate actions, what we -- which we put together in a report called, "Farmer- and Rancher-Led Climate Change Solutions". These are the folks who are experiencing the impacts of climate change on a daily basis and they're also leading the charge to mitigate its impacts and come up with adaptation and resilient strategies.

As the staff presentation also highlighted, we know that there's still a ways to go to meet the methane targets called for in statute, but we're making progress
now by deploying digesters and other manure management practices in California that have a proven track record of success.

We are proud that California has the most ambitious methane reduction goal in the world and our dairy families are important partners in making those reductions. Additionally, there are many co-benefits associated with Climate Smart agricultural practices, like improving soil water holding capacity, improving air quality, and increasing yields that will not only continue to produce nutritious foods for the nation and the world, but will also make us more resilient to climate change into the future.

In closing, we look forward working with the Air Resources Board and our stakeholders as we continue to pursue these opportunities and to participating in future modeling activities together.

Thank you.

ISD AIR RESOURCES ENGINEER HAND: Now, Julie Henderson, the Director of Department of Pesticide Regulation will make some remarks.

DPR DIRECTOR HENDERSON: Good afternoon. My name is Julie Henderson and I'm the Director the Department of Pesticide Regulation. I've been in this role since July of last year, first in an acting capacity and then
appointed in December.

Before that, I was Deputy Secretary for Public Policy at CalEPA. Thanks very much for inviting me to join you today to share information about the actions we're taking to reduce the use of hazardous pesticides and to strengthen our enforcement efforts to better protect the health of all Californians and our environment.

Equity and environmental justice and engaging meaningfully with communities most impacted by pesticide use are central to our work. And our ongoing collaboration with CARB, CalEPA, CDFA, and our other sister agencies provides critical input and support.

I'll start with some quick background on our mission. DPR is responsible for regulating the use of pesticides in California in agricultural and non-agricultural settings, so that their use is safe and avoids harm to communities, workers, and the environment. We scientifically evaluate all pesticides to assess their potential health and environmental risks prior to registration and use in California, and we continue to evaluate those risks after registration. We oversee statewide enforcement of pesticide laws that are enforced locally by the State's 55 county agriculture commissioners, and we're seeking additional funding in this year's budget to strengthen those efforts.
In addition to your regulatory role, we're responsible for fostering and accelerating the use of safer and more sustainable ways of managing pests to better protect public health, workers, and the environment. This is our direction for the future and it requires a system-wide approach that engages all stakeholders with that focus.

So together with CalEPA and CDFA, we convened the Sustainable Pesticide Management Work Group last year to recommend pathways and ambitious, targeted, measurable goals to support and accelerate the system-wide transition. We anticipate draft comments from the work group this spring. The work group includes 26 members from diverse backgrounds including community and tribal representatives, who bring environmental, social justice, and farmworker perspectives, conventional and organic growers, and other representatives from across the agricultural industry, university researchers, and public health experts, and government representatives.

Effecting this system-wide change will not be easy and it will take time, but it's critical. It will require alternative pest management tools and practices. It will require research to develop those tools. It will require outreach and education to support farmers of all sizes moving to more knowledge-intensive, regional, and
crop-specific practices that focus on long-term prevention of pests and the use of the least toxic effective methods to control them and it will also require incentives to take risks to move to a new system of operate.

We're collaborating closely with the CARB, CalEPA, CDFA, and the Natural Resources Agency to connect the work group's goals and recommendations to the State's natural and working lands, Climate Smart, and Healthy Soils strategies, and to identify multi-benefit solutions that address pesticide, air, climate, and water risks. We're also working together on research related to connections between pesticides, and healthy soils, and greenhouse gas emissions.

In addition, with supplemental one-time funding this year, we'll be administering five and a half million dollars in integrated pest management research grants to incentivize innovation and outreach and education grants to promote and expand the adoption of integrated best management practices.

I want to go back to the topic of our equity and environmental justice work that I mentioned as core to our mission. We're working closely with AB 617 community steering committees, CARB, OEHHA, and local air districts in the communities of Shafter, Eastern Coachella Valley, and Arvin-Lamont. We conducted pilots for alternative
mitigation measures to reduce emissions and potential exposures to the fumigant 1,3-dichloropropene or 1,3-D in Shafter and are in the process of developing regulations to implement those strengthened mitigation measures.

We also are in the process of developing a statewide pesticide application notification system that grew out of the Shafter community steering committee's request for notification of pesticide applications. We're coordinating with CARB, OEHHA, the steering committees, and local air districts in Eastern Coachella Valley and Arvin-Lamont on ambient air monitoring to evaluate potential exposures unique to each community to inform potential mitigation measures. And in response to each community's concern regarding engagement at the local level, we have facilitated conversations between the residents and steering committees and their local agricultural commissioners to further interagency engagement and strengthen relationships at the local level.

We're also beginning a process to develop a county agricultural commissioner and community engagement framework in collaboration with community, ag commissioner, CalEPA, and CARB representatives. We look forward to this work and our transition to a safer system of managing pests to ensure that we're protecting all
Californians and our environment while supporting agriculture and the management of pest pressures in non-agricultural and urban areas.

Thanks very much for the opportunity to be here with you today.

ISD AIR RESOURCES ENGINEER HAND: From the Environmental Justice Advisory Committee, first we will have Martha Dina Argüello, followed by Sharifa Taylor, then Connie Cho, and finally Dr. Catherine Garoupa White.

MARTHA DINA ARGÜELLO: Hello. Good afternoon. I'm Martha Dina Argüello the Executive Director of Physicians for Social Responsibility, Los Angeles. I do want to add that another EJAC member, Matt Holmes, is also going to be presenting with us. So thank you again for this opportunity.

As stated in the CARB presentation, the EJAC has been incredibly busy doing, you know, outreach to communities, but also working with CARB and the staff to develop a true environmental justice scenario as reflected in our recommendations. You know, a lot has been said about all the work that has been done by the Environmental Justice Advisory Committee. And as this is not my first time being on this committee, I continue to be very concerned about performative engagement versus meaningful engagement. And to us that meaningful engagement act --
actually means we are listened to and see our concerns and
experience reflected in the Scoping Plan.

And I think that the scenarios that we saw today
still do not meet that standard. We urge the Board to
take seriously the concerns expressed by the international
climate and environmental justice community about the
feasibility and viability of carbon capture and
sequestration themes -- schemes. I urge you to look at
the emerging body of evidence that is not funded directly
or indirectly by the fossil fuel industry that these will
not work, that they will not get us to where we need to
be. And if our plan rests on technology that have not
been proven, what happens when we don't meet those goals.
What are the opportunities lost to actually improve air
quality and make our communities healthier and more
breathe -- breathable, and actually make the path toward a
just transition.

These plans allow -- we need to understand that
if you extend the life of the fossil fuel infrastructure,
that infrastructure currently is based in low income
communities and communities of color, environmental
justice communities. So to say that, you know, I think it
is clear that those impacts will fall on that community --
on our communities the most. And so it -- it's just sort
of -- I'm not sure why we're doing this, right? If it
allows us to say on some report, yes, we met these
standards of carbon capture, a technology that hasn't been
proven, I just really think the Board needs to tell staff
to go back and one, as Matt says, model out some worst
case scenarios. What happens if this technology doesn't
work? What happens if this technology, as happened with
others, actually ends up producing more carbon than it
takes in? These are serious questions. They're not --
you know, and there's an emerging body of evidence that
shows us that these concerns are real.

All right. We don't want to be here in three
years and say we told you this would happen, right? We
just have to get it right and do better at getting it
right. And part of getting -- doing better is looking at
the body of our -- of our recommendations and seeing the
reductions that it can get us and moving aggressively
toward those reductions, and getting us to real zero, not
net zero, not carbon neutrality, but really zero
reductions.

And I think it's important also that we adopt a
meaningful -- you know, pesticide reduction targets,
reduce the use of chemical pesticides by 50 percent by
2030, reuse -- reduce the haz -- use of hazardous
pesticides by 75 by 2035, and overall adopt more ambitious
targets for organic al -- I can't talk today -- organic
agriculture.

And, of course, you know, I'd be remiss if I didn't say we've still yet to see how and when there will be a robust public health analysis of past plans, and of these measures, and of, you know, what are the potential impacts if these fail.

And with that, I'm going to hand it over to my other co-chair and my other EJAC members.

Thank you.

SHARIFA TAYLOR: Thanks, Martha Dina. Thanks everyone who's spoken so far. It really gave me some more things to think about in conjunction with the workshop last week. I support everything Martha Dina just said. To add some different comments, I'm really looking forward to meeting with folks from E3 as well as the CARB staff who are working on the Draft Scoping Plan, as well as once it's relevant, the UC Irvine and Rhodium group folks related to IMPLAN and whomever is responsible for BenMAP, so that we can, like Martha Dina said most recently, have a robust public health analyses, especially since you all are considering CCS in every scenario, even the most health protective scenario, which would be Scenario 1. We definitely need a life cycle analysis in order to know how this is going to effect our EJ communities, especially because all of these CCS projects of course are being
housed where all the pollutants are, which are in our, of course, EJ communities.

Also, I guess there's just still some concern about how the public health analyses that are done with BenMAP or any other type of modeling how they will be incorporated into the modeling that we've seen so far with PATHWAYS and that we will see with IMPLAN being that as the plan is drafted from these first two models, BenMAP, or the public health analysis is kind of just slapped on there at the end.

And I think it's great that we are, of course, focusing on like the economic aspects of climate solutions, but I think to put the humanistic public health concerns at the end ignores who it is that's going to be acting out these economics solutions. And so I think, you know, being able to mindfully put effort into understanding like the risks to EJ communities, the risks to the folks in the labor who are going to be helping to move these changes along, I think is something we just need to put more thought and discussion into.

And I guess that's the end of my comments for now. Just cause that was the major concern, I don't want to repeat what Martha Dina said, because she said it so eloquently and I will pass it now to whomever is speaking next from the EJAC.
Thanks so much.

ISD AIR RESOURCES ENGINEER HAND: Connie you can go ahead.

CONNIE CHO: Hello. This is Connie Cho. I am a member of the EJAC from Communities for a Better Environment. I use she/her pronouns. And I'm thankful to the modelers here to the modelers for providing some very useful information here. And I want to take a little bit of a different tack in my comments zeroing in on one specific sector. But I think it -- there are some lessons here that can be extrapolated to the other sectors as well.

There are so many critical assumptions that are essential to understanding this modeling presentation that are missing and they're scheduled to be released in May, while comments are due April 4th, so that puts us in a bit of a predicament. But I'd like to provide some had context raise some questions that illustrate the importance of understanding those assumptions that we have questions about specifically in the refinery sector.

First, I'd like to raise that the environmental justice advocates actually requested a 2045 phaseout date notably with no CCS, which is not reflected here in any of the alternatives, because we do care about feasibility and we do care about complex data driven cross-stakeholder a
planning. And we through -- can discuss later other mechanisms determined that 2045 was an appropriate target phaseout date.

My main comment here is specifically about how the refinery 90 percent capture rate assumption for CCS on Alternatives 2, 3, and 4, and its timing for immediate deployment is completely divorce from reality. The modeling is only going to be as useful as the assumptions and parameters that CARB chooses to provide.

So for some important background, in an EJAC work group, the only example that CARB CCS protocol staff were able to point to when I asked for an example of CCS working on refineries was the Shell refining upgrade in Alberta, Canada, where they have a tax on the tar sands to fund these sorts of pilots.

The project ran into the billions. The actual carbon capture is only on one piece of upgrader equipment when refineries have thousands of emission sources. And then another independent report showed it emitted more to run overall than it captured.

Even if the technology existed for the other emission sources at a refinery, where would they physically put it? There's a serious problem of physical limitations even for basic pollution controls at California refineries right now. I want to know if that
was accounted for. There are only so many refineries in California, so if we want to look at CCS on California refineries, it doesn't have to and shouldn't be a hypothetical exercise. You should assess the issue and then craft an assumption that's appropriate. We can't just pick a number that sounds nice or perhaps a number that an oil lobbyist suggested.

And so in the Alberta project CCS on its -- on one of the hundreds of emission sources, it looks like it hit 80 percent at best, but with significant performance issues. It's inconsistent. Some days being at 15 percent and that doesn't even include the emissions required to run the technology of course.

So all this still doesn't help me understand what percentage of the total emissions at a refinery is assumed to be captured, given that the capture technology in a refinery only operates at one part of the refinery and I won't go into the technical details of that.

But a California refinery is much bigger than an upgrade is something we should know, and has significantly more emission sources. And the air districts know that because there can be hundreds, thousands of permits at a single refinery. So I'd like to see that assumption, because refineries don't even have continuous emissions monitoring right now at all their emission sources. This
is a persistent data collection problem that I'm sure some CARB staff are aware of.

And this modeling also assumes a steady carbon capture from CCS starting immediately in the -- in the graph. Is the implication that we just ask all the oil industries to get started on this as a pinky promise, so they'll reach uncharted levels of continuous carbon capture, is that what we're assuming California is willing to invest billions in?

So I think that those who care about California's bottom line, not just the bottom line of industry would be concerned about the multi-billion dollar price tag for CCS required per refinery and the risks that I assume as industry would ask to take on.

Now, if we want to honestly talk about capturing carbon out of the atmosphere -- atmosphere while doing everything to decarbonize everywhere else, we should have that conversation. And I'm actually very open to that dialogue. I love learning about new technologies. But we have to have that conversation separately from a just an equitable transition planning process to manage the declining need for liquid fuels from over hundred year old fossil fuel refineries, while providing a safety net for their workers and communities who live there, because of State sanctioned racist redlining.
You know, there are so many different kinds of carbon capture I've learned about and it's really sort of confusing at first. And it's frankly heartbreaking that there are corporations out there trying to confuse everyone in kicking the can down the road on their corporate billion dollar Environmental remediation liabilities and workers' pensions, buying time to draft their bankruptcy paperwork.

So I just ask the Board members to separate -- separate the currently very academic discussion of what it means to have excess carbon, and really look carefully at the state of technologies for each sector as they exist now, the state of currently existing infrastructure now that you are proposing to put CCS on and their impact on communities, and think about what it really means to spend billion and billions to extend the life of fossil fuel infrastructure like refineries, with the rate of almost absolute uncertainty.

And lastly, I'll just say that after seeing this hypothetical assumption, it's a real slap in the face after -- to see this and to see the OEHHA report in which GHGs and PM2.5 pollution went up. It increased in refinery communities, disproportionately Black and Brown communities. And those illnesses, those deaths, those funerals are not hypothetical. They're real.
That concludes my comments.

DR. CATHERINE GAROUPA WHITE: Good afternoon and thank you for that opportunity to comment. This is Dr. Catherine Garoupa White. I use they and she pronounce and I'm the Executive Director of the Central Valley Air Quality Coalition, or CVAQ, and also serve on the EJAC. Thank you to my comment -- to my colleagues and I support your comments as well. CVAQ works to restore clean air to the San Joaquin Valley, which is one of the nation's most polluted and poorest places. We work in unceded Yokuts and Miwok lands.

We know that front-line communities contribute the least and are impacted first, worst, and cumulatively, and the Scoping Plan will only improve public health and achieve climate justice if the assumptions are calibrated correctly.

From the start, EJAC has been put in a reactionary position and asked for adjustments from major to minor, from improved format and coordination of the public workshops and other forms of engagement to analysis regarding public health and social costs of past plans and current measures that includes local, cumulative, and synergist impacts.

An analysis of the role of Cap-and-Trade is missing from the current discussion of the modeling and
discussion of how mounting problems with the program will be addressed. We are essentially halfway through the planning process. And as EJAC members, we came together to submit a second round of recommendations that again frankly were rushed and that we need more time for robust dialogue around.

While I appreciate the recognition for the community engagement event that we held in the San Joaquin Valley, again it was done with not enough time to really have integrated and aligned planning. We are still working to synthesize our written report out and look forward to sharing that at a future meeting, and can generally say that the overarching themes of climate justice and resilience came through from strategies that have been named today, but again that we need to see implemented in our communities, like ecosystem restoration, urban greening, and really a theme that our communities are concerned that they're going to be left behind as usual when these investments come through, that it will be the wealthy communities, and the easy places, and the big corporate polluters that will continue to benefit. With longer term planning and support for EJAC, which we've repeatedly asked for, feedback from our most impacted neighborhoods could be more directly integrated into the plan.
And oftentimes in these meetings, we hear big questions asked again and again, like what is the Scoping Plan? The Scoping Plan is an important exercise that sends market and policy signals related to key technology choices as much as it's CARB's interpretation and analysis of existing laws. Environmental Justice communities want the right investments and recognition that money and technology will not solve every problem.

Another overarching question that we are constantly hearing is when will this happen? And often it's not now, in the future. If this plan is truly an iterative process that is updated every five years, this plan is not a beginning or an end. It's a continuation. We've heard a lot of interest in equity and an interest in permanence for EJAC and a more integrated role.

So now we need to see actions to actually make those things happen. What is the Board's commitment and what is your role in the Scoping Plan now with your existing resources and with an eye towards planning for the long term.

In closing, I just really want to underscore Connie's comments about wanting to be in dialogue. These are challenging conversations. This is a difficult challenge that we have in front of us that we need to tackle together by improving planning and by providing
direction for CARB staff that every division should have assigned roles in the planning process. We are past due having an integrated approach and breaking down silos.

Thank you for the opportunity to comment and I will pass it now to my colleague Matt Holmes.

MATT HOLMES: Thanks. Found the notification. I really appreciate the comments from my colleagues. This body is really lucky to benefit from the insights of women like that. So I'll just start by saying my name is Matt Holmes. My pronouns are he/him/his. I'd live in Stockton, California, and I work for Little Manila Rising.

You know, my experience in this CARB EJAC has really been an education. I've been really grateful for the opportunity to learn about all of these amazing policies that impact my community in Stockton. I've met a lot of smart hard working people at CARB that absolutely want to do the right thing. But there are times, I think as you just heard, where we're not connecting on like direction, and values, and -- you know, I feel like I'm tapping on really thick glass and people can't hear me on the other side.

So there's -- you know, like I said, I'm not a technical person, but I know a little bit about history and I know a little bit about culture, and there's some real barriers between this agency and the significance of
this plan, and really understanding the communities that it impacts the most.

You know, I have felt throughout this process that I am responding to a prebaked conclusion that ISD knows that it wants to do and it wants to sort of tear the Band-Aid off on the EJAC process, and get through this, and get back to the work that it knows is more important than hearing our input. So I'm really worried about being appendicized and marginalized again.

So I think we -- you know, we're talking with people and they seem to hear us sometimes about breaking down these barriers. I think that can happen by, you know, empowering an EJ Division that is sincere in hearing from us, but doesn't seem to really have a lot of say in this process that was sort of -- you know, they knew it was coming for five years, but there was really no plan to ramp us up and get us to some level of understanding where we could provide an informed set of recommendations.

So throughout the whole process, there's been kind of like a reticence to make a confident statement about any of these scenarios, because even though we've been meeting with you all since June, like excessively, I still feel really uninformed on some of these scenarios.

So, you know, my hope is that we can actually extend this process. You know I don't think the 20 --
it's been clear that there's no political will to protect the 2022 Scoping Plan with a -- with an extension. But, you know, there will be another Scoping Plan, and it would be just a shame if in 2027, we were to trot out 30 new unsuspecting community advocates and ambush them with a dearth of knowledge and a mountain of responsibility.

So I hope we can sort of plan for the future and find a way to break down the barriers between staff and the -- you know, really what's a myopic set of research questions that seem to be, you know, interested in preserving business as usual, instead of really taking a hard look at the moment that we're in.

I also think there's an opportunity to break down the barriers between these appointed Board members. Ever time we meet with you all, we hear -- we hear like important insights and considerations. And, you know, those are things that should be peppered in throughout our process.

So again I think maybe I'm the optimist in the group, which will shock everyone on this call. But in the long term, I think we can get into dialogue, but I can't lie right now, I do not feel like we are in dialogue. And I feel like we are mostly commenting on process rather than commenting on the content.

So, you know, 2022 plan feels like it's in
trouble. I look forward to learning as much about it as possible. And I'll just say that, you know, I am not a technically proficient person, but I am a history teacher and I know what fairness looks like.

(Knocking)

MATT HOLMES: Oh, and I'm getting a package at the door.

You know, and so I just -- I just hope that we can use this opportunity, acknowledge that inequity isn't just wrong. It's dangerous. You know, COVID should have taught us that and the policies that the Scoping Plan are framing have a chance to really paint this state into a corner.

(Knocking)

MATT HOLMES: So I don't expect California to necessarily do the right thing because they care about us, but at least out of the basic self interest agree, they should really take the consideration of impacted communities more seriously to protect everybody. So hope we can pull something together. Thank you.

CHAIR RANDOLPH: All right. Thank you. Now, we will hear from the public who would like to speak on this item.

If you would like to speak, please raise your hand or hit star nine now.
Board Clerk, will you please call the first
Commenter.

BOARD CLERK GARCIA: Thank you, Madam Chair. We
have 17 commenters who wish to speak at this time. If you
wish to verbally comment on this Board item, please raise
your hand or dial star nine now. And I apologize in
advance if I mispronounce your name.

The first three speakers are Jim Verburg, Richard
Grow, and Joy Alafia.

Jim, I have activated your microphone. Please
unmute yourself and you can begin.

JIM VERBURG: Thank you. Good afternoon, Chair
Randolph, members of the Board. For the record my name is
Jim Verburg. I am the Senior Manager for Fuels Regulatory
Issues for WSPA. WSPA is a trade organization that
proudly represents companies in California and for other
western states that provide biodiverse sources of
transportation fuels and other energy. In California, our
member companies employ thousands and contribute
significantly to California's economy. We are also a key
part of the energy transition throughout the west and in
California.

Appreciate the opportunity to comment today on
the Scoping Plan in particular. I want to start by saying
we appreciate CARB's acknowledgement of the important role
of renewable fuels, hydrogen, CCS play in our view. California will not reach its interim or 2045 goals in a feasible cost-effective way without these and a diverse set of strategies.

We do, however, have some observations and concerns about the scenario models developed by E3. If the transportation sector reductions are heavily reliant on ZEV mandates, we recommend a more technology neutral approach that allows for innovation and suggests that CARB run scenarios without mandates to identify alternative opportunities to reduce emissions in the transportation sector.

We also have concerns given the structure of scenario models about the overall program costs and cost effectiveness. We suggest, as we did in our October 2021 comment letter, the employment of market-based approaches prioritizing the lowest cost implementation. These market-based approaches that are technology neutral are critical to pursuing carbon neutrality in the most cost-effective way.

Finally, just a caution, and it's been mentioned, that the goals as portrayed in all four scenarios will require extremely large projects with emerging technologies, the likes of which have not been seen in a very short time frame. CCS, hydrogen, expand electricity,
renewable fuel and gas projects and all accompanying infrastructure improvements. It's a daunting task for permitting CEQA alone, not to mention other potential barriers. We recommend that CARB carefully consider the feasibility of deployment rates as they are currently portrayed in the modeled scenarios.

So in closing, thank you for your time today. We look forward to providing written comments for the fast approaching April 4th comment deadline and engaging with CARB and other stakeholders in the coming weeks and months.

Thank you.

BOARD CLERK GARCIA: Thank you.

Richard, I have activated your microphone. Please unmute yourself and you can begin.

RICHARD GROW: Greetings. My name is Richard Grow. You've heard from me before. My expertise, such as it is, comes from working several decades at the U.S. EPA in the Air Program and environmental justice and civil rights. And regarding emissions trading, I've been involved over all those decades in developing guidance policies, safeguards, in evaluating actual Cap-and-Trade programs.

And while today's main agenda topic, it's been a broad look at scenarios, and modeling, and so on. My
comments regarding scenarios have to do with scenarios not yet evaluated. None of your scenarios include the safeguards and reform that have been recommend and needed -- and shown to be needed by your Cap-and-Trade Program.

Regarding Cap-and-Trade, you have at least four reports in play. The first one, much favored by CARB staff, is a 2020 report from UC Santa Barbara written by two economists, for Pete's sake, showing the benefit of Cap-and-Trade supposedly, a report by now thoroughly debunked and discredited. But then you have the OEHHA report, which after having been disingenuously cherry picked for very clear talking points, nevertheless shows serious problems in Cap-and-Trade when it comes to the refinery sector, as has been mentioned earlier, especially for people of color, the sector in which emissions of greenhouse gases and co-pollutants were found to have been increasing rather than decreasing since the start of the program. The problem is likely to exist in other sectors. And then you also have the recent report released at the same time by Manuel Pastor and others showing very similar problems and recommending reforms that are in fact identical to some of those being recommended by the EJAC for the Cap-and-Trade Program.

And finally, you have the report from the
Independent Emissions Market Advisory Committee showing that the AB 32 bank has so much funny money in it already that basically the Cap-and-Trade Program is not going to require any further reductions until 2030.

Anyone willing to cloak this situation in congratulatory expressions is like -- which I heard a hundred percent compliance of the Cap-and-Trade Program, frankly is engaged in an intellectual gamesmanship and dishonesty, games which are not only not amusing, but, in fact, are dangerous to public health, especially for disadvantaged communities.

So anyone on staff -- likewise on staff for the Board claiming the mantle of environmental justice while letting these games go on, I get -- I almost -- I don't know what to say to you, but like stop it. And CARB overall and the Board needs to stop stonewalling on this issue, needs to do its due diligence and step up to the evaluation of the recommendations and reforms of the Cap-and-Trade system being put forward by the Environmental Justice Advisory Committee and this needs to be done now, not during. It needs to be done now, during and not after the Scoping Plan process, so that you can then deal with the real challenges left once the smoke screen left behind, behind which the Cap-and-Trade Program has been hiding has been removed.
Thank you.

BOARD CLERK GARCIA: .... Joy Alafia. After Joy we'll hear from Jeanne Merrill, Mariela Ruacho and Virgil Welch.

Joy, I have activated your microphone, please unmute yourself and you can begin.

JOY ALAFIA: Thank you. Thank you, Chair Randolph and Board members for the opportunity to speak. My name is Joy Alafia pronouns she/her/hers.

And I am with the Western Propane Gas Association, an organization that powers rural Californians, low-income populations, emergency and essential facilities like hospitals and water treatment facilities among of host of other markets.

Our industry's interest align with the goals of CARB in an effort to provide meaningful greenhouse gas reductions and to do so equitably. It is because of this belief that our organization set forth the ambitious goal to provide Californians with a hundred percent renewable propane by 2030. This is a self-imposed goal as renewable propane is -- provides up to 2.26 million tons of avoided CO2 emissions.

And we can do this within the next two to five years with the right support. This is the equivalent of taking 537,000 cars off the road annually. Renewable
propane is produced from sources like use cooking oil and animal fat, and provides a reduction of up to 80 percent versus fossil fuels.

So as we transition to renewable propane, we can empower communities that are left stranded by other cleaner energy solutions or even provide resiliency for communities to power through any Public Safety Power Shutoffs or energy when they are asked to power down, so there's a collective benefit here. And we can provide this sustainable energy as early as 2024 in significant volume with the right support.

I echo the comments of the EJ commenter to look at life-cycle emissions as well as to devise timeline benchmarks for deployment and assure that the cost is equitably distributed, so that all communities have access to carbon neutral solutions.

We encourage CARB staff to think creatively for how all carbon-neutral technologies can work in concert to provide complementary power, back-up power, power to remote and rural communities and increase the volume of renewable grid electricity that's available.

Through this lens, renewable propane delivers and we look forward to working with CARB staff to further elaborate on these points and the unique opportunities to help achieve these goals.
Thank you.

BOARD CLERK GARCIA: ...unmute yourself and you can begin.

JEANNE MERRILL: Hi. This is Jeanne Merrill with the California Climate and Agriculture Network. We're a coalition of sustainable and organic agriculture organizations. Thank you, Chair and Board Members.

We are very glad to see a stronger effort to include natural and working lands in the Scoping Plan. And we're glad to see in the scenarios modeling inclusion of organic agriculture, farmland conservation, or avoided conversion, healthy soils practices, grassland restoration, alternative manure management, and more.

However, we are concerned that the lack of inclusion of reduced or eliminated synthetic fertilizers result in the modeling not telling us much about the benefits of organic agriculture or healthy soils practices. Moreover, based on the outcomes of the scenarios, there's not a lot of detail on many of the assumptions underlying the scenarios. For example, on grasslands restoration, we know few details on what's included there.

We know that climate modeling is very complex, but the lack of soil carbon sequestration modeling and non-croplands landscapes is a significant limitation of
the natural and working lands modeling.

We'd like to see more details on the modeling assumptions and the underlying literature to better inform us and others on -- on the modeling. And we would also like to ensure that there's enough time for public input to inform the Scoping Plan policy pathways as we pivot to that collectively. The timeline is quite tight, but there are many stakeholders who I think who robustly inform what happens next on the natural and working lands side of the Scoping Plan update.

Thank you.

MARIELA RUACHO: Hi. Can you hear me?
I believe that's a yes. Hi. Good afternoon. My name is Mariela Ruacho from the American Lung Association.

We appreciate all the work staff has done on the Scoping Plan. As CARB continues to analyze results from modeling the four scenarios, we urge the Board to direct staff to maximize the focus on programs that generate direct emission reductions and health benefits. We see the Scoping Plan as a roadmap for achieving critical climate standards, but also a roadmap to healthier communities, improve health outcomes, and less local pollution.

We see these as working hand in hand and believe that a focus in direction emission reduction measures is
the clearest pathway forward. Currently, there are still questions about how some sectors will reduce emissions in the scenarios reliant -- in the scenarios reliant on the Cap-and-Trade Program and CCS. Again, we believe that the most health protective plan will focus on direct emission reductions and reductions in combustion as the primary strategy.

We also encourage a strong focus on aligning this plan with trackable measures for achieving healthier communities, reductions in vehicles miles traveled, and a better alignment of transportation funding with climate standards. In addition -- in addition, CARB should continuously report how they are responding to the EJAC recommendations in the development and adoption on the plan and throughout implementation. We look forward to drafting plan -- plan -- the plan and working with staff and Board members.

Thank you. Also, your audio is not coming through very well. So just FYI. Thank you.

BOARD CLERK GARCIA: ....microphone. Please unmute yourself and you can begin.

Virgil?

VIRGIL WELCH: Hi. Can you all hear me?

BOARD CLERK GARCIA: Yes, we can.

VIRGIL WELCH: Great. Thanks. Thank you very
much and good afternoon, Madam Chair and members of the Board. My name is Virgil Welch. I'm with the California Carbon Capture Coalition. The Coalition is a business and labor organization working to create a comprehensive policy framework to ensure that proven carbon capture utilization and sequestration technologies can play a key role in achievement of California's climate goals.

And I just wanted to acknowledge at the outset the team at CARB and all the stakeholders and experts that have been engaged in the Scoping Plan process. As you all well know, this is an incredibly important part of your work and it is one of the key opportunities for California to demonstrate ongoing climate action leadership, both inside and beyond our borders.

Carbon capture and sequestration technologies are a necessary component of any successful strategy to meet global, national, and California GHG reduction goals. This is the conclusion of numerous expert analyses, as we heard earlier, including the IPCC, the International Energy Agency, here in California, analyses from places like Lawrence Livermore and Stanford all demonstrate the key role that CCS has to play in these efforts.

The math just simply does not work in terms of achieving the emission reductions we're going to need to meet scientifically-determined climate goals without CCS.
As the presentation today made clear, there are significant emission reductions to be achieved across multiple industries and sectors in California.

And for some of the veterans on the Board, you will I'm sure recall that CCS has been acknowledged in a number of previous scoping plans as a set of technologies that would need to be considered in the future. Well, that future is right now. As the Chair noted in her comments at the outset, we have got to get going and we need action across all sectors to scale down emissions.

So just as we are doing the whole range of other technologies, we need a comprehensive framework to enable CCS to play a meaningful role in cutting greenhouse gases in California.

I'm sure most of you are all well aware of the fact that the Biden Administration has prioritized CCS as an important component of national efforts to decarbonize and is providing some really significant financial incentives as part of the President's Climate Action Plan. So we have a tremendous opportunity to benefit from these incentives in California, if we put in place mace the right policy and regulatory framework.

And, of course, we need to account for the significant economic and job benefits that CCS can provide here, which are quite substantial in terms of both energy
cost savings --

BOARD CLERK GARCIA: ...are Ryan Kenny, Evan Edgar, and Julia Levin.

Ryan, I have activated your microphone. Please unmut e yourself and you can begin.

RYAN KENNY: Great. Good afternoon, Board member -- Board members and Chair Randolph. Thank you for your time today. My name is Ryan Kenny with Clean Energy. Our company is the nation's largest provider of renewable natural gas transportation fuel. And we are here to help. We are looking to help the state drive deep decarbonization and help meet the 2045 carbon neutrality goals then, if not sooner.

We encourage CARB to continue incentivizing the production and use of low to carbon negative fuels and to prioritize in the Scoping Plan the reduction of short-lived climate pollutants. Given the state's climate emergency, policy tools are needed to help drive deep decarbonization of fuels today. Encouraging greater development of such low carbon fuels today will ensure that future clean transportation markets will be powered by fuels that are in line with California's goals.

As you know, diesel-powered heavy-duty trucks are the single largest source of black carbon, which is a short-lived climate pollutant, and CO2. Low to carbon
negative fuels capture methane, another short-lived climate pollutant, before being emitted into the atmosphere, and they are used to help displace diesel in the heavy-duty transportation sector.

Near-zero-emission vehicles are the only transportation technology available today that delivers less than zero emissions. The average carbon intensity of all natural gas reported in the California LCFS is negative at minus 28.17. No other transportation fuel in California averaged zero or below. So this is a significant solution to help driving deep decarbonization and to help meet the carbon neutrality goals.

The LCFS is working and we encourage CARB to again focus on the reduction of short-lived climate pollutants and to incentivize the production and use of low to carbon negative fuels.

Thank you.

BOARD CLERK GARCIA: ...please unmute yourself.

EVAN EDGAR: Chair Randolph and Board members.

My name is Evan Edgar of Edgar Associates representing the refuse industry that is vested in anaerobic digestion facilities coupled with near-zero NOx heavy-duty fleets using in-state carbon negative RNG, while implementing SB 1382 to reduce methane in the near term and addressing short-live climate pollutants, which CARB is not making a
priority in the modeling so far.

We filed a white paper today based upon European studies regarding the carbon intensity of manufacturing ZEV batteries, which is based on defensible science and life cycle carbon accounting. CARB has a statutory requirement to minimize the leakage, when considering the Scoping Plan and not increase greenhouse gases on non-California entities and that needs to be addressed.

With the CI of ZEV batteries, which are manufacturing, which is 38 to 66 CI depending on the type of ZEV battery. CARB's existing emission factor for ZEVs used in California grid energy is plus 23 CI now and will be for the next 23 years.

ZEVs are not zero emissions, but have a life cycle carbon intensity of 62 to 90. CARB is picking ZEV as a technology winner, while leaking emissions out of the State. CARB has a statutory requirement to support cost effective and flexible compliance when considering the Scoping Plan for heavy-duty vehicles is not reflected in the modeling so far while using ZEVs.

CARB should use -- should include ZEV battery manufacturing in the Low Carbon Fuel Standard, since the core tenets are based upon life-cycle analysis. The modeling shows a tailpipe mentality where the ZEV is wagging the dog.
Modeling the scenarios shows diesel for decades and RNG for very few. There is adequate RNG supply for the refuse heavy-duty fleet to utilize in-state RNG by 2025 with a current in-state RNG productions underway, where there are many co-benefits. EJAC and CARB shall want to decrease diesel use instead of phasing out the near-zero NOx fleet on a carbon negative RNG platform that has near-term reduction than can try -- criteria pollutants benefits now.

We cannot wait for a perfect 2045 when the world would be timed out on climate change according to the IPCC and COP. The UN General Secretary says climate change target is on life support and we are sleep walking into a climate catastrophe. It's time to wake up and model the RNG.

EJAC is meeting next week and will be briefed on the force child labor in the Congo and a review of the Amnesty International documents on the serious human rights violations linked to -- linked to extraction of minerals and used in ZEV batteries, plus all the environmental degradation in many countries outside from Africa to South -- South America.

Where is the environmental justice for all. I'll be asking EJAC that question next Wednesday.

Thank you very much.
BOARD CLERK GARCIA: ...moment to test my audio.
Can you hear me, Evan?
EVAN EDGAR: Yes, I can hear.
BOARD CLERK GARCIA: Great. Thank you.
Okay. Julia, I have activated your microphone.
Please unmute yourself and you can begin.
JULIA LEVIN: Good afternoon. Julia Levin with the Bioenergy Association of California.
I really want to thank the Air Board for this focus on reaching carbon neutrality by mid-century, as well as the new addition of really fully incorporating natural and working lands into the main body of the Scoping Plan itself, instead of treating it as sort of a side or separate issue as past Scoping Plans have done.
Having said that, we do have a couple of concerns and recommendations for the Scoping Plan. In particular, we're very concerned about the sort of broad use of different technologies or fuels as though they are all equivalent in terms of life cycle carbon emissions.
For example, biofuels can have orders of magnitude different life cycle carbon intensities from positive -- kind of high positive to several hundred -- negative several hundred on a life-cycle basis. The same is true of hydrogen. The same is true of electricity. The same is true of zero-emission vehicles. So we need to
look all technologies, fuels, and other solutions on a 
life-cycle basis or we are not going to get to a 
defensible, actionable plan that really will meet our 
climate requirements.

Our second concern is while we appreciate the 
conversation round carbon capture and storage and direct 
air capture, we think there needs to be a more targeted 
focus on opportunities for negative emissions, because as 
Virgil and other speakers have said, we know we're going 
to need negative emissions to balance out to net zero. 
That's not in order to continue fossil fuel use, but even 
if we eliminate all fossil fuels, there will still be 
emissions from other sectors and we need to offset those 
with carbon negative emissions.

My third point is on slide 15 I could not 
understand why, with a 75 percent waste diversion 
requirement in California, slide 15 shows no greenhouse 
gas reductions from organic waste between now and 2045. 

I realized after looking at the slide for a long 
time, that the reason is that that slide, and it turns out 
most of the analysis, is looking at climate pollutants on 
a hundred year global warming potential. That doesn't 
make any sense for a plan that is intended to achieve 
carbon neutrality in just over 20 years.

So I really urge the Air Board to reassess both
emissions and potential for reductions based on a 20-year global warming potential. Do anything else makes no sense in a plan that, you know, sets a goal for 2045. It also really devalues the climate forcing impact of short-lived climate pollutants and the immediate climate benefit of eliminating short-lived climate pollutant emissions.

My last point is there's really no discussion about costs. And we know that there is a very wide range of costs for different reduction strategies, and technologies, and fuels. And we cannot adopt a plan that doesn't assess the cost effectiveness of different technologies and choices.

Thank you.

CHAIR RANDOLPH: Thank you. I am going to be closing the queue at 3:22. So if you want to speak and have not yet placed yourself in the queue by raising your hand or dialing star nine, you need to do so before 3:22.

BOARD CLERK GARCIA: Thank you. Our next three commenters will be Mikhael Skvarla, Steve Jepsen, and George Peridas.

Mikhael, I've activated your microphone. Please unmute yourself and begin.

MIKHAEL SKVARLA: Yeah. Mikhael Skvarla with the Gualco Group here on behalf of the California Council for Environmental and Economic Balance. CCEEB would like to
thank ARB staff, the Board members, modelers, and other stakeholders who have dedicated substantial time through these workshops and comment periods to date.

Carbon neutrality is an important pursuit environmentally and has major implications for all Californians and their economic prosperity.

Moreover, what we do globally -- or what we do matters globally, if it can be replicated in other states, regions, and countries. There should be an openness and an optimism to any new viable solutions that move us towards our goals allowing for innovation.

It's important to note that we do not yet have the data, inputs, assumptions, like technology uptake and other pertinent information to review these initial results. Additionally, PATHWAYS is not an optimization model, so these initial results are ambitious at best, and not a complete picture. We look forward to the disclosure of these technical documents in April as staff has indicated. This will provide us an opportunity to fully analyze the scenarios and model results to date.

However, even with daylighting of the PATHWAYS inputs, we want to caution that modeling is not precise. It is a -- at this points, it's simply showing an ambitious picture absent the economic data and impacts. The cost, affordability, consumer adoption, jobs impacts,
and other considerations must be considered in the forthcoming economic modeling that will feed into the Draft Scoping Plan.

As Secretary Blumenfeld stated, it is important to keep all the tools on the table to provide for the widest set of options for decarbonization. The future is unpredictable and we are currently living the ever present history of the future.

Current day solutions may not be sufficient to achieve our end goals, so policies that enable innovation and flexibility like the Low Carbon Fuel Standard and Cap-and-Trade are incredibly important.

Finally, the energy system of the future relies on upfitting, upgrading, and expanding clean and renewable energy production, both electric and molecular. To achieve our decarbonization goals, we need to build our way to carbon neutrality, meaning that beyond capital, permitting is a major barrier to achieving our goals. The State should take action to enable rapid build-out of decarbonization projects and low carbon technologies.

CCEEB looks forward to the opportunity to continue to review, and comment, and provide feedback. And we look forward to the data and the cost assumptions as we move toward. Thank you.

BOARD CLERK GARCIA: Thank you.
Steve, I have activated our microphone. Please unmute yourself and begin.

STEVE JEPSEN: Hello, Chair Randolph and members of the Board. This is Steve Jepsen, the Executive Director for the Southern California Alliance of Publicly Owned Treatment Works, or SCAP. We represent over 80 public water, wastewater, and recycled water agencies in Southern California.

Wastewater treatment plants generate a non-fossil biogas as part of the process of cleaning the public's wastewater to protect public health and the environment. State greenhouse gas reduction policies, such as SB 1383, will divert food waste away from landfills to existing wastewater treatment plants located in all types of communities. This will significantly increase the amount of waste derived non-fossil biogas generated.

SB 1383 also requires the diversion of wastewater generated biosolids from landfills, which will result in more beneficial land application of biosolids in the state, which also sequesters carbon and improves soil water holding capacity.

The wastewater sector has a unique opportunity to use wastewater derived biogas fueled trucks and equipment for managing the society's wastewater, food waste, and biosolids in a carbon neutral, even approaching carbon
negative scenario.

We need reliable homes for this wastewater derived biogas to be resilient for the public. Using it as a low carbon renewable fuel to power our essential public service maintenance and emergency equipment will expedite the transition from diesel-powered trucks.

The wastewater derived renewable gas clean engines are currently available and in some cases already in use, whereas zero-emission equipment are not available for our sector, and based on communication with equipment suppliers not feasible with current technologies. We are not opposed to zero-emission vehicles, where appropriate and available, and many of our agencies already have them in their fleets.

In summary, the wastewater sector has a non-fossil renewable fuel source derived from society's waste that cannot be turned off. Engines and our specialty equipment that can use this fuel already exist. Embracing this non-fossil renewable fuel will expedite carbon neutrality while getting diesel trucks off the road, allowing the wastewater sector to continue our emission -- our mission of protecting public health and be -- and to be consistent with federal Clean Air Act requirements.

This approach is consistent with the AB 32
Climate Change Scoping Plan statutory requirements to support cost effective and flexible compliance.

Thank you for the opportunity to comment today.

BOARD CLERK GARCIA: George, I have activated your microphone. Please unmute yourself and begin.

GEORGE PERIDAS: Great. Thank you. Can you hear me okay?

BOARD CLERK GARCIA: Yes, we can.

GEORGE PERIDAS: Thanks. Thanks. Chair Randolph, members of the Board. Thank you for the opportunity to comment today. My name is George Peridas from Lawrence Livermore National Laboratory.

Our job is to solve hard problems and represent science. We do not stand to profit from any climate solution and we don't have any dog in the fight, except helping to solve climate change.

Today, I'm compelled to comment on what appears to be a point of contention, the use of carbon removal technologies. As with climate science itself, the scientific community is overwhelmingly united in believing that we must capture CO2 and put it back where it came from, and that's deep underground. Our emission levels and the levels of CO2 in the atmosphere are simply too great, to high at this point. This applies to the globe, to the nation, and to California specifically.
Technological carbon removal does not need to be the star player in this game, but nonetheless, it is a necessary and important player if we are to achieve carbon neutrality.

Fortunately, this is a proven concept and family of technologies. Nature has stored CO2 securely over hundreds of millions of years, well before we thought of doing it ourselves. We have over four and a half thousand miles of CO2 pipeline in the U.S. Tens of projects that capture transport and store CO2 are operating worldwide with an excellent track record.

In addition, California has the strictest rules in the world to control the practice with brand new regulations dating from the last few years that were crafted with the failings of oil and gas regulation in mind and with an unprecedented level of scrutiny.

The U.S. has safely stored 14 million tons of CO2 underground in research programs, run specifically to test geologic storage. Returning CO2 deep underground is not only necessary for carbon neutrality but can serve several of other California's goals. It can present -- prevent catastrophic wildfires, it can create rural economic opportunities, maintain a healthy workforce, improve air quality, and generate benefits for local communities.

We firmly believe that we can and have no choice
but to make these projects work both locally and for our
global climate emergency.

    Thank you very much for the time.

BOARD CLERK GARCIA: ...your microphone. Please
unmute yourself and you can begin.

Paul Mason.

PAUL MASON: Oh, hi. Sorry. It is hard to hear
the clerk call the names that -- the volume on that mic is
lower than all the rest of them. But my name is Paul
Mason. I am with the Pacific Forest Trust. And thank you
Chair Randolph and members for the opportunity to make a
few comments today.

    I'll be really brief. We really appreciate the
much more substantial focus on natural and working lands
in this Scoping Plan compared to the previous ones. The
modeling that was described today and that we've all been
engaged with over the last, oh, many months is very
ambitious. Especially for the forest sector, it's going
to be hard to really know what that means until we see the
modeling results out to 2100, because over these next 20
years, we're going to create a lot of emissions under all
circumstance by thinning, and prescribed fire. And
theoretically we would see more of those longer term
benefits out in the second half of the century. So seeing
that information as well as the benefits to fire behavior,
water quality, et cetera, would be really interesting.

That said, I think it will be important for both
the forest and really all of the -- especially the natural
and working lands modeling that's so complex is to realize
it will be informative and sort of directional. But all
modeling has limitations and we'll need to combine what
we're seeing in the modeling with what we also know to be
true. And so that's going to need to get reflected in the
way the Scoping Plan is actually presented as this guiding
document.

And one of the things that we know to be true and
is going to be very important on our natural landscapes is
our interventions need to be driven by restoring an
ecological resilience that's going to be stable over time
and not just on maximizing carbon. And I appreciate the
staff calling this out in the presentations, but I think
it's going to be -- need to be sort of the driving
consideration to both trying to restore more forest
structure, but then also to maintain that and let it
develop over time. We need to make sure that we're not,
you know, doing good things now only to see the forest
clear cut in 20 years and be right back on to sort of
dense, fire prone, even-aged condition. We need to be
changing some of this management, so that we're restoring
the large fire resilient trees on the landscape as sort of
a driving consideration for how we get to a more fire
resilient, climate resilient condition on our forested
landscapes.

So really appreciate the moment to talk and thank
you very much.

BOARD CLERK GARCIA: Thank you, Paul.
And I switched microphones. Can you hear me
better now?

PAUL MASON: It's a little bit -- yeah, it is
better. Just make sure you're holding it close.

BOARD CLERK GARCIA: Okay. Thank you.

Our next three commenters will be Graham Noyes,
Sarah Deslauriers, and a phone number ending in 180.

Graham, I have activated your microphone. Please
unmute yourself and you can begin.

GRAHAM NOYES: Thank you. Confirming the audio.

BOARD CLERK GARCIA: Yes, we can hear you.

Can you hear me?

GRAHAM NOYES: Chair Randolph, members of the
Board. My name is Graham Noyes. Thank you for the
opportunity to provide comments today. I'm the Executive
Director of the Low Carbon Fuels Coalition. Our mission
is to support an expansion of low carbon fuel policies.

And what I'd like to share with the Board today
are what I see as some untapped opportunities to achieve
the targets faster. As other commenters have pointed out, California has very aggressive goals in this sector and so really recommend the use of all available tools, and particularly tools that have proven well over the experience we've had to date.

Regarding Slide 8 in particular, it shows substantial use of fossil fuels all the way out to 2045. By contrast, the Institute for Transportation Studies Report, Driving California's Transportation Emissions to zero shows a path to zero use of fossil fuels by 2045. And that report was commissioned specifically to look for strategies to achieve carbon neutrality consistent with Executive Order B-55-18. So really recommend the integration of that report to the greatest extent possible in its approaches.

Also on that same slide, we see under all scenarios essentially a 20 percent reduction in carbon intensity by 2030 and under Alternative 2, a 25 percent reduction but not until 2035. And it is perplexing to me why there aren't more aggressive numbers there. We already have a 20 percent reduction within the LCFS Program as it exists today. This is a program that has gained State, national, and international recognition, and is being replicated in other jurisdictions. We've seen over 75 million metric tons of greenhouse gas reduction
and $10 billion in credit value. And it's made California
the world leader in attracting low carbon fuels and low
carbon fuel technologies.

But just this past week, Oregon with their clean
fuels program surpassed our program in credit value. Our
lamb has lapsed from a $200 credit value down to 120. And
the Oregon program by contrast is responding to an
Executive Order to really maximize the reductions. And I
understand that the LCFS is a separate process than this
one, but I think the Scoping Plan can take advantage of
the proven capabilities of this LCFS Program, and also
needs to send a signal to the market to grow low carbon
fuel production and expansion rather than shrink it, which
is the signal that the market is starting to get.

Thank you for the opportunity to provide these
comments.

BOARD CLERK GARCIA: ...microphone phone. Please
unmute yourself and you can begin.

SARAH DESLAURIERS: Can you hear me okay?

BOARD CLERK GARCIA: Yes, we can.

SARAH DESLAURIERS: Excellent. Thank you. Good
afternoon, Chair Randolph and Board members. My name is
Sarah Deslauriers. And I am the Climate Change Program
Manager for the California Association of Sanitation
Agencies, or CASA, and we represent over 90 percent of the
sewer population across the state. CASA is an association of local agencies and we do perform essential public services of cleaning wastewater to protect public health and the environment, but while also advancing community resilience through the recovery of renewable resources, including water, energy or fuel, biosolids, nutrients.

Our members full support and are focused on helping the State achieve carbon neutrality. We believe the use of renewable biogas as transportation fuel, as well as biosolids as an organic soil amendment derived from wastewater treatment plants are critical paths in achieving this goal, while reliably maintaining these essential public services for all communities.

Anaerobic digestion is a key component of the solids treatment process at wastewater treatment plants across California that produces a renewable biogas or digester gas. By capturing this resource, we avoid venting it to the atmosphere and beneficially using it as a transportation fuel, or for onsite heat and power productions, or for pipeline injection.

Digestion also produces a beneficial organic residual referred to as biosolids, which can be recycled back to agricultural or natural and working lands as a soil amendment to displace synthetic fertilizer.

Biosolids also sequester carbon, improve soil
health, which in turn improves water holding capacity, and then increases crop yields, all of which are targeted by the natural and working land scenarios, and we will be sharing data, which support these valuations, and also begin to address some of those noted limitations, like not accounting for offsetting synthetic fertilizer, and not including carbon sequestration accomplished on croplands.

We are concerned about the disconnect between the this Scoping Plan scenarios to achieve carbon neutrality, the developing advanced clean vehicle regulatory language or fleet regulatory language, and the Clean Air Act timeline requirements that are in place to achieve NOx and ozone reductions in nonattainment zones.

This is especially concerning given the limited available of heavy-duty zero-emission vehicle technology for specialty vacuum and jetter vehicles that we need for our sewers as Steve Jepsen mentioned, and the fact that near-zero-emission vehicles are available today to provide continued resilience while achieving NOx reductions.

Our members have already been required to invest in compressed natural gas vehicles fueled by renewable biomethane, as well as the infrastructure by various regulatory requirements, including South Coast LEV 96. And CNG is now showing in all Scoping Plan scenarios for heavy-duty vehicles, but the definition of NZEVs in the
Draft ACV does not support that. We urge CARB to coordinate across these programs and we thank you for the opportunity to comment today. And we will be submitting more detailed written comments for your consideration.

Thank you.

BOARD CLERK GARCIA: ...so the phone number ending in 180. We'll hear from Gary Hughes, John Larrea, and Charles Davidson.

Phone number ending in 180, I have activated your microphone. Please state your name for the record.

JON COSTANTINO: Hello. Can you hear me?

BOARD CLERK GARCIA: Yes.

JON COSTANTINO: Thank you. This is Jon Costantino. Good afternoon, Chairman Randolph, Board members, and CARB staff. I'm speaking today on behalf of a number of clients that are focused on reducing their carbon footprint throughout the different sectors of the economy. We appreciate the ability to comment and look forward to more important work that's going to happen moving ahead.

The recent modeling results workshop provided a partial compass where the landmark policy document could go. Today's discussion will also help direct staff in preparing that document. While we need to make sure we
take into account the public health and economic impacts of these scenarios.

Some of the important aspects of carbon neutrality were highlighted today and last week. The fact that innovation and investment are the keys to success. CARB's historical policy of all good ideas should be welcomed should be retained from earlier Scoping Plan efforts.

California has a whole lot of momentum going on right now to reduce emissions. As we sit here today, refineries are being converted, lower carbon biofuels are expanding, CCS project are within days of initial injection under the LCFS, hydrogen is getting closer, methane capture is accelerating, and wholesale electricity decisions are being driven by the price in carbon. New technologies to reduce industrial heat are coming this summer and so much more.

That's why isn't important for the Board to direct staff to continue with an open and public process to develop a broad inclusive plan that takes a realistic view of innovation and investment opportunities, and that the obstacles that needed -- that are needed to overcome and achieves the success include rising energy costs, our notorious permitting requirements, and the capital needs and the time to bring this all together.
The plan has been described as -- the plan has been described by staff as being an endpoint document. If that is true, then it is important that the market signals drive the path forward, rather than CARB drawing a line on the road. The most efficient, innovative, and successful strategies may not even currently be on CARB's radar. The path to success may look much different in the rearview mirror in a few years than out the windshield today.

So I look forward to the -- continuing the public process and thank you for your time.

BOARD CLERK GARCIA: Thank you.

GARY HUGHES: Thank you. Good afternoon, Chair Randolph. Thank you, members of the Board for this opportunity to speak. My name is Gary Hughes and I work with the international organization Biofuelwatch. While we continue to challenge the exaggerated climate benefits attributed to the expansion of refining and use of high deforestation risk liquid biofuels in the state, and while we implore the Board to fully consider eliminating the use of food as feedstocks for making fuel in a time of an intensifying global food crisis, my comment today is focused on the risks embedded in the reliance on unproven and dangerous carbon dioxide removal technologies as seen
in the modeling that is currently central to the
development of the Scoping Plan.

Perhaps a bit of history with the fossil fuel
industry roots of direct air capture and the links with
campaigns of climate disinformation will assist in
illuminating this concern.

It was back in 1999 that a group of scholars
wrote the first known academic paper advocating for direct
air capture published on behalf of Los Alamos National
Laboratory. One of those co-authors was a former
scientist for Exxon who wrote, "Direct air capture
completely avoids a restructuring of today's
infrastructure. Carbon dioxide extraction from air would
allow the continued use of carbon based fuels".

Later the fossil fuel funded think tank American
Enterprise Institute created the Geoengineering Project,
with the head of the project co-writing a paper in 2009
advocating for the scaling up of direct air capture. The
American Enterprise Institute is well known for climate
disinformation and climate denial. The 2009 paper was
actually published by the Copenhagen Consensus Center, a
group infamous for its climate denialism and efforts to
delay real climate action.

We must ask how is it that the unicorn of direct
air capture, once the geoengineering crown jewel of the
climate denial machine, is now promoted as a central piece of the climate policy puzzle in California? This history of fossil fuel industry climate disinformation is not irrelevant. And we hope that understanding these dynamics around the promotion of direct air capture as a tactic of climate deception and confusion campaigns will empower members of the Board to direct the staff to correct course on the Scoping Plan by elevating modeling of alternatives that explicitly acknowledge that reliance on large-scale carbon dioxide removal, as the IPCC makes abundantly clear threatens to result in irreversible harm to water resources and biodiversity, as well as posing severe risks to social justice and human rights, while failing to reduce emissions as promised. We need a course correction.

Thank you for your attention to this comment.

BOARD CLERK GARCIA: Thank you.

John, I have activated your microphone. Please unmute and begin.

JOHN LARREA: Thank you. Good afternoon, Chair Randolph and Board members. I am John Larrea, representing the California League of Food Producers. The League represents industrial food processors with operations in California, many of which are subject to the Cap-and-Trade.
First, I'm pleased to see that all four scenarios will apparently allow us to reach the 2030 goals, though at what cost is still a question. The League will continue to engage with staff to ensure the most reasonable, cost-effective, and technologically feasible scenarios recommended to this Board for adoption.

But, speaking to the whole of the analysis in this presentation, I'm again disappointed to see that not all available options are being considered, for instance, the role of nuclear power. I mean you are considering the complete elimination of combustion one of the scenarios. For a hard-to-decarbonize sector like food processing, that represents a huge problem and there must be some viable alternatives available that make some sense for our industry, whether in the area of combustion or energy generation.

Now, please don't take this as an endorsement of nuclear power, but if we are indeed in a climate crisis requiring immediate action, as we are reminded of on a daily basis, why are you not considering all options for the rapid reduction of emissions.

Additionally, I'd like to mention that no matter which scenario is ultimately approved by this Board, generous and well-targeted incentives will continue to be a fundamental necessity to achieving any of the State's
emissions reductions goals in the industrial sector.

I have great respect for the work and the effort that the Board, and staff, and other experts have put forth to date. Yet, I can't help but think that ignoring the role that options, such as nuclear power, might play in State's efforts to electrify or decarbonize, undermines the credibility of these efforts to some degree.

I hope you, as Board members, agree that CARB should make the effort, no matter how politically unpopular it may seem, to be open to all options and to insist that such options are expertly analyzed and included in the Scoping Plan recommendation.

Thank you.

BOARD CLERK GARCIA: Thank you.

After Charles, our remaining speakers will be Sarah Aird, Robert Spiegel, Steven Karen Smith, Alison Torres and Julia May.

Okay. Charles, I have activated your microphone. Please unmute and begin.

CHARLES DAVIDSON: Greetings, Chair Randolph and Board. Charles Davidson here. Thank you for letting me speak. I live in Hercules near the Phillips 66 refinery in Contra Costa County, which is planning on being the world's largest renewable diesel biofuels refinery in the world and about 12 miles away from the Marathon Refinery,
which is planning on being the world's second largest biofuels refinery.

Despite their renewability moniker, let us be clear, making refinery biodiesel, or so-called renewable diesel, from hydrogenated vegetable oils and animal fats are as energy consuming and carbon intensive to refine as the world's dirtiest, most dense, and highest sulfur crude oils. This is because fat and oil molecules are triglycerides, like the kind that your doctor measures, and they counterintuitively are far more difficult to crack than petroleum oils.

Marathon proudly claims a reduction in carbon dioxide greenhouse gases of 60 percent in their renewable diesel project. However, that 60 percent CO2 reduction comes entirely from the 60 percent smaller daily throughput specified by the project and is entirely not from the decreased carbon intensity of the renewable diesel itself.

Similar for Phillips 66, the facts belie the case. Despite the shimmer of Marathon's decrease in throughput, a simple look at the 42 percent increase in hydrogen made by fossil fuels, combined with our simultaneous decrease throughput results in a 32 percent per barrel increase in carbon intensity. Similarly, Phillips will be producing 37 percent more hydrogen than
with petroleum refining and a 36 percent increase in per barrel carbon intensity.

So what we have proposed before us today in California is a very expensive, publicly funded, unscientific, and entirely CARB-facilitated carbon bomb falsely based on their so-called renewable diesel being a low carbon fuel.

Lastly, refinery biodiesel is being funded to the tune of up to $3.32 per gallon according to Stratas Advisors. That could amount to $5 billion yearly given to Phillips 66 and Marathon under false pretenses, which flies in the face of a massive increase in per barrel carbon intensity and global food security.

BOARD CLERK GARCIA: Sarah, I have activated your microphone. Please unmute and begin.

SARAH AIRD: Good afternoon to Chair Randolph and CARB Board members, CARB staff, EJAC members and the general public. I appreciate the opportunity to comment. My name is Sarah Aird and I'm Co-Director of the statewide coalition Californians for Pesticide Reform, which is made up of more than 200 organizations across the state and is deeply engaged with the low-income communities of color that are most impacted by agricultural emissions in eight of the largest agricultural counties in California.

First, in addition to a climate crisis, we also...
have an environmental justice public health crisis in low-income communities of color and agricultural areas in California. The Scoping Plan is supposed to be addressing and centering equity and public health in the Scoping Plan, but has not adequately done so to date. To meet its equity and health goals, the Scoping Plan must focus on direct emissions reductions and not on new unproven carbon capture sequestration technologies.

To meet climate, health, and equity goals, the Scoping Plan must include strategies that support natural carbon sequestration, but not to counter emission reductions. They are a critical add-on to emission reduction targets. In addition, it is critical that public health and equity impacts for all proposed agricultural management strategies are assessed, and are used as limiting parameters for determining acceptable strategies to be supported in the Scoping Plan. To date, it seems that while there's been some attention to the expected benefits of proposed strategies, there hasn't been an assessment of potential harms posed by proposed management strategies.

Second, we very much appreciate that organic farming has been included in the modeling, the first time ever, but want to urge that the current modeling scenarios are not ambitious enough and should be aiming for
percent acreage in organic farming by 2030, not by 2045. That would translate into an organic acreage of roughly 75 to 80 percent by 2045.

And then it's frustrating to know that emerging independent science is showing that CCS technologies are not living up to the promised carbon sequestration expectations. And yet, CCS technologies may have significant harmful impacts on environmental justice communities, but they are being included in all of the modeling scenarios, while pesticide reduction strategies are not being included, when we know that reductions of pesticides, especially fumigants, will result in better protection of healthy soils, which mean significantly greater carbon sequestration, reduction of greenhouse gas emissions, such as tropospheric ozone, recognized by the Intergovernmental Panel on Climate Change as the third most potent greenhouse gas, and nitrous oxide, 300 times more potent than carbon dioxide from fields, which are currently being largely ignored in the Scoping Plan draft.

These reductions also result in better protection of community health, air quality, water quality, biodiversity, and ecosystems. And it is for this reason that we are calling on California to catch up with other agricultural economies and adopt some ambitious pesticide reduction targets, including setting a goal of 50 percent
reduction of pesticides by 2030 and setting a goal of 75 percent reduction of the most hazardous pesticides by 2030.

This may seem not feasible. It is feasible. The European Union has already adopted similar targets and it's time California catches up.

Thank you.

BOARD CLERK GARCIA: Thank you.

Robert, I have activated your microphone. Please unmute and begin.

ROBERT SPIEGEL: Great. Thank you. Good afternoon, Chair Randolph and members. Rob Spiegel, Senior Policy Director with the California Manufacturers and Technology Association, or CMTA.

To begin with, I'd like to extend a thank you to agency staff for their continued commitment and engagement with stakeholders throughout the Scoping plan update process. It's foundational to the development of the Scoping Plan and it is appreciated by CMTA and our membership.

CMTA participated in the March 15th workshop and we're currently conducting a thorough review of the E3 pathways and related alternatives. Our initial review of the alternatives has raised some concerns however.

We recognize that pathways was not intended to
include an economic cost or a cost assessment, excuse me, which unfortunately though is critical in determining feasibility and cost effectiveness of the strategies.

For business and industry, we have consistently responded to the call for carbon emission reductions by making the significant investments of both human and financial capital to help the State achieve its climate policies.

What may be required for us in the future is critical to our industry and business financial planning efforts. Now, across all of the alternatives, there are significant challenges associated with future energy -- energy reliability, cost containment, matters of equity, workforce consideration, and varying degrees of reliance on technologies that while promising are not deployable to certain sectors of my industry.

As it relates to the energy and electricity section specifically, an increase in electric loads by 30 to 80 percent by 2035 and 60 to 90 percent by 2045 will require significant capital and infrastructure expansion efforts.

It's also important to note that manufacturing undergirds these key components that are crucial, the cement, steel, plastics, and glass will still be required. These industries play a critical role in the development
of not only the electrical infrastructure, but in the role of creating zero-emission vehicles, the new appliances, the energy efficiency upgrades related to building decarbonization, and providing the technological innovation to meet the emission goals.

We're pleased to see a role for carbon removal and other technologies for hard to decarbonize sectors. And we continue to look forward to the future developments and discussions surrounding the Scoping Plan.

Appreciate the opportunity to comment this afternoon. Thank you.

BOARD CLERK GARCIA: Our next speaker is listed as Steven Karen Smith. I have activated your microphone. Please unmute and begin.

STEVEN SMITH: Thank you, Madam Chair and members of the Board. My name is Steve Smith and I am with Phillips 66. So we appreciate and thank you for the opportunity to comment today.

And I'd also like to just thank CARB staff. I -- we at Phillips recognize that this Scoping Plan update is a major endeavor with significant impacts, and ramifications, and benefits for the State, and we look forward to providing comments along the way.

So as Phillips, we do operate three petroleum refineries in California. That do supply fuels, mostly
under the '76 brand, including gasoline diesel, jet fuel, marine fuels, and more recently renewable diesel fuel.

We do recognize that the health and the economic modeling results are still to come from UC Irvine and Rhodium, but we do see certain pathways really starting to take form in the modeling output, especially in Alternatives 3 and 4. And I'll just touch on a few of those.

First, you know, I think we are seeing an ongoing need for a certain amount of liquid fuels. As I've -- as you've heard from a few speakers, we at Phillips are pursuing the production of renewable lower carbon fuels. And today, we do produce and deliver renewable diesel for California consumers. We are planning to discontinue processing crude oil at our San Francisco site within the next two years, and really provide lower carbon renewable diesel for long-term, long-haul trucking, railroad applications, marine applications that are appropriate for liquid fuel.

And we're also optimistic that we'll be making some sustainable aviation fuel off of that project in the future. So I think in the Scoping Plan we're just looking forward to seeing that role for biofuels, for certain applications spelled out with clarity in the Scoping Plan.

I guess other stories we're starting to see
develop. We do acknowledge the role for geologic carbon storage. We've heard a lot about that today, but we, I think, do anchor in with CARB's view and Lawrence Livermore's view that there is a role for geologic carbon storage.

And finally, hydrogen. I think that there is a future for hydrogen in the state. We haven't heard too much about that today, but we see a strong role for hydrogen and hope to be part of that picture.

So lastly, a few principles for us to all think about as we move forward that we would encourage. One is to allow innovation, set emission standards but ideally without technology mandates, dig deep on cost effectiveness, and consider aggressive but realistic timelines.

Thank you.

BOARD CLERK GARCIA: Thank you.

Alison, I have activated your microphone. Please you unmute and you can begin.

ALISON TORRES: Good afternoon, Madam Chair and Board members. My name is Alison Torres with the Eastern Municipal Water District. EMWD is a water, wastewater, and recycled water agency located in Southwest Riverside County. We provide essential services to a 555 square mile service area and serve more than 827,000 people.
EMWD operates four wastewater plants that currently treat a combined total of about 46 million gallons per day. I do appreciate the opportunity to comment today and the work that staff have put into the Climate Change Scoping Plan scenarios presented.

As a provider of essential public services, our facilities collect and treat wastewater from our surrounding communities. And a natural by-product of this treatment process is wastewater biogas. This is a non-fossil, renewable, low carbon fuel and it needs to go somewhere.

Beneficial use as a low carbon non-fossil fuel is a technology available today. And it is critical that a clear, viable market and pathway for the use of this biogas is maintained. We are concerned that there is a disconnect between the Scoping Plan scenarios to achieve carbon neutrality by 2035 and 2045, and the Clean Air Act timeline requirements for NOx reductions and ozone reductions in nonattainment zones. This is especially concerning given the limited availability of heavy-duty ZEV technology for specialty vehicles used in our industry and the fact that near-zero-emission vehicles are available today.

The use of renewable biogas as a transportation fuel should be incentivized over the use of diesel while...
the electric vehicle technology and infrastructure market is developing.

I urge CARB staff to ensure coordination between concurrent programs and strategies, such as the short-lived climate pollutant reduction programs, Advanced Clean Fleet Regulation, and State SIP in a way that maintains a viable pathway for wastewater biogas. Wastewater biogas provides opportunities for carbon negative emissions. I also urge CARB staff to ensure that the Scoping Plan scenario inputs account for the continued generation and use of this POTW derived biogas. The Scoping Plan update scenarios also need to acknowledge the important role of the public wastewater sector in achieving the organic waste diversion mandates in Senate Bill 1383 and the use of this wastewater biogas in near-zero-emission vehicles as a renewable transportation fuel.

As a member of both CASA and SCAP, I'd like to also echo EMWD's support of the comments made by those associations. And I do commend CARB staff for the work put into Scoping Plan update thus far, and I look forward to the continued opportunity to participate in the process.

Thank you very much.

BOARD CLERK GARCIA: Thank you.
Julia, I have activated your microphone. Please unmut your self and begin.

Julia, are you there?

JULIA MAY: Can you hear me now?

BOARD CLERK GARCIA: Yes, we can.

JULIA MAY: Thank you. Julia May, Senior Scientist, Communities for a Better Environment, CBE -- she or they -- with our community members in Wilmington, Southeast LA, Richmond, and East Oakland.

On a previous comment, we don't dispute that there's so much carbon in the air that the world needs to find effective ways to take it out of the air to avoid catastrophic climate change. But that's very different from what's presented in the modeling using carbon capture as an excuse to allow big polluters like oil refineries to continue to pollute.

CARB must make this distinction and start a plan to phase out oil refineries by 2045. Starting a plan is not a lot to ask for and is consistent with your long-term zero-emission transportation goals. It makes no sense to say there's too much carbon in the atmosphere, so therefore we should allow refineries to continue polluting, while we try to capture a fraction of their continued emissions.

CCS cannot put a big dome over refineries. There
are hundreds of stacks, including massive boilers, and
heaters, and other combustion sources, plus thousands of
fugitive sources. If a silver bullet existed to fully
cover refinery emissions, air districts would have cleaned
up the toxics long ago. Please don't be fooled by
pie-in-the-sky assumptions. This is a delay tactic.

We just remind everyone that the Board's --
including the Board that previous attempts to avoid
addressing refineries failed. Specifically, Cap-and-Trade
did not work. Your inventory demonstrates this. The only
sector that made substantial cuts was the electricity
sector, due to the Renewable Portfolio Standard, not due
to Cap-and-Trade.

So market mechanisms failed, because they're
cheap by design. They'd have to be 10 to 100 times more
expensive to have an effect, which will not happen.
They're chosen because they are cheap.

The failure of the market mechanisms was known
before California adopted Cap-and-Trade. Let's not repeat
that kind of predictable failure by relying on CCF for --
CCS for oil refineries.

On a finer modeling point, we don't understand
why the modeling shows refinery emissions in the CCS
scenarios going down immediately starting in 2022, even
though CCS doesn't exist right now. CARB, I believe,
isn't planning to get this on all the refineries until 2030. So we need the detailed modeling assumptions. E3 did a great presenting the results, but we request even draft versions of the detailed assumptions not immediately, as soon as possible.

We have the technology for a reasoned and just transition out of fossil fuels by 2045. We must not delay starting a detailed plan to phase out oil refineries and their products.

Thanks.

BOARD CLERK GARCIA: Chair, that concludes the list of commenters for this item.

CHAIR RANDOLPH: All right. Thank you. As this is an informational item, there is no need to close the record. So I will bring it back to the Board for discussion.

Dr. Sperling.

BOARD MEMBER SPERLING: Thank you very much, Chair Randolph. This has been a long but very fruitful and useful exercise. And I do want to commend the staff. They've done a great job putting together a lot of data, models, getting a lot of input from communities, EJAC, experts. And what's really admirable is they've started with the science, with data, with research, and using input to -- to frame it.
So what they've done, as you Chair Randolph said, and as Richard Corey indicated, is articulated high-level strategies for moving forward. And, you know, along those lines, I do want to especially commend the leadership and brilliance of Rajinder Sahota for leading this, because she is the heart and soul of this initiative.

So I'm going to offer some insights. And I want to articulate more succinctly what staff has been hinting at and highlight some of the key next steps.

So I'd like to offer some -- some insights and context. And that is that what we've heard here so far is a modeling exercise, which shows if we really look at it carefully, and do the analysis, and follow up on what -- what's being framed, it clearly demonstrates that it would be hugely disruptive, hugely expensive to get carbon neutrality by 2035. You know, any kind of reasonable assessment would say 2040, 2045 is really as soon as we can get there. And I'm going to say some more things about why that's important insight.

Now, modeling is really important to identifying the key strategies, but it's only a framework. And the details that we follow up with are hugely important. And they're hugely important for accomplishing our climate goals and our health goals in the most economic and the most effective way possible, and doing it in a way that
does -- doesn't harm overburdened communities, and ideally makes these communities, actually all of our communities, healthier, more affluent, and better served.

Okay. So what I mean by details to follow, that's -- that's all the regulations and incentives that this agency does, that this Board does, as well as others. And as we've heard in the testimony, as we see in the comments, and heard at the workshops, there are advocates for many, many technologies, many, many different practices, applied in many different ways.

Lesson learned. What we and the other agencies need to do is adopt robust cost-effective policies. It would be impossible to adopt regulations and policies for every technology and every application. And I know the staff fully understands and appreciates that, because they're already swamped by all the different actions and regulations that they're doing already.

But the good news is California and CARB, we're on the right path. We're clearly on a path to massively reduce greenhouse gases. We have -- we have put in place over the last 15 years the most sophisticated, the most robust, the most comprehensive set of policies in the world on climate.

Now, that doesn't mean they're the most ambitious or necessarily even the best, but we do have a very robust
and comprehensive suite of policies in place.

You know, we're ignoring some things like we're not dealing with aviation, except within our borders. We're not dealing with international shipping, you know, because it's not within our jurisdiction. And so, you know, we're not doing everything perfectly. We're not doing everything, but we are on the right path.

But having said that, another point I want to make is that the most important contribution of California is as a model and leader. That's actually far more important than the actual greenhouse gas reductions we get. And that's because climate is a global phenomena and we're just one percent of the problem.

So I have a little -- so Richard Corey used the word, "feasibility", and I heard some other people use it, and I want to kind of define it with an anecdote that helps us understand what feasible means. Feasible mostly is economics, but it's also consumer adoption. It's impact political and social impacts.

But here's a little anecdote, because I realize most of our Board members weren't here for this little experience. The little experience I'm talking about is the black car story. A lot of the staff remember this, but the Board probably doesn't. So about 15 years ago, 14 years ago, we adopted a rule basically outlawing black
paint on cars. And it made perfect technical and economic sense, because black cars absorb radiation and make the cars really hot, so therefore you have to have a lot more air conditioning, uses more energy, more CHCs and HCFs -- CFCs.

But as you can imagine, consumers weren't so happy with this. And actually as a matter of fact Rush Limbaugh took it on as one of his primary talking points and, you know, really did make CARB and California somewhat of a laughingstock, you know, ridiculing us.

Now, we didn't actually go all the way through with it. We pulled back at the last minute, but -- so, you know, there's a lot of ways of screwing things up, and even if they seem technically and economically right.

Okay. So let me, with that little anecdote, let me talk about what I think are some of the priority actions that we, CARB, and other agencies should be taking, kind of helping us frame, prioritize all -- you know, we've been hearing so many things here, technologies and policies.

And actually Secretary Blumenfeld talked about, you know, all of these many actions that are needed. And so there are many actions needed, but some are a lot more urgent and a lot more important than others.

Okay. So the number one thing -- strategy for
us, instead of policies, by far is ZEV cars and trucks. It is far and above the most important strategy we can pursue and we are doing it, but we've got a lot more work to do on that.

And that -- by the way, that is for climate reduction, but it also has huge health impacts. And something really important here, this is something for us to be thinking about is that it's actually good for the economy and good for consumers. And that's a message we should be articulating more getting out there. So there will be a bump for another four or five years. There will be a cost to the economy as we rollout these vehicles. We'll need incentives and money for infrastructure.

But after that, it starts paying back, because the total cost of owning these vehicles is less than per gasoline and diesel, and this is for trucks too, probably everything but the long-haul trucks that story is. So that's -- that's by far the most important thing we can be doing.

Another important thing is the Low Carbon Fuel Standard. We've heard a few comments on that, that one of the things we need to do is tight -- it's a really good policy, but we need to tighten it up. Industry is moving faster than we expected. And, you know, indeed, the coping plan shows that there's going to be a lot of legacy
fuels that are going to be persisting and so we need to be dealing with that.

Another one is tightening up the Cap-and-Trade Program. You know, people question Cap-and-Trade, but really that's the one policy where we're imputing a price to carbon, you know, through the whole economy. We have a -- we have a market economy. You've got to bring a price to it. There's lots of other things we can be doing, and should be doing, and are doing, but that's important.

Another one priority is the cement industry. When we did our first Scoping Plan, we basically ignored cement. We said it's too hard. There's no other ways of doing it and we just really were, you know -- had a very light touch and that's changed. Now, we know there lots of good ways of dealing with it. And then there's -- so those are all what CARB can, and should be doing, and is doing.

And then there's all the actions by other agencies. And, you know, just real quickly -- actually, the number one strategy for California or the world on climate is decarbonizing electricity. So I said ZEV cars and trucks, that's the most important for CARB, but decarbonizing electricity is the most important overall. And if you don't, then the ZEV cars and trucks are not
really ZEVs.

   Okay. So there's that. There's PUC and the
Energy Commission working on efficient -- energy
efficiency, fossil gas reduction in buildings. There's
the Resources Agency dealing with carbon sequestration on
natural and working lands. There's the Energy Commission
on charging and hydrogen infrastructure. There's
Department of Food and Ag with N2O, methane, other -- you
know, other activities with working lands.

   And the last item I wanted to address is actually
one that the Scoping Plan emphasizes, but really doesn't
make sense - sorry - and that's VMT, vehicle miles
traveled. I'm a strong advocate for trying to figure out
what to do about reducing VMT. But if you look at the
data, VMT is going up, not down, despite all of our
efforts. And so there are lots of things we can do. Most
of the things we want to do is not for climate
improvement, but for all the other co-benefits, you know,
creating more sustainable cities, you know, healthier
cities, and economics of cities as well.

   But let's not get ourselves caught up too much on
trying to do things that are difficult, if not impossible,
to -- think back to Rush Limbaugh for instance.

   Okay. So just to summarize what I've been
saying. I know I gave a long speech, but I haven't said
anything in a long time and this is my first time in public.

(Laughter.)

BOARD MEMBER SPERLING: I actually -- I've been -- I've been sick and have been recovering from an operation, so this is like really exciting for me to be out here.

(Laughter.)

BOARD MEMBER SPERLING: So, you know, to leave it on a positive note, we really are on a positive -- on a -- on the right path. And I think we really need to keep that in mind. What we need to -- there's lots of challenges. There's lots of bumps. There's lots to worry about, but basically we have most of the right policy instruments in place. We need to refine them. We need to extend them. We may need to make some adjustments to them, but we're on the right trajectory. We're in a really good place. And we are a model. And we're benefiting. You know, I said the most important thing is being a model and a leader, but being a model and a leader in our case is actually we get a lot of benefit like from what I talked about with vehicles going to ZEV cars and trucks. We're going to benefit economically from being a leader in that.

So thanks for your indulgence. Much appreciated.
And I'll leave it to my other Board members to tell me where I'm wrong.

(Laughter.)

CHAIR RANDOLPH: Okay. Thank you.

Dr. Balmes.

BOARD MEMBER BALMES: Thank you, Chair Randolph. Well, I agree with a lot of what my fellow UC professor said, but he left out an important area -- actually two where I think California needs to lead. And I'll start with praising staff for modeling carbon emissions and sequestration in natural and working lands.

This is much more robust than in previous Scoping Plans. And so I really appreciate it, because, in fact, dealing with wildfires is a hugely important issue for California and the mountain west in general, and in effect around the world. So we need to lead with regard to reducing the risk of catastrophic wildfires as the climate increases the risk of those fires and development in the wildland urban interface threatens the people who live there and the society they has to deal with trying to save their structures.

So the amount of investment that we'll have to make to manage our forests. You know, the modeling mentioned that we have to manage the forest and it showed that the forests were the biggest contribution to carbon
emissions in the time frame that was modeled. The amount of investment is huge. California has started to get a little more serious. We're currently supposed to be doing forest management for one million acres a year. I don't think we've come close to that in any previous years.

And, in fact, because last year was such a bad wildfire year, the U.S. Forest Service stopped doing prescribed burns, because of the concern about risk of new fires. So the forest management issue is huge. And I thought that the -- I mean, I know we'll have more discussion about the Scoping Plan in the future, but it's -- I have to elevate this problem. And, you know, again, it's not something that CARB controls. We have to work with sister agencies, but we can highlight the magnitude of the problem in the Scoping Plan.

And just to give an example, I don't have numbers for California at my ready, but the bad wildfire season, brush -- bush fire in Australia, the 2019-2020 fire season for Australia, the amount of climate forcing emissions was equal to the entire -- entire year of other sources of greenhouse gas emissions in Australia. And I again don't know the number for California. But last year was such a bad wildfire year in terms of acres burned that I think it may not be as much as motor vehicles, Professor Sperling, but it's a huge cont -- contribution. It's only going to
get worse. So that's -- that's the number one area where I would add on to Professor Sperling's comments. And the other one is agriculture. And I actually have to take some issue with Secretary Blumenfeld who said, you know, pesticides can't be included in the Scoping Plan. Well, I realize we don't have data about greenhouse gas emissions from pesticides. We do recognize it's a health burden, especially for low-income communities that -- of color that live near agricultural lands. But we need it -- as I said last Board meeting, we need to transform agriculture to be more sustainable, less synthetic in terms of pesticides and fertilizer. It's a huge transformation that is needed and it's -- you know, we've -- as Professor Sperling said, we've made a lot of progress towards zero-emissions vehicles. We've made a lot of progress towards renewable power, but we need to make a lot of progress with regard to natural and working lands, and that includes both forest management and agriculture. And if we made that transformation of how -- of agricultural practices, then we wouldn't have to use pesticides that are such a health problem, and an inequitable health problem in particular.

And I guess finally I would have to say, and this is politically unwise of me to say, but trying to give everybody in the state a gas tax re -- or gas re -- gas
price rebate makes no sense to me, when we're trying to reduce greenhouse gas emissions from motor vehicles with combustion engines.

I can see a targeted -- targeted support for low-income people, but I have two cars, one of which is a battery electric. If I get $400 for my battery electric car, plus $400 for my wife's internal combustion engine that $800, I'd rather see it go to -- towards forest management. And, you know, maybe we don't have the ability to do all the forest management that we need to do now. We can put it into a fund, because we're going to need that money down the road, so -- and also, we always talk every Board meeting about all the incentive dollars that are needed to move towards zero-emission vehicles today. We talked about all the incentives needed for -- to move towards ZEV commercial harbor craft. Again, why are we going to put $9 billion towards dealing with gas price rebates.

Thank you.

CHAIR RANDOLPH: Thank you.

Dr. Pacheco-Werner.

BOARD MEMBER PACHECO-WERNER: Thank you, Chair.

And, you know, thank you, everyone, for their contributions. Sorry. I'm a little bit under -- under the weather today, but I do want to ask several questions
here. And I know that my line of questioning may sound like I'm asking you to defend your dissertation, but I just want to make sure I clarify some of the assumptions that were made during the comment period and how those align with your work that you've arrived to today, and also some questions about the next steps.

This is such a critical process that I know you, along with so many in our public, has spent countless hours towards, so I just want to make sure we kind of attend to some of these -- some of these questions, some made by our EJAC and some made by -- by the public.

And so I -- if I can, maybe I'll ask all my questions first and then -- and then I really would love to hear back on -- on these.

The first question is on the modeling of the refining operations, one of the EJAC members made a comment about the modeling being based on hypotheticals versus actual operations. Can you please respond as to how your modeling compensates for that?

In this -- the next question is in terms of the comments from the waste management industry, their -- the use of their natural gas, can you please clarify for me how you have or have not included the use of that gas from that -- from just that particular industry into your scenarios.
The third question is there were comments made on the effectiveness of carbon capture and sequestration. Can you please let me know a little bit more about where CARB stands on the -- on this technology in terms of its effectiveness?

The next question -- and if you need me to repeat any of them, I'm happy to do so. The next question is that there were comments during the presentation as to adjusting the modeling at a later date. Does that mean the modeling we saw today will be based -- will be modified based on the health and economic analysis to come or modified for some other reason?

And then my last question is around the -- there were -- there were comments made on -- on sort of like the global impact of -- of solar and battery generation. And I just wanted to see if you could respond to that comment in terms of how that does or does not fit into your modeling or are we just -- you know, are we -- are we just focused on really what this means for -- for reductions in California or globally?

And I would like to say in terms of -- of comments, that I -- just one comment that I do look forward to the creation of a permanent EJAC Board that looks like and is the face of what California looks like, and, you know, from regions to demographics, to
disproportionate impact. So looking forward to that process when it comes.

Thank you.

CHAIR RANDOLPH: Staff, you want to respond to Dr. Pacheco-Werner's questions.

DEPUTY EXECUTIVE OFFICER SAHOTA: Good afternoon. This is Rajinder. I'm happy to respond to the questions and may ask Matt Botill the Division Chief for ISD to step in on one of them.

So there was a question about the modeling for the refinery. And that was about a hypothetical versus operations. There is a whole discussion in the Scoping Plan about uncertainty. There is going to be uncertainty about the types of technologies, the permitting, the timing, the capital costs to do these projects. And there's also going to be uncertainty about the configurations at any of the facilities where you may apply some of this technology.

And so we are going to be putting together information that speaks to historically how effective CCS has been applied to refinery installations, because as one of the speakers highlighted, there are multiple smoke stacks on any installation site. And so it is important for us to be able to say with some amount of confidence that we think we can capture a high amount of emissions
with CCS on that site.

But that's not the only uncertainty, which is between what we're modeling versus what's on the ground. There's a lot of uncertainty in here and we're going to try and capture that in the analysis as well. And again, this is a plan. It is a guiding post -- an actual guidepost or where to go with projects and regs. And so as we think about programs and policies to actually go after the refining sector, or the energy sector, we get to have more detailed analyses, where we may find out the capture rates are different or that different technology options are now available, or that there are better ways to do the greenhouse gas reductions and get better co-benefits than what we outlined in the snapshot, which is the Scoping Plan with the information we have today. So that's the first question.

We talked about CCS effectiveness and technology. I think that there's been a bit of a lag in the conversation on CCS, especially in the Scoping Plan. We did have two full day workshops, one in 2019, and one in August of 2020 -- or 2021. And we talked about the state of the technology, the effectiveness of the technology, the science behind the technology. And there's actually 20 years of testing that shows that CCS is safe and reliable.
There is data that's over two decades old at the Department of Energy that talks about how they've been able to successfully sequester 14 million metric tons that have been injected. There's also been projects that have been in operation since the 70s and 80s globally. And again, more than half of the installation for large-scale CCS are in North America.

So there's a long history and a lot of detail on CCS that I think needs to be part of the conversation. And I think when Secretary Blumenfeld said that he'd like to be part of the conversation and Chair Randolph talked about feasibility and the tools on the table, we're hopeful that as part of moving forward, we can have a chance to talk about some of that data, some of that information and bring it into the conversation.

In hearing all the comments to date and just thinking about the information gap between what's been existing in the workshops and what the perception is on CCS, I think it's also important to highlight that for the longest time we've all focused on removing or reducing emissions from the sources that produce emissions. And it's only been recently in the IPCC report that removing carbon out of the atmosphere or capturing carbon at the smoke stack has taken on greater importance.

So while this technology has been around for
quite a bit of time and there's been programs at the federal level, including investment opportunities and tax credits, it hasn't been looked at seriously, because as policymakers we've focused on trying to reduce emissions, not capture carbon, or remove carbon from the atmosphere, but the science now says that has to be part of the solution. And so that's why you're hearing it picking up pace in the conversation, not just in California, but nationally and internationally.

The adjusting for the modeling later, we are actually going back and looking at some of the comments that we got at the workshop last week, doing some verification, so the inputs that we had in the modeling that we put out last week in making minor tweaks to some of the assumptions. For example, I think in slide 8 or 9 there was assumption of a carbon intensity of 25 percent. That was a constraint that was not meant to be carried through. We will actually be looking at removing that constraint, not a wholesale change of those scenarios, but removing that constraint and then talking with staff about starting workshops this summer on LCFS related to accelerating the carbon intensity going into 2030 and then past 2030, because the modeling shows that we need more clean fuels to come on faster. And LCFS is an excellent tool for helping to subsidize and to get money into the
clean fuels sectors of the economy.

The last question was about -- well, the last question I'm going to take out of that list is about global implications of solar and battery. When we talk about solar installations and solar power, what we're really talking about is the power consumed in California. And as you're aware, California is an -- is a huge importer of power. So that power can be created in California, sited in California, or sited in -- anywhere in the Western U.S. and the west.

We've seen issues related to permitting and siting on large scale renewable installations, like solar farms, wind farms. And we know that there are efforts to build wind farms and solar farms in states around -- surrounding us. To the extent that power comes to us, it's not going to generate emissions elsewhere. It is renewable power and it will help decarbonize our electricity grid and grow our electricity grid, because the load growth goes increase.

When we -- I think you also asked a question about batteries. Right now, what we're identifying is the amount of zero-emission vehicles that we think we need to meet the Governor's Executive Order. The quantification is really about tailpipe emissions, not the imbedded emissions that are going to be in the batteries or the
steel that builds those vehicles, because our accounting framework and our jurisdiction as the State of California are tailpipe emissions in the state and then also emissions of the smoke stack. So that is a constraint in which we live in and work in, because that is where our target for 2020, 2030 is set. And those are the sources over which we have direct control in the state of California.

There will be a discussion that some of our programs and some of our actions actually have a reach farther than California, but we're not going to be able to quantify it and we can't regulate those anyway outside of our border.

There was a question about the waste sector, natural gas, and how the -- a renewable gas from the waste sector was being directed in the modeling. And for that one, I'm going to ask Matt Botill to jump in.

Thank you.

INDUSTRIAL STRATEGIES DIVISION CHIEF BOTILL:

Yeah. Thank you. Matt Botill, Division Chief for the Industrial Strategies Division. So we heard a number of comments from folks that work in the waste sector about RNG and gas. And I'll just take a step back and flag that, you know, under 1383, we've been directed to reduce our short-lived climate pollutants, including
methane, by 40 percent by -- 2013 levels by 2030. And so that's really driving some of scenario assumptions to make sure that we hit our methane reduction targets.

And some of the ways that we do that are through capture of fugitive methane emissions from waste activities. And so we -- I mean, the modeling included the strategies to hit our 1383 requirements by 2030. And that in and of itself by looking at anaerobic digestion technologies, at wastewater treatment plants, at dairies, at landfills in terms of gas capture produces some RNG that is available as an energy source for the broader economy, whether it's in transportation, or the industrial sector, or as replacement for fossil gas in the residential and commercial sectors.

So we were able to put in some RNG quantities into the modeling. It's small in terms of the total energy value, but it does show up in terms of being able to be deployed as either a natural gas replacement or for hydrogen production in the modeling.

CHAIR RANDOLPH: Okay. Thank you.

Dr. Pacheco-Werner, did that answer your questions?

BOARD MEMBER PACHECO-WERNER: Just one clarifying question. Since you are grouping, in terms of the RNG, the waste management and the ag capture, is there any
prioritization of either one or the other in the modeling?

   INDUSTRIAL STRATEGIES DIVISION CHIEF BOTILL:
   Yeah, good question. So the strategies are a little bit different. For the wastewater sector, we're assuming that we'll be able to hit our 1383 targets predominantly based off of reductions in methane emissions, capturing those methane emissions from anaerobic digestion and using that RNG. On the ag side, there's different strategies. So there's the opportunity to reduce those methane emissions through both digesters, through alternative manure management practices, through reducing the enteric emissions that come from cattle digestion, as well as opportunities to reduce methane emissions from reducing herd sizes in the dairies. And so there is different strategies across the alternatives to get to those methane reduction numbers.
   Some rely more on digestion, and capture, and use of RNG and others rely more on these alternative strategies that aren't so heavily dependent on digesters.
   So there's just differences across the scenarios on the utilization on the ag side for RNG.

   BOARD MEMBER PACHECO-WERNER: Thank you. That's all

   CHAIR RANDOLPH: Okay. Thank you.

   Supervisor Serna.
BOARD MEMBER SERNA: Great. Thank you, Chair. And let me also start by thanking staff. This is a -- I think a very good body of work. And this is the third one that I've had the chance to be a party to as a member of this Board. And I understand that this is an iterative process, that, if I understand correctly, staff is simply looking for some general feedback today from the Board. It's not an action item. But the feedback you do receive will be used to hone the Draft Scoping Plan even further. And the schedule in front of us for the balance of the year, we have a number of other opportunities to certainly continue to do that and hear from the public and stakeholders.

So in the spirit of giving you some general feedback, I will say this is extremely -- an extremely timely conversation and an item to be considered today for me, because last night, I left our Board of Supervisors Chambers at about 11:30 p.m., after a 5-hour hearing on our draft Climate Action Plan. And I may have other colleagues here on the Board that also in their respective local jurisdictions are perhaps engaged in similar activities.

But I want to underscore that not only is the Scoping Plan obviously something that has to, you know, be done no later than every five years. Relative to siting
in place, implementing basically an action plan to get us
to our carbon reduction goals. But it's being used more
and more by local government as a -- as a bit of a general
template for how their own climate action plans will
develop and as a basis for some of the -- or many of the
strategies that we would employ locally to achieve our own
carbon reduction or even carbon neutrality goals at the
local level, the municipal and the county levels.

One of the things that I'd like to make mention
of, and hopefully it resonates with staff to the point
that perhaps the next time this Board and the public
receive an update, or as I mentioned, we continue to
fine-tune it, is that while the State of California
certainly doesn't directly govern land uses, that's
largely left to municipalities and counties to govern
that -- to govern that activity, much of the discussion
that we had last night centered around infill development
versus greenfield development, and VMT reduction. And as
Dr. Sperling pointed out, perhaps that's something that is
not just frustrating him, but others in terms of it going
in the wrong direction.

But I think we can all understand that there is a
direct relationship between how we plan our new
communities and what we can expect in terms of VMT in the
future.
One of the things that I'd like to suggest is that perhaps we have a stronger connection that is directly referenced in the Scoping plan and perhaps it's best couched in terms of how we might work more collaboratively with OPR to provide guidance for local governments as more and more are doing their -- or pursuing a Climate Action Plan, or something similar, so that we at the State in the development of the Scoping Plans, and with each one that we update in the future, there's some acknowledgement of the menu of options that could be articulated at OPR for local governments to, you know, begin to employ with the direct intent to achieve the same basic objectives of the Scoping Plan, but at the local level.

I didn't hear a lot of that in the presentation quite frankly. And I just kind of, you know, pondered on the fact that this is a very different conversation today, than it was last night for me, because of that difference in authority over land use regulation. But I would argue that it is probably one of the most important when it comes to again achieving the goals of the Scoping Plan.

So I would just offer that up and strongly suggest that staff and other people much smarter than I can think about how we weave that into our further -- future activities as we get closer to a final Scoping
Thank you, Chair.

DEPUTY EXECUTIVE OFFICER SAHOTA: Board Member Serna, this is Rajinder. And you're right, it wasn't part of the modeling fights that we had today, but just like in the last Scoping Plan, we are going to speak to how all levels of government need to be rowing in the same direction to achieve the outcomes that we're calling for for GHG and air quality reductions.

And so there will be a section that is very specific about local action, whether it's CEQA, whether it's permitting, and where we're trying to get to overall in the state, and acknowledging that many of the decisions around the things that need to happen on the ground, the projects that we need to bring new energy on, the projects that we need to have infrastructure, or sustainable housing, and reduction strategies from VMT, those are very clearly with local government. They're not with the State and so we need to be partners there.

BOARD MEMBER Serna: Thank you for that. I just think we can be more obvious about the fact that we do have this new tool that we're -- that we, local government, are beginning more and more to embrace, which is the Climate Action Plan. And so that may be something
that we want to clearly not just mention in the Scoping Plan, but, you know, acknowledge that these -- that the State's Scoping Plan efforts really do provide a springboard for local -- local governments to go through a similar exercise, but at a different scale.

So thank you for that.

DEPUTY EXECUTIVE OFFICER SEGALL: If I could speak to that just briefly. So it's really I think to us, and our teams are working closely together on this, that climate action plans are a particularly important tool. Now, some jurisdictions may not have a formal Climate Action Plan, but still can take affirmative action consistent with the Scoping Plan.

So one of the themes that you'll see throughout our collective work is making this usable for local officials, translating that into sort of CEQA working and to local government working tools to be clear that action is consistent with the Scoping Plan, whether that's promoting dense infill affordable housing, promoting say vehicle charging, promoting building decarbonization in an equitable way. All are consistent, all are appropriate in providing many of the tools to help downscale some of these State targets.

And one of the truths here is that the State has, you know, as Professor Sperling noted, a really important
portfolio of programs and policies, but they depend upon local action to be implemented, not just effectively, but equitably. So it's just critical to partner with local government officials. In fact, that is critical to the success of the Plan.

BOARD MEMBER SERNA: Thanks, Craig.
CHAIR RANDOLPH: Board Member De La Torre.
BOARD MEMBER DE LA TORRE: Thank you.

I'm going to associate myself with Dr. Balmes remarks on a couple of things. One, well, he mentioned wildfires, and so I'll start there. Eighteen of the 20 largest wildfires in California history over the last hundred years or so have occurred since 2003, and four of those were last year. So for about 10 years now on this Board, I have been asking for wildfire to be included in our thinking because it's happening. To not include it in the modeling, to not include in our thinking is to deny reality.

And it has a couple of impacts. One, it raises the bar, without a doubt, in terms of how many GHGs, we have to compensate for, and two, it forces actions that we haven't done before. The working -- the natural lands impacts that were -- that were mentioned earlier. So, yes, it makes things harder, but it makes things more real. And to not do that -- and this is in private
meetings for the last 10 years I've been saying, we're cheating. So to the extent we have a realistic number, and I know it's a moving target, then we are not cheating. We are reflecting reality. And our controls that we do, whatever it is -- whatever policy direction we take to control that are realistic and going to have real impact. So thank you for doing that. I'm really, really pleased that we're finally going to have that embedded.

Second, again with Dr. Balmes' comments, I absolutely agree with him on the gas tax refund, not a good idea. Oil companies have shown time and again that if you give them something, there is no guarantee -- in fact, most of the time they -- they're -- they go the opposite way of just taking the money and raising prices and so the consumer doesn't see the difference.

The -- I -- I've seen these pricing analytics for the last 20 years. And there is not rhyme or reason to oil imports, oil production, refining. It just is completely random. The profits keep going up and there's no reflection in reality for consumers. So thank you, Dr. Balmes, for mentioning that. I was going to, but since you did, it's the right thing.

And then finally, my mantra every time we have this conservation. There were three sectors that did not contribute to us reaching our 2020 targets and I'm going
to repeat them again, and I'm going to repeat them every
time we have this conversation, transportation, natural
and working lands, and short-lived climate pollutants did
not contribute to us reaching our 2020 targets.

A lost of folks were mentioning about, you know,
how we get there for 2030. We do not get there if those
three sectors do not contribute period. And so, for me,
that's what I want to get to and what we really need to be
focusing on, if we're going to hit that 2030 target that
is going to be very difficult to reach.

So with that, thank you.

CHAIR RANDOLPH: Thank you.

Board Member Takvorian.

BOARD MEMBER TAKVORIAN: Thank you, Chair, and
thanks to the staff, and the EJAC members, and the
stakeholders who were here again today. I really
appreciate this presentation today, because it's the first
one I think to the Board -- and I want to emphasize that,
to the Board, because I know that you've been making
presentations, staff, in -- at a very technical level and
really discussing the strategies. But I think this is the
first time for this Scoping Plan, that the Board has
actually had a chance to reflect on the actual strategies
that are being modeled, and it allows the Board and the
public to discuss the assumptions and the proposed
strategies.

I think it's missing some key elements and I'm going to agree with Member De La Torre on the last thing that he said in regards to what is missing, but I'll get to that in a second.

My questions I think are more about the process by the Board will evaluate the policy proposals. So that's -- that's what my questions are going on. And I hope if you can start to answer those questions today, that would be awesome, if not, that we begin to incorporate this into our next discussion.

So I want to recognize that that -- the difficulty of incorporating diverse assumptions into each of the scenarios. I think that you had to make some choices and you did that, but I think it's clear from the Board discussion and from the public discussion that a combination of strategies as -- is necessary. So the question is how will the Board be able to mix and match scenario inputs prior to receiving the Draft Scoping Plan, because clearly from just Board comments and the public comments, there's -- there's different ideas about how these alternative strategies can be achieved. So I want to -- wanted to ask about that and ask you to talk about that first.

And I think that we need to be talking about
these alternatives from a high level first and agree on the criteria, which seem to be is it feasible, is it affordable, does it reduce GHGs and air pollution significantly, does it improve health, does it reduce impacts in disadvantaged communities. So the question is how will the Board receive the information to allow us to evaluate against those questions and probably others? But to me, those are kind of the core questions that the Board should be able to answer as it makes a decision about what the Draft Scoping Plan should look like.

So transportation as an example. I want to say so slide 9 assumes complete ZEV transition by 2035, which would require massive funding to buy out non-ZEV vehicles, which I think will likely make it infeasible. So I'd want is to know just on this one strategy what is the cost of that buyout? How could those dollars be applied to the mass transit system which would reduce VMT over -- overall?

And I think in the same way that Dr. Balmes lifted up the transformation of the agricultural industry to reduce the use of pest -- pesticides, we should be considering that same type of transformation for transportation. It doesn't begin with cars and end -- begin and end with cars and trucks. We really need to think about this in a more global way. So that's one
example where I think we could dig into and want more
information. So the question is what -- what's the cost
of that buyout?

And I feel like I missed, if it's there, the
detail of where the potential transition of heavy-duty
vehicles is reflected and how is that reflected in terms
of a contribution.

How are the market mechanisms in Cap-and-Trade
reflected in the alternatives, because they're not called
out in any of the definition of the alternatives, but I
know that there's consideration of them. In the same way,
how does the Board evaluate CCS as a strategy? Clearly,
there's disagreement. There's disagreement about the
science. So when do we have that conversation in order to
dig into that?

And lastly, I just want to mark that the public
health equity analyses that we've talked about in other
meetings and that I think a lot of us and members of the
public are really looking forward to has to also be a set
of criteria that we are evaluating the strategies against.
So how much health benefit are we receiving from each of
those measures as well as the strategies overall?

So those are my questions. I know those are a
lot and I can go pack and repeat them, if necessary. And
I know that some of them are more overarching and perhaps
there's another time to have those discussions, but I
wanted to get them on the table.

So thank you.

CHAIR RANDOLPH: Thank you.

I think we will probably be able to tackle some
of -- of the questions that you asked and some of them
might require a little more follow-up. I mean, I will say
from a process standpoint, my understanding, and staff can
correct me if I'm wrong, is that there's not going to be
another round of modeling before the draft, but there will
be an opportunity as we discuss the draft to ask for some
additional modeling. Well, I don't know to the extent to
which we would be able to ask for -- for additional
modeling specifically, so I'm going to turn it over to
staff, so that they can give you sort of the proper steps
that are going to happen as we evaluate the draft.

DEPUTY EXECUTIVE OFFICER SAHOTA: Sure. Happy to
answer that question. I think it's worth talking about
how intensive the modeling can be, so that you have an
understanding of why it's so hard for us to turn something
around quickly when somebody has a new idea or new
legislation comes out.

Just to do the PATHWAYS modeling, it took us,
once we got the inputs in December, through early
mid-March to get the results back, fact check them, gut
check them, make sure they made sense, and then pass on those results to UCI to do the health analysis, the air quality analysis. And then that all goes to Rhodium to do the economic analysis. So there's a sequencing here that builds off of the very first model, which is PATHWAYS for emissions. And the modeling you saw today was PATHWAYS.

What we will have available at a public workshop in the coming weeks is information on the economics of the different scenarios. We will have tables, as we're required to do under AB 197, on the costs for the different measures. So I think Board Member Takvorian when you asked what was the dollar amount for that measure where we have to buy back vehicles, we will have that data and those numbers available as part of the Draft Scoping Plan.

And that affords everyone an opportunity to look at the merits of not just the individual measures, the deployment rates and the technology that we're choosing, but also how much that's going to cost, and also the air quality benefits. And there's an opportunity to say, well, we don't want to spend it on Measure Y. What if we did Measure Z? And as part of the discussion for the first draft of the Scoping Plan that happens in June, the Board can then have a discussion do we want to do away with some of the measures as part of the Final Scoping
Plan and settle on -- one or two -- oops, sorry about that. This will be bad.

I just broke a toy from -- sorry. I just broke a bracelet that my six-year old nephew made me for my birthday a couple weeks ago. Hopefully, they're not watching.

(Laughter.)

DEPUTY EXECUTIVE OFFICER SAHOTA: But, yes, so there's an opportunity to, after the first draft of the Scoping Plan, have all that data available, conversation with the Environmental Justice Advisory Committee, amongst yourselves, and even consider new legislation, because there's always the potential that, at any point, we could get new legislation that accelerates something, introduces a new program, or a new feature that we also have to include in the modeling before we settle on the final Scoping Plan.

CHAIR RANDOLPH: Okay.

BOARD MEMBER TAKVORIAN: If your six-year old nephew is watching, that we should offer him a job now or -- sorry.

(Laughter.)

BOARD MEMBER TAKVORIAN: But I -- but I don't understand then how does the health analysis get incorporated, given the flow that you just
DEPUTY EXECUTIVE OFFICER SAHOTA: So once we have the data from the health analysis, we get a chance to look at the scenarios, and the different features, and decide do we want to accelerate some things because the health analysis indicates we could get more reductions for GHGs or more health benefits from those actions, and it makes sense to move those into the Final Scoping Plan.

So as part of -- we've constructed these scenarios, but we'll also have individual measures by their health impacts, their air quality impacts, and their cost impacts. And so that almost plug and play that you kind of mentioned at the beginning in your question, that opportunity exists as part of the discussion of the first draft and before we settle on what's going to be the final draft, so it does happen as part of that process.

CHAIR RANDOLPH: Can I just ask a clarifying question following up from that just to make sure we understand the sequencing? That the -- the economic and the health analysis that you just spoke about will be reflected in the draft. And so when the Board looks at the draft in June and has the conversation about that, that will be the opportunity to ask for more analysis of particular issues.

DEPUTY EXECUTIVE OFFICER SAHOTA: So we will have
the health and the economic impacts, the scenarios as
they're constructed now, but also the individual actions
in those scenarios. For example, in Alternative 1, we
remove all of the legacy ICE vehicles out of the road.
That's going to provide some air quality benefits versus
letting -- or end-of-life determine when those vehicles
are taken off the road in the other scenarios.

So just looking across those individual lines,
you'll be able to discern what's the cost of each of those
and what's the health benefit of each of those.

CHAIR RANDOLPH: Okay.
All right. Vice Chair Berg.

VICE CHAIR BERG: Yes. And I will be quick. I
seem to have gotten myself this -- I'm going to move this
way. Okay. Sorry.

I'd just like to wrap-up the conversation with
how we're going to include the EJAC comments. And so last
time we did put it in as appendix. And it seems to me,
I'm really -- I can understand the amount of work, and
we've all acknowledged the amount of work, that has been
done. And we understand that there is also a lot of other
stakeholders. There's a lot of other quite frankly
politics that come into it, economics, everything else.

We -- I think one of the things I'd like to be
very clear about, we are not the sole decision-makers
on -- on what goes in here. We are influenced by all sorts of people, and this is a true balancing act.

That said, the amount of work that the EJAC is doing -- and one of the things I keep hearing is how do their voices get heard? And I'm just wondering, after -- I did go back and reread the 2017. And I'm just wondering under each chapter, if it would be possible to summarize the impacts of whatever scenario it is that we choose from their perspective. And so that there is a mechanism in which all of their discussion, all of their concerns -- well, all might be -- I don't want to -- their major concerns, their major discussions, because as policy readers read this, how do they hear from an EJAC perspective what it means to their communities.

Because although this is a plan, we're going to take each item and really drill down to the details that fall under our purview, but what about the others and how do we hear that? I'm afraid if we just, once again, do an addendum that honestly it feels to me it does get lost. And so I don't need you to respond right now, because I haven't given you any heads-up on this, but I'd love it if you would take it back, maybe work with Chanell, talk about some -- yeah, I gave you a job, Chanell.

(Laughter.)

VICE CHAIR BERG: You were so close of getting
out of here, right? Just talk about how we could, in fact, do it differently, so it is heard and truly validated differently that we're listening.

Thank you.

CHAIR RANDOLPH: Can I just respond briefly to that? I agree with you and we have already started having conversations about what that would look like and how we would operationalize that in the draft, so we are --

VICE CHAIR BERG: I should know that, Chair Randolph, and so thank you very much.

(Laughter.)

CHAIR RANDOLPH: Okay. Appreciate it.

All right. Any other Board Member comments?

Okay. Seeing none, I just really appreciate staff's work. The explanation of this complex modeling was extremely helpful. We really appreciate you taking the time to walk -- walk us through all of this and give us a lot to think about between now and when the draft comes back. And the Board member comments I thought were really helpful. And -- and I appreciated your discussion, Rajinder, about the issue of uncertainties and how that gets discussed in the Plan.

You know, Connie Cho in particular asked some really specific questions about CCS, and a lot of commenters had -- had questions about it. And I think the
draft will really provide an opportunity to put more layers of nuance around that conversation in a way that the modeling really can't, because the modeling is so sort of limit in terms of discussing things like the technologies, the potential deployment, and the potential different uses that we may or may not be using CCS for or what the potential is for carbon removal strategies and what the technological issues are around both of those different strategies. And so I appreciate that we'll have the opportunity to explore that more in the draft.

I think that is it for the discussion on this item. And again, thank you for all of your work. And now I think we are ready for open public comment.

BOARD CLERK GARCIA: Thank you, Madam Chair. We have two commenters who wish to speak at this time. The first commenter -- well, the first two commenters will be Dave Cook and a phone number ending in 990.

Dave, I have activated your microphone. Please state your name -- oh, I'm sorry. Go ahead and unmute.

DAVID COOK: Yes. You can hear me?

BOARD CLERK GARCIA: Yes.

DAVID COOK: Good afternoon, Madam Chair, and fellow Board members. My name is David Cook and I am working with a consortium of California small businesses.
We have been proposing and moving forward with low-emissions locomotive retrofits, including one zero-emissions locomotive that operates one day every two weeks at a small railyard in Anaheim, California.

Recently, a large mining company in Australia has announced that they are investing in an ambitious gravity-powered infinity train project. A train of loaded rail cars from the mine going downhill will use regenerative braking to charge the locomotive batteries, which then allows the train to bring the empty train back up hill to the mine on battery power.

This is done without the need to use grid electricity to charge the batteries and the locomotives, making this a carbon negative short-line railroad that is generating its own renewable electricity with the locomotives.

Our coalition is proposing a path for CARB to take a leadership role in allowing California to beat the Australians in the race to be the first in the world with a fully operational carbon negative short-line railroad. This would involve a few incremental, but shovel-ready, projects that involve California based small businesses, small railyards, and short-line railroads.

We propose three overlapping projects that will achieve full-time operation of a light-duty zero-emission
switching locomotive for sorting railcars at several small railyards through the use of a CORE voucher, operate two net zero medium horsepower locomotives in heavy-duty switching service at multiple railyards, and then convert a short-line railroad at a California mine. It's a carbon negative operation with four battery operated line-haul locomotives.

The budget for these seven battery locomotives supported for two-year long demonstrations at multiple locations should be less than what California's currently spending on the purchase of only five Tier 4 diesel passenger locomotives or approximately $35 million for seven battery-electric locomotives.

We look forward to engaging with CARB leadership and staff along with the Legislature to allow California to take on this challenge. I will provide an outline of this proposal to CARB leadership. If any Board member would like a personal briefing on this, I'm more than happy to follow up with your staff and set that up or answer any questions someone may have now.

BOARD CLERK GARCIA: Thank you.

Phone number ending in 990, I have activated your microphone. Please state your name for the record and you can begin.

HARVEY EDER: Hello. Am I being heard?
BOARD CLERK GARCIA: Yes.

HARVEY EDER: Okay. Good afternoon. My name is Harvey Eder. I'm talking for myself and for the Public Solar Power Coalition, et cetera.

One process thing, today, paralleling this from one o'clock to recently, there was a plan meeting, AQMP, for '22 plan for South Coast. Please try to not schedule, you know, parallel stuff. You can't do both.

So I -- anyway, two things. Low Carbon Fuel Standard and the history of that. Okay. We started working on that in '07, '08. And Mr. Corey didn't a senior position there, but was instrumental in that. I was taken aback and tried to nip this thing in the bud, but -- this stuff with, you know, waste systems, with natural gas, methane, okay, from -- they're saying dairies and waste systems. Okay. It's methane. It's fossil fuels.

The Arctic is melting and we brought this all to you, to the District and you all. In September of '19, the cover article on National Geographic is the Arctic is warming. The tundra is melting. Now that's all on fossil fuel system, all right?

So before you go trying to do this garbage again -- and you're looking at drug-resistant antibiotics and that's been totally ignored and put that in the
record. We brought this up with Sam Wade. We put it in there. We said now we need you -- you just burn it, your flare it, you get 5, 10 percent. You don't get this -- these big numbers and big money. Ten trillion dollars spent on these subsidies. Do you hear that?

Okay. This is outrageous. It's -- so you pay for what we did up in the Arctic before you get any of this credit. Straight up. Enough is enough. And the reports that are coming out -- the modeling reports -- there was model of models, a hundred different reports done a few years ago and they said the numbers are way worse than -- and the numbers were -- for -- are much higher than those.

So that's -- and that was started by Pickens, you know T. Boon Pickens.

BOARD CLERK GARCIA: Thirty seconds.

HARVEY EDER: That's the clean energy in these folks. We need a political economic study and looking at equity. And right now, this has got to be happening at all the international, national, local levels, and the world is changing, all right?

So -- and you did not study the Solar New Deal. No one did. And we got run out of court. We're asking you to support us in getting the trans -- the tape from that and a record that we put in that they would purge --
BOARD CLERK GARCIA: Thank you.

HARVEY EDER: -- but would not send us a copy.

BOARD CLERK GARCIA: Thank. That concludes your time.

HARVEY EDER: It's on you folks.

BOARD CLERK GARCIA: We have one more commenter, a phone number ending in 528. I have activated your microphone. Please state your name for the record and you can begin.

LAURA ROSENBERGER HAIDER: Laura Rosenberger Haider. I think we need -- of course we need 30 percent organic agriculture by 2030, like a lot sooner. And we need for the harbor craft we need hydrogen cell technology, and incentives, and grant money for them to upgrade. And the last thing we need to like not to allow those zombie oil wells to rework their wells. And they'll just drill deeper and -- especially -- especially not the ones that are right next to neighborhoods, like environmental justice communities next to sensitive populations. We have to stop them and that will reduce a lot of emissions.

And one of the reasons again crude oil is that it also -- it contains toxic heavy metals that need to be refined out. And some of those are linked to dementia -- or early dementia. And for the workers that work in both
those industries or just work in the industry where they have to burn a lot of fuel like oil industry fuel. It would be very dangerous to their health.

All right. Thanks.

BOARD CLERK GARCIA: Thank you.

CHAIR RANDOLPH: Does that conclude public comment?

BOARD CLERK GARCIA: Yes, that concludes the commenters.

CHAIR RANDOLPH: All right. Thank you. This meeting is adjourned. Our next meeting will be our April 7th joint meeting with the California Transportation Commission and Housing and Community Development Department.

Have a good evening, everyone.

(Thereupon the Air Resources Board meeting adjourned at 5:12 p.m.)
CERTIFICATE OF REPORTER

I, JAMES F. PETERS, a Certified Shorthand Reporter of the State of California, do hereby certify:

That I am a disinterested person herein; that the foregoing California Air Resources Board meeting was reported in shorthand by me, James F. Peters, a Certified Shorthand Reporter of the State of California, and was thereafter transcribed, under my direction, by computer-assisted transcription;

I further certify that I am not of counsel or attorney for any of the parties to said meeting nor in any way interested in the outcome of said meeting.

IN WITNESS WHEREOF, I have hereunto set my hand this 11th day of April, 2022.

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