MEETING
STATE OF CALIFORNIA
AIR RESOURCES BOARD

CALEPA HEADQUARTERS
BYRON SHER AUDITORIUM
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SACRAMENTO, CALIFORNIA

THURSDAY, JULY 21, 2016
9:12 A.M.

JAMES F. PETERS, CSR
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Ms. Sarah Carter, Staff Air Pollution Specialist, ECARS
Mr. David Chen, Manager, Advanced Emission Control Strategies Section, MSCD
Mr. Joshua Cunningham, Chief, Advanced Clean Cars (ACC) Branch, ECARS
Ms. Shannon Dilley, Attorney, Legal Division
Ms. Ashley Dunn, Air Pollution Specialist, Innovative Strategies Branch, Mobile Source Control Division (MSCD)
Mr. Pippin Brehler, Senior Attorney, Legal Office
Mr. Joe Fischer, Air Resources Engineer, Oil & Gas Section, Industrial Strategies Division (ISD)
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Ms. Annette Hebert, Division Chief, ECARS
Ms. Margret Kim, Senior Attorney Legal Office
Mr. Jack Kitowski, Division Chief, MSCD
Ms. Johanna Levine, Manager, Off-Road Implementation Section, MSCD
Ms. Karen Magliano, Division Chief, AQPSD
Mr. Mike McCarthy, Vehicle Program Specialist, Emissions Compliance, Automotive Regulations and Sciences Division (ECARS)
Ms. Lucina Negrete, Branch Chief Innovative Strategies Branch, MSCD
Mr. Jim Nyarady, Manager, Oil & Gas Section, ISD
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STAFF:

Ms. Shobna Sahni, Manager, ACC Regulations Section, ECARS

Ms. Elizabeth Scheehle, Chief, Oil & Gas and Greenhouse Gas Mitigation Branch, ISD

Mr. Craig Segall, Senior Attorney, Legal Office

Ms. Maritess Sicat, Chief, Heavy-Duty Diesel Off-Road Strategies Branch, MSCD

Mr. Todd Sterling, Staff, Off-Road Implementation Section, MSCD

Mr. Webster Tasat, Manager, Central Valley Air Quality Planning Section, AQPSD

Mr. Jon Taylor, Assistant Division Chief, AQPSD

Dr. Patricia Velasco, Staff Air Pollution Specialist, Central Valley Air Quality Planning Section, Air Quality Planning and Science Division (AQPSD)

Mr. Floyd Vergara, Division Chief, (ISD)

Ms. Sylvia Vanderspek, Chief, Air Quality Planning Branch, AQPSD

ALSO PRESENT:

Mr. Alan Abbs, California Air Pollution Control Officers Association

Mr. Don Anair, Union of Concerned Scientists

Mr. Bruce Baizel, Earthworks

Mr. Nathan Begtsson, Pacific Gas & Electric

Ms. Elly Benson, Sierra Club

Mr. Tim Carmichael, Southern California Gas Company

Mr. Les Clark, Independent Oil Producers Agency
ALSO PRESENT:

Ms. Vina Decena, Alliance of Nurses for Healthy Environment

Ms. Cheri, Derohanian, Automobile Club of Southern California

Mr. Juan Flores, Center on Race, Poverty & the Environment

Ms. Margaret Gladstein, Capitol Advocacy

Ms. Sekita Grant, The Greenlining Institute

Mr. Larry Greene, Sacramento Metropolitan Air Quality Management District

Mr. Ron Habel, Division of Oil and Gas and Geothermal Resources

Mr. Jason Hector

Ms. Gloria Herrera, Delano Guardians Community Group

Ms. Bonnie Holmes-Gen, American Lung Association of California

Mr. Randy Horne, NAFTEX Operating Company

Mr. Ryan Kenny, Clean Energy

Ms. Morgan Lambert, San Joaquin Valley Air Pollution Control District

Mr. Eli Love, CALinnovates

Mr. Tim Lovely, MacPherson Oil Company

Mr. Bill Magavern, Coalition for Clean Air

Mr. Jonathan Mann, 360-International, Inc.

Ms. Karen McInnis, Southern California Gas Company

Ms. Jennifer Moeller, Moms Clean Air Force

Mr. John Moffatt, Alliance of Automobile Manufacturers
ALSO PRESENT:

Mr. Simon Mui, Natural Resources Defense Council
Mr. Keith Nakatani, Clean Water Action
Mr. Diarmuid O'Connell, Tesla
Mr. Matt Pakucko, Save Porter Ranch
Ms. Elizabeth Paranhus, Environmental Defense Fund
Ms. Kathryn Phillips, Sierra Club California
Ms. Daisy Pistey-Lyhne, PSE Healthy Energy
Ms. Jenifer Pitcher, Western States Petroleum Association
Mr. Willie Rivera, California Independent Petroleum Association
Ms. Jean Roggenkamp, Bay Area Air District
Ms. Lori Russell, Moms Clean Air Force
Ms. Jaclyn Schroeder, Moms Clean Air Force
Mr. Chuck Shulock, Shulock Consulting
Mr. Matt Solomon, Northeast States for Coordinated Air Use Management
Ms. Madeline Stano, Center on Race, Poverty & the Environment
Mr. Elias Tobias, Environmental Defense Fund
Ms. Felipa Trujillo, Comite Para Mejor Shafter
Mr. Justin Turner, Division of Oil and Gas and Geothermal Resources
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**Afternoon Session**

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PROCEDINGS

CHAIR NICHOLS: Good morning, everybody. Welcome to the 7-21-2016 Public Meeting of the Air Resources Board. We will come to order now.

And before we begin our agenda, we will say the Pledge of Allegiance to the flag.

(Thereupon the Pledge of Allegiance was Recited in unison.)

CHAIR NICHOLS: Okay. Madam Clerk, would you please call the roll.

BOARD CLERK JENSEN: Dr. Balmes?

BOARD MEMBER BALMES: Here.

BOARD CLERK JENSEN: Mr. De La Torre?

CHAIR NICHOLS: He is here. We could vouch for it.

BOARD CLERK JENSEN: Okay. Mr. De La Torre?

Mr. Eisenhut?

BOARD MEMBER EISENHUT: Here.

BOARD CLERK JENSEN: Senator Florez?

BOARD MEMBER FLOREZ: Here.

BOARD CLERK JENSEN: Supervisor Gioia?

BOARD MEMBER GIOIA: Here.

BOARD CLERK JENSEN: Ms. Mitchell?

Mrs. Riordan?

BOARD MEMBER RIORDAN: Here.
BOARD CLERK JENSEN: Supervisor Roberts?
BOARD MEMBER ROBERTS: Here.
BOARD CLERK JENSEN: Supervisor Serna?
BOARD MEMBER SERNA: Here.
BOARD CLERK JENSEN: Dr. Sherriffs?
BOARD MEMBER SHERRIFFS: Yes.
BOARD CLERK JENSEN: Professor Sperling?
BOARD MEMBER SPERLING: Here.
BOARD CLERK JENSEN: Ms. Takvorian?
BOARD MEMBER TAKVORIAN: Here
BOARD CLERK JENSEN: Vice Chair Berg?
VICE CHAIR BERG: Here.
BOARD CLERK JENSEN: Chair Nichols?
CHAIR NICHOLS: Here.
BOARD CLERK JENSEN: Madam Chair, we have a quorum.
CHAIR NICHOLS: Thank you.
I have a couple of announcements to make before we begin. First of all, there's a change in the order of the agenda. We're going to be switching the Large Spark-Ignition amendments and also the update on the Technical Assessment Report.
So the new order for those of you who are following us at a distance is:
We're going to begin with the Ozone SIP for the
San Joaquin Valley.

Move to the Proposed Regulation for Greenhouse Gas Emission Standards for Crude Oil and Natural Gas Facilities.

Then we'll go to the Update on the Joint Draft Technical Assessment Report.

Then the Update on Overcoming Barriers to Zero and Near-Zero Emission Transportation in Low Income Communities.

And we'll finish off the day with the Proposed Amendments to the Large Spark-Ignition Engine Fleet Requirements. And so that means we will -- since that is a regulatory item of course, if anybody was thinking that they were going to be leaving early, we will need you for that one for the vote.

Interpretation services will be available in Spanish for the second item, which is the regulation of crude oil and natural gas facilities. There are headsets available outside the hearing room and, they can be picked up at anytime.

Madam Translator, would you say that in Spanish.

(Thereupon translation was done.)

CHAIR NICHOLS: Gracias.

Anyone who wishes to testify on any item is asked to file a request-to-speak card. They're available in the
lobby outside the Board room. And we would appreciate it if you would do that before we begin the presentation of that particular item, so that the clerk and her assistants can organize the list and make sure that everybody is on it and that we've allowed enough time.

Also a reminder for anybody who is not familiar with our meetings, we impose a three-minute time limit per speaker. We ask that you just state your name when you come up to the podium, then put your testimony in your own words as opposed to reading it, because it's easier for us to follow; and we will be able to absorb your written testimony as well.

We are required by the management of this building to remind you that there are exits at the rear of the room and on either side of the podium here. And in the event of a fire alarm, we have to evacuate the room immediately and go downstairs and out of the building until we get an all-clear signal and when we can come back and just pick up where we left off.

Okay. Before we actually then launch into the first item, I understand that we have visitors here today who have already met with Dr. Sherriffs. And I've asked him if he would say a few words about this special guest.

BOARD MEMBER SHERRIFFS: Thank you very much. I don't think she knew this was going to happen. So...
It's always great to put people on the spot.

You know, I wanted to recognize a fourth-year medical student from Iowa who is here in California, Chelsea Thibodeau, working with a group called Climate 911. And her group is bicycling, "Hurray for Bicycling! Active Transit," up the San Joaquin Valley putting on bilingual puppet shows in schools to educate students about climate change, greenhouse gases. And I know it's been a great education for the bicyclists and a great education for the students. I just wanted to recognize and thank you for coming and helping in our struggle.

CHAIR NICHOLS: Would you please stand.

We can thank you.

(Applause.)

CHAIR NICHOLS: We --

BOARD MEMBER SHERRIFFS: I also have to add, I know she's brilliant because she's going to do family medicine as a residency, and we need more family medicine doctors

(Laughter.)

CHAIR NICHOLS: Okay. Well, congratulations.

Thank you so much, and I appreciate -- we didn't mean to embarrass you, but we really do want to thank you for what you're doing. It's helpful to all of us, especially the fact that you're speaking to children in their -- in their
communities and then for many of them in their language too.

Okay. The first item on our agenda for today is the consideration of the 2016 Ozone State Implementation Plan, or SIP, for the San Joaquin Valley. This is the first in a series of SIPs that we will be considering for attaining the federal 8-hour ozone standard which, for those of who may have forgotten, is currently set at 75 parts per billion. And staff will be presenting these to the Board over the coming year. The San Joaquin Valley is one of only two extreme ozone nonattainment areas in the nation, unfortunately. So therefore, this plan is an important step in bringing healthier air to San Joaquin Valley residents.

And I do want to note that, you know, we've made a tremendous amount of progress in this area, but we do have a lot more to do.

Mr. Corey, would you please introduce this item.

EXECUTIVE OFFICER COREY: Yes. Thanks, Chair Nichols.

The San Joaquin Valley's 2016 ozone SIP represents the next building block in planning efforts to meet increasingly health protective ozone standards. Over the past decade, ozone levels in the Valley have shown significant improvement, significant improvement in
response to accelerated NOx reductions. And emission reductions from current control programs will continue this progress. ARB modeling shows that these reductions will provide for attainment of the 75 parts per billion ozone standard by the district's attainment deadline of 2031.

Staff has reviewed the district's plan and concluded that it fully complies with the Clean Air Act requirements.

I'll now ask Patricia Velasco of Air Quality Planning and Science Division to give the staff presentation.

Patricia.

(Thereupon an overhead presentation was Presented as follows.)

STAFF AIR POLLUTION SPECIALIST VELASCO: Thank you, Mr. Corey.

Good morning, Chair Nichols and members of the Board.

—o0o—

STAFF AIR POLLUTION SPECIALIST VELASCO: The primary focus of today's presentation is staff's evolution of the San Joaquin Valley State implementation plan for the 75 parts per billion 8-hour standard to support your action today. This plan builds on the region's ongoing
success in reducing ozone pollution. Although these control programs have also reduced PM2.5 levels, the Valley continues to face significant challenges in meeting PM2.5 standards. In the second portion of the presentation, I will describe the nature of the PM2.5 challenge and provide a preview of the current planning efforts that will be before you later this year and next as the SIP amendments.

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STAFF AIR POLLUTION SPECIALIST VELASCO: The SIP process in the Valley is providing a successful framework for attainment of increasingly health protective ozone standards. Just last month, EPA made a final determination that the Valley has attained the 1-hour ozone standard, the first extreme nonattainment area in the country to reach this important milestone. The Valley is on track to meet the 80-part-per-billion 8-hour ozone standard by the region's 2023 deadline by relying on the comprehensive investments in cleaner technologies and fuels that have provided for attainment of the 1-hour standard.

Last month, the San Joaquin Valley District adopted a SIP for meeting the 75-part-per-billion ozone standard. The SIP demonstrates that ongoing reductions from these control programs will also provide for
attainment of the 75-part-per-billion standard by the Valley's 2031 deadline. This is the -- this SIP is the focus of your consideration today.

Finally, last year EPA further strengthened the 8-hour ozone standard to 70 parts per billion. The existing control program, coupled with new reductions on the proposed Mobile Source SIP Strategy that the Board will be considering in September, are expected to provide the mobile source reductions needed for attainment of the 70-part-per-billion standard by 2037 and accelerate air quality progress in the interim.

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STAFF AIR POLLUTION SPECIALIST VELASCO: The maps on this slide illustrate the progress towards ozone attainment that is occurring as a result of the control strategies developed through the SIP process. The highest values are shown in dark red, with green representing attainment of the 75-part-per-billion standard.

In 1990, nearly the entire Valley violated the 75-part-per-billion standard with peak 8-hour ozone designed values over 115 parts per billion and concentrations exceeding the standard over 150 days. Today, peak ozone levels have declined to less than 95 parts per billion, and the number of days exceeding the standard has decreased by over 45 percent.
Now looking forward, by 2031 ongoing implementation of ARB and District current control strategies provide for attainment of the 75-part-per-billion standard throughout the Valley.

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STAFF AIR POLLUTION SPECIALIST VELASCO: With its health-based air quality standards, meaningful deadlines, and requirements for comprehensive plans, the Clean Air Act has been the basis for the success. Solid science underpins the Act's comprehensive framework. Clear deadlines, as well as evaluation of technical feasibility and costs, guide the development of a effective control strategies.

The Act requirements for minimum control levels based on the severity of the air quality problem, together with the rate of progress requirements, ensure steady progress towards attainment of the air quality standards. Provisions in the Act also allow for adjustments to the control strategy and phase-in of controlled requirements as new information comes forward.

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STAFF AIR POLLUTION SPECIALIST VELASCO: The development of Valley SIPs has been supported by substantial research investments to improve our understanding of the nature and sources of ozone
formation. Comprehensive field studies have been an important element of these research efforts, reflecting partnerships between local, state and federal agencies, as well as academic institutions. The current ozone SIP continues to build on this foundation, including major field studies such as the California -- the Central California Ozone Study in 2000 and the CalNex study in 2010.

This research has shown that the majority of ozone in the Valley is generated from emissions within the Valley. Reducing NOx emissions is key to meeting ozone standards in the Valley, given the mix of NOx and VOC emissions, which includes substantial contributions from natural sources such as trees and plants. Air quality modeling has demonstrated that NOx reductions will also become increasingly effective, leading to accelerated ozone progress over time. NOx reductions also provide significant benefits for PM2.5, but must be coupled with efforts to address other PM2.5 components to provide a comprehensive attainment strategy, as I will discuss later in the presentation.

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STAFF AIR POLLUTION SPECIALIST VELASCO: The results of this science-based approach for development of control -- of effective control strategies is illustrated
in this slide. Trends in Valley NOx emissions are shown on the left and 8-hour ozone design values on the right. The time period between 2005 and 2015 is highlighted in each graph.

As the graphs illustrate, while ozone progress in the early years was relatively modest, over the last decade ozone levels have decreased nearly 20 percent as the pace of NOx reductions has accelerated.

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STAFF AIR POLLUTION SPECIALIST VELASCO: ARB strategies for mobile sources, together with the District's stationary source control programs, are providing the basis for ongoing ozone progress. Key mobile source programs are highlighted in this slide.

The Truck and Bus Regulation, first adopted in 2008, represents a multi-year effort to turn over the legacy fleet of engines and replace them with the cleanest available technology. By 2023, nearly all trucks will meet 2010 engine standards.

The Low Emission Vehicle program has set increasingly tighter exhaust standards for passenger cars and light-duty trucks. California's Advanced Clean Cars program combines the Low-Emission Vehicle and Zero-Emission Vehicle programs into a package of requirements of new cars through 2025. And the Enhanced
Smog Check Program ensures that passenger vehicles stay clean as they age.

The Off-Road Regulation accelerates the penetration of the cleanest equipment into California's off-road fleets and impose idling limits on off-road diesel vehicles.

Incentive programs have also been an integral part to enhancing the penetration of cleaner technologies. In the Valley, this has included a focus on the replacement of older agricultural equipment, including tractors and irrigation pumps. Since 2009, over 5,000 pieces of diesel mobile agricultural equipment have been replaced.

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STAFF AIR POLLUTION SPECIALIST VELASCO: Ongoing implementation of ARB and District control programs will continue the pace of NOx reductions and provide for attainment of the 75-part-per-billion standard by 2031. The graph to the right illustrates the change in emissions by major source categories between 2012 and the Valley's 2031 attainment deadline, bringing emissions to the attainment level marked by the blue line. Over this time period, ARB's Mobile Source Control Program will reduce NOx emissions by nearly 200 tons per day, with an additional 12 tons per day from the District's stationary...
source control program. The Truck and Bus and Advanced
Clean Car's regulations, along with incentive programs,
will continue to provide a major portion of these
reductions, ensuring the Valley continues its transition
to cleaner technologies.

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STAFF AIR POLLUTION SPECIALIST VELASCO: In
addition to the attainment demonstration, the SIP
addresses all other air quality -- Clean Air Act
requirements. These elements are fundamental to an
effective planning in ensuring ongoing progress. They
include a requirement for comprehensive emission
inventories, a demonstration that ARB and the District
have adopted reasonably available control measures, so
that all significant sources have a minimal level of
control. In addition, the SIP includes contingency
provisions should progress milestones or the attainment
deadline not be met.

Transportation conformity budgets ensure that
transportation plans and projects are consistent with the
SIP and additional evaluations require that sufficient
transport control strategies are in place to offset any
growth in emissions due to vehicle miles traveled.

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STAFF AIR POLLUTION SPECIALIST VELASCO: As
mentioned in the previous slide, SIPs must contain contingency reductions should the attainment deadline be missed. To ensure ongoing process while new plans are being developed. EPA guidance calls for contingency measures to provide a 3 percent reduction in NOx emissions. Reductions occurring post 2031 from the current mobile source control program fulfill the majority of the contingency requirement. However, to address the small remaining amount needed, the district included a "black box" commitment of 1.6 tons per day of NOx under the advanced technology provisions of the Act. The Board is scheduled to consider the proposed Mobile Source SIP strategy in September. If approved by the Board, the reductions identified for the San Joaquin Valley are sufficient to eliminate the need to include the "black box" commitment in the SIP submittal to EPA.

SIPs must also ensure that the monitoring network characterizes peak ozone concentrations throughout the region. In 2010, ARB was forced to find a replacement for the ozone-monitoring side operated at Arvin-Bear Mountain southeast of Bakersfield for many years. The replacement side established at Arvin Di Giorgio elementary school was approved by EPA in May of this year. To provide a formal acknowledgement within the SIP, the ARB staff report identifies Arvin-Di Giorgio as the new maximum ozone.
monitor in the Bakersfield area.

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STAFF AIR POLLUTION SPECIALIST VELASCO: Now, moving from ozone, meeting PM2.5 standards within the next decade will be the Valley's most significant air quality challenge.

In the next few slides I will describe why and discuss some of the unique aspects for PM2.5

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STAFF AIR POLLUTION SPECIALIST VELASCO: PM2.5 is a complex mixture generated from a wide variety of sources. It can be emitted directly into the air from smoke, dust and diesel soot, or be formed in the atmosphere from the reactions of gases such as NOx and ammonia. Thus improving particle pollution requires control of multiple different components.

The mountain ranges that surround the Valley, along with extended periods of stagnant weather patterns, are conducive to the formation and accumulation of PM2.5, especially during the winter months. While annual PM2.5 levels in the Valley have decreased since 2000, the year-to-year variability in the persistence and severity of these weather conditions can have a significant impact on concentrations. The recent drought has further identified this challenge and held up the Valley's
progress towards attainment. The impact is illustrated in the figure on the right comparing annual average PM2.5 levels in 2012, pre-drought, and 2013, the first year of the drought

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STAFF AIR POLLUTION SPECIALIST VELASCO: Based on adverse health effects to both long-term and short-term PM2.5 exposure, EPA adopted an annual PM2.5 standard of 15 micrograms per cubic meter and a 24-hour standard of 65 micrograms per cubic meter in 1997.

As health science has continued to demonstrate adverse health effects at lower levels, EPA first strengthened the 24-hour standard to 35 micrograms and most recently the annual standard to 12 micrograms.

Unlike the planning effort for ozone, Clean Air Act requirements for PM2.5 SIPs apply in a step-wise fashion. The process begins with a "Moderate SIP" to evaluate whether an area can meet the standard within 6 years. If this is not feasible, EPA classifies the area as "Serious" and establishes requirements for a second SIP submittal that must show attainment within 10 years. Lastly, if the area does not meet the standard by the attainment deadline, a third SIP submittal is prepared that requires particle-formation emissions be reduced by 5 percent every year until attainment. This is known as a 5
percent plan.

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STAFF AIR POLLUTION SPECIALIST VELASCO: Today, all three steps apply in the Valley.

For the Most recent standard of 12 micrograms per cubic meter, an initial "Moderate" SIP is due this fall. Given current PM2.5 levels, this SIP will demonstrate the impracticability of meeting the standard within the first six years, and will request a reclassification to "Serious."

A "Serious" SIP for the 35-microgram 24-hour standard is due next summer.

Finally, the Valley failed to attain the original 15 and 65-microgram standards by the end of 2015, triggering requirements for a new 5 percent SIP.

ARB and District staff currently are currently discussing consolidation of the serious PM2.5 -- sorry -- "Serious" SIP for the 35-microgram standard and the 5 percent SIP for the 15- and 65-microgram standards, since meeting the 35-microgram standard will drive the overall attainment strategy. Crafting these SIPs will be challenging, but is critical for achieving healthful air in the Valley over the next decade.

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STAFF AIR POLLUTION SPECIALIST VELASCO: Air
quality efforts are underway to evaluate the magnitude of reductions needed for attainment. The PM2.5 attainment strategy will need to consider the diversity of sources that contribute to PM2.5 as well as the specific time frames to meeting the various standards. Additional reductions from District sources will be critical based on their contribution to PM2.5 levels in the Valley. For example, directly emitted PM2.5 typically comprises between 35 and 50 percent of peak PM2.5 concentrations.

Strategies to reduce PM2.5 as part of the SIP will also be coordinated with efforts to reduce black carbon, a component of PM2.5, as part of the Short-Lived Climate Pollutant Strategy, providing both air and climate benefits.

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STAFF AIR POLLUTION SPECIALIST VELASCO: In combination with direct PM2.5 reductions, accelerating the pace of NOx reductions will be necessary. Ongoing mobile source NOx reductions will provide for significant regional improvement, but strategic use of incentive funding will be essential to achieve earlier penetration of cleaner technologies that are identified in the Mobile Source SIP Strategy.

As I noted, we have begun the technical work to define the scope of reductions needed as well as
discussions with both the District and EPA on development of the required SIPs. All three agencies will be meeting next week to lay out approaches and timelines for PM2.5 planning efforts over the next year.

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STAFF AIR POLLUTION SPECIALIST VELASCO: In closing, the 2016 Ozone SIP demonstrates attainment of the 75-part-per-billion standard by the Valley's 2031 attainment deadline. ARB staff has determined that the SIP meets all of the requirements of the Clean Air Act and recommends that the Board approve the SIP as a revision to the California SIP.

In addition, staff recommends the Board approve designating Arvin-Di Giorgio as the maximum ozone concentration monitor for the Bakersfield area as a revision to the California SIP and direct the Executive Officer to submit the SIP and the ARB staff report to EPA.

This concludes my presentation, and we will be happy to answer any questions you might have.

CHAIR NICHOLS: Thank you. I think we'll defer questions until we hear from the District and any other -- we have one other witness who has signed up. So why don't we go ahead and take testimony now then.

MR. LAMBERT: Good morning, Madam Chair and members of the Board. My name is Morgan Lambert. I'm
deputy air pollution control officer with the San Joaquin Valley Air Pollution Control District, and I've come today to express our support for your staff's recommendation to approve the 2016 Ozone State implementation Plan for the San Joaquin Valley.

I wanted to express our gratitude and appreciation to Mr. Corey and Mr. Karperos and their staff for their efforts to working -- diligent efforts and hard work in working with the District to put together this plan which is before you today.

As noted by your staff during their presentation, significant challenges lie ahead in bringing the Valley into attainment with both the ozone and PM2.5 plans, which continue to get more stringent and more stringent at the federal level. The District is committed to working collaboratively with ARB staff to identify strategies and to undertaking a comprehensive evaluation of all of our local district rules and regulations, whether those be for NOx or directly emitted PM2.5, to identify feasible control strategies to reduce both ozone and PM2.5 concentrations.

The District believes that NOx reductions are critical to reaching attainment of both the ozone and PM2.5 strategies, as directly emitted 2.5 opportunities may be difficult and infeasible within the Valley.
However, with that, we want to thank you for your consideration of this item and the opportunity to address your board on this item today.

Thank you.

CHAIR NICHOLS: Thank you.

Thanks.

And Mr. Kenny.

MR. KENNY: Good morning, Chair Nichols, members of the Board. My name is Ryan Kenny. I'm with Clean Energy. We're the nation's largest provider of natural gas to a renewable natural gas transportation field.

We just wanted to offer support for this item, especially the strategic use of incentives to accelerate mobile source NOx reductions. We believe that is a key part of this SIP.

As you know, the Mobile Source Strategy document does offer a recommendation of deployment of 900,000 low-NOx trucks powered by 50 percent renewable fuel by 2031. We believe that would be key as far as those incentives.

As you know, recently a major report came out called "Game Changer," which was sponsored by several stakeholders, including the South Coast Air Quality Management District. And Game Changer did offer a -- some benefits of near-zero strategies over the current fuel
cell and electric vehicle options in the heavy-duty space, which does include three to eight times more NOx reductions, five to 14 times more greenhouse gas emission reductions, and it's four times more cost effective. And it also helps meet the short-lived climate pollutant reduction goals.

So we do believe the low NOx near-zero strategy with 0.02 NOx'd engines would play a big part in meeting the NOx and PM reduction goals.

Thank you.

CHAIR NICHOLS: Thank you.

I don't have any more witnesses. Is there anybody else wanting to speak on this item?

Okay. Then we can close the record at this point and bring it back to the Board for discussion.

Comments?

I see Mr. Berg is -- oh, we'll start with you, Dr. Sherriff's. It's okay. The far end gets to go first.

BOARD MEMBER SHERRIFFS: Last but not least.

Well, this is a remarkable moment, because when I came on to the San Joaquin Board four years ago everybody was telling me how impossible it was going to be to meet this ozone standard. And here we are. Congratulations.

And that said, this is the briefest celebration on record.
(Laughter.)

BOARD MEMBER SHERRIFFS: Because we have nothing but hard work ahead of us. So I hope you enjoyed the congratulations because that's it, done, back to work.

(Laughter.)

BOARD MEMBER SHERRIFFS: It's really extraordinary.

But it is extraordinary how things have come together, the collaboration between the air districts, between ARB, stakeholders; the ability to leverage incentive funds; and how this has set us on the path to meet the next standard and how, surprise-surprise, PM2.5 looks like the more difficult hurdle, but how the good work that we've accomplished on this sets us on a good path in that direction. And clearly we have some heavy pulling.

But, you know, once again, four years ago it looked impossible, but we remained aspirational; and here are, success. So thanks to the air district, thanks to ARB, thanks to all the stakeholders for their contributions to this. And now back to work.

CHAIR NICHOLS: We're not used to having uncontested actions from the San Joaquin.

(Laughter.)

CHAIR NICHOLS: But I agree that this is a good
moment and happy to be here for it.

BOARD MEMBER BALMES: Could I add a comment in that vein?

CHAIR NICHOLS: All right.

BOARD MEMBER BALMES: Well, since you sort of obliquely raised it, there has been a fair amount of noise — and I use that word advisedly — about how the Clean Air Act doesn't work in -- especially with regard to the San Joaquin Valley. And I'd say that the presentation from staff today shows how much the Clean Air Act works and how the air is cleaner. We have more to do, but it doesn't mean we junk the Clean Air Act. I would venture to say that it's been the most successful environmental regulation this country's ever seen.

CHAIR NICHOLS: Yes, I agree.


VICE CHAIR BERG: So, Madam Chair, I'll move Resolution 16-8, with also my extreme congratulations. I was at the San Joaquin board meeting in 2007. We were talking about having testimony about whether we should have no-drive days in the San Joaquin Valley because things were looking so bleak. The black box was very large, and it was extremely contentious, and it did feel at the time that it was impossible.

So as I look at the map on slide 4, it's very
impressive. And so I'm extremely encouraged that we'll be able to tackle the PM2.5 with the same great results.

So congratulations, San Joaquin Valley, and congratulations, staff.

BOARD MEMBER SHERRIFFS: Second.

CHAIR NICHOLS: We have a motion and a second. Any further discussion on this item?

BOARD MEMBER RIORDAN: Madam Chair, I just want to make one comment about -- and I certainly support this. The staff or someone must have worked very hard to have our monitor accepted. And I want to acknowledge that, because that was, I remember, a big issue at one time. And so I know it takes time and some lobbying and whatever else, but you are to be congratulated.

CHAIR NICHOLS: Thank you. I agree.

All right. I think we can probably just do this on a voice vote then based on the comments so far. Would all in favor of the Resolution Number 16-8 please say aye.

(Unanimous aye vote.)


Thank you all. The next item on our agenda is proposed
regulation for greenhouse gas emission standards for crude oil and natural gas facilities.

Both the 2008 Climate Change Scoping Plan and the subsequent first update to the Climate Change Scoping Plan identified the oil and gas sector as a large source of greenhouse gas emissions. Both plans include the regulation of oil and gas operations that is covered in the proposed regulation that's before us now as a potential measure to help achieve the goals of SB 32 -- sorry -- of AB 32. That was a Freudian slip. It's AB 32.

(Laughter.)

CHAIR NICHOLS: Methane is particularly effective short-lived climate pollutant and is also the second largest man-made contributor to greenhouse gas emissions globally.

The recently proposed short-lived climate pollutant strategy includes a 40 percent reduction of methane by 2030, with a 40 to 45 percent reduction from the oil and gas sector as a whole by 2025. The proposed regulation is expected to achieve a reduction of more than 40 percent in methane emissions from all oil and gas upstream sectors such as oil and natural gas production, processing, and storage facilities. It will reduce methane emissions from the sources covered by the proposed regulation by more than 50 percent.
Now, I can't resist, particularly as a Southern California resident, pointing out that the recent events in Aliso Canyon remind us that we have an aging infrastructure that's used at quite a number of oil and gas facilities throughout California, and that we have a great need to conduct regular and routine emissions testing at facilities in order to quickly pinpoint the sources of emissions and ensure that leaks are repaired before they have a chance to grow into disasters.

Fixing these leaks will also require that we reduce -- it will also have the effect - I'm sorry - of reducing emissions of volatile organic compounds and toxic air contaminants. So there are multiple benefits beyond just climate change from these cleanup activities.

Many oil and gas facilities are located in or near disadvantaged communities as well. And this regulation will also reduce over a hundred tons per year of toxic emissions that have an impact on those communities, including non-disadvantaged. But there is a -- unfortunately, a correlation.

Okay. Mr. Corey, would you please introduce this item.

EXECUTIVE OFFICER COREY: Yes. Thanks, Chair. This regulation will substantially reduce methane emissions from upstream oil and gas production equipment;
natural gas gathering and boosting stations and processing plants; natural gas transmission compressor stations and underground natural gas storage facilities.

In 2009, staff conducted a comprehensive study of the sector which included site visits, field testing, and a detailed survey of the related equipment. In over the past few years, staff conducted multiple public workshops and numerous meetings with individual stakeholders. Staff also consulted with the Environmental Justice Advisory Committee.

ARB will be working on agreements with the air districts to finalize the roles and responsibilities. We're also exploring opportunities to assist the air districts with the costs associated with implementing and enforcing the regulations.

The federal government has also recently finalized rules controlling methane from sources in this sector and is expected to continue to regulate in this area. Therefore ARB is taking care to ensure that ARB rules can also support compliance with federal rules where applicable, as well as securing further reductions.

Comments as to the timing of this particular rulemaking had been raised, with some comments asking that the process be sped up, others that it be extended. Therefore, before I turn the program -- the presentation
over to program staff, I've asked Ellen Peter, Chief Counsel, to give an overview of the overall timelines and required elements of California's rulemaking process, as it should provide some useful context.

So with that, Ellen.

CHIEF COUNSEL PETER: Thank you.

In a 1979 statute The Office of Administrative Law, or OAL, was established as the statewide agency to ensure a clearer orderly process for adoption of State regulations.

OAL's training course is three days. So what I'm providing here in the next few minutes is a very brief overview of the process.

(Laughter.)

CHIEF COUNSEL PETER: I should note that before the formal OAL rulemaking process begins, typically ARB staff has been involved in one or more years of work. The work includes workshops, site visits, conducting studies and analysis, and one-on-one meetings with stakeholders.

One key element in the rulemaking process is notice to the public. This notice is to ensure an open, transparent process; and the steps include notice of what's to be changed, notice of the proposed regulatory language to be considered, what is the reasoning for the proposed changes - and this reasoning's reflected in the
Initial Statement of Reasons, or ISOR - and what are the impacts of the proposed change, both economic and environmental impacts.

A second key element is soliciting and considering the input from the public.

The OAL process must be completed within one year from the published regulatory notice, and formal comment periods are also required. These comments can be on the proposed regulation and also can be on the possible environmental impacts of any proposal.

The first formal OAL comment period is 45 days, and that's triggered by OAL's publication of the notice.

At ARB there's at least one public board meeting where the proposal is considered. If further refinements to the proposal are made, OAL requires a subsequent formal notice and a new comment period which is at least 15 days. If there are possible environmental impacts, staff must prepare written responses to comments on these environmental impacts and then give these responses to the Board to consider before it acts on the proposal.

Thus, if there's 15-day changes and if environmental comments are anticipated, many of our items require two board hearings. And that's the case with this one today, the proposed oil and gas regulation, and it's to be set to be considered for a vote when it returns to
the Board in early 2017.

The next key element before the proposed rulemaking package goes to OAL is the documentation of the comments and decisions. This is the final statement of reasons. It's prepared and it lists all the formal comments and the responses.

After the entire package is given to OAL, their staff has up to 30 working days to review and approve. Once approved, OAL submits to the Secretary of State and specifies the effective date of the new regulation.

After a regulation is final, there's often lead time built in to allow the regulated companies to come into compliance.

In this case for proposed oil and gas regulation, there's also lead time for the local air districts to take their implementation steps. For example, if a local air district wants to adopt its own regulations to inspect or enforce, this air district will need to comply with its own rule adoption process.

So I hope this brief summary is helpful in clarifying some of the legally required steps to adopt our regulations.

And I will turn it back to Richard.

CHAIR NICHOLS: Thank you.

If there are no questions at this point -- they
may come up later. But for now I think that's a good introduction. This process has gotten longer and more complicated over time. But I think that the staff has laid it out in a way that makes it clearer that there is room for new information and for change as information becomes available.

Thanks.

EXECUTIVE OFFICER COREY: That's correct. Thank you, Chair.

So now I'm going to ask Joe Fischer of the Industrial Strategy's Division to give the staff presentation.

Joe.

(Thereupon an overhead presentation was Presented as follows.)

AIR RESOURCES ENGINEER FISCHER: Thank you, Mr. Corey. Good morning, Chair Nichols and members of the Board.

Today I'll be presenting the proposed regulation for greenhouse gas emission standards for crude oil and natural gas facilities.

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AIR RESOURCES ENGINEER FISCHER: I'll begin by providing a little background, touch on some closely related oil and gas efforts, and briefly discuss oil and
gas operations in California. I will then present the proposed regulation, its impacts, and Staff's recommended 15-day changes.

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AIR RESOURCES ENGINEER FISCHER: Now I'll go through a little background.

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AIR RESOURCES ENGINEER FISCHER: Both the original and 2013 update to the AB 32 scoping plan identified the oil and gas sector as a significant source of methane emissions. The proposed regulation covers intentional vented emissions as well as unintentional fugitive emissions or leaks.

In addition to AB 32, the proposed short-lived climate pollutant strategy includes a 40 to 45 percent reduction in methane from the oil and gas sector by 2025.

Finally, several measure contained in the proposal reduce emissions from well stimulation events and fracking, which are the focus of SB 4.

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AIR RESOURCES ENGINEER FISCHER: This slide shows methane emissions in California. Methane is emitted from a wide range of sources, including agriculture, waste handling, and oil and gas related activities. In 2013, methane emissions from oil and gas extraction, storage,
pipelines, and natural gas seeps accounted for approximately 15 percent of the total methane emissions in California.

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AIR RESOURCES ENGINEER FISCHER: It's important to briefly discuss the roles of both ARB and the districts and how they interact when it comes to addressing criteria pollutants and precursors, toxic air contaminants, and greenhouse gases.

In general, the local districts are primarily responsible for stationary sources, such as oil and gas production facilities, while the ARB is responsible for mobile sources, fuels, and consumer products.

However, because ARB is the primary agency responsible for implementing AB 32, ARB's responsibility includes stationary sources if GHGs are involved, as is the case with today's proposed regulation.

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AIR RESOURCES ENGINEER FISCHER: I'll now briefly discuss other related oil and gas efforts by ARB and other agencies.

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AIR RESOURCES ENGINEER FISCHER: As I mentioned, the local air districts play a major role in reducing emissions from stationary sources. In fact, some
districts have been regulating fugitive emissions since the 1980s for the purpose of reducing volatile organic compounds, or VOCs, which are ozone precursors.

However, our proposal covers methane, which has been deemed a non-VOC and therefore specifically exempted from air districts' programs.

Given district staff's experience and knowledge in the oil and gas sector, ARB worked closely with the districts throughout the course of the regulation development process, and we have worked to harmonize the requirements with existing district rules.

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AIR RESOURCES ENGINEER FISCHER: We've also been reviewing U.S. EPA actions related to oil and gas facilities. In June, EPA finalized their new source performance standards and is also working on guidelines and rules for existing sources.

Although the source categories proposed today are the same or very similar, our proposal is for both new and existing sources and is generally equivalent or more stringent than EPA's. It's also broader in coverage, which means it applies to more equipment.

We've been working with EPA and the districts to harmonize these requirements as much as possible, in order to prevent confusion, and to streamline the different
AIR RESOURCES ENGINEER FISCHER: Located at an underground storage facility in Southern California, the Aliso Canyon gas leak was a significant source of methane emissions. In response to the event, the Governor released an order on Aliso Canyon with specific direction to address the leaking methane. The Division of Oil and Gas and Geothermal Resources, or DOGGR, promulgated emergency regulations and recently published draft permanent regulations for underground storage facilities.

In addition, a report is being developed by the California Council on Science and Technology, along with interagency involvement, to address the long-term viability of storage facilities in California.

In developing this proposal, staff considered Aliso Canyon and other leakage events occurring at underground storage facilities.

AIR RESOURCES ENGINEER FISCHER: In addition to other agencies' actions, I want to touch briefly on other oil and gas related efforts here at ARB. As I mentioned, well stimulation, including fracking, is subject to SB 4, which requires DOGGR to permit these events. ARB is reviewing permits and in some cases requesting air
monitoring for certain activities to ensure that the state is being protective of public health, particularly for stimulated wells near disadvantaged communities.

ARB is also overseeing methane hot spots flyovers, as required by AB 1496. As I will discuss later, these flyovers can aid in tracking progress and compliance.

Finally, we are also involved with other types of testing at oil and gas facilities. We are currently planning to perform testing on produced water percolation ponds, as well as undertake air monitoring near oil and gas impacted communities later this year. Both of these efforts are the result of listening to the environmental justice community's concerns.

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AIR RESOURCES ENGINEER FISCHER: I will now take a few minutes describing oil and gas operations in California.

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AIR RESOURCES ENGINEER FISCHER: As you can see in this illustration, oil production primarily occurs in the Central Valley and Southern California, and the gas that is produced with the oil is called associated gas. In fact, the majority of gas produced in California is associated gas.
In Northern California, however, natural gas production is not associated with oil production, and called unassociated gas or dry natural gas.

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AIR RESOURCES ENGINEER FISCHER: This slide shows that the proposed standards apply to upstream and midstream facilities, including production, gathering and boosting, underground natural gas storage, and natural gas transmission facilities.

The transmission and distribution pipelines and related facilities are covered by a proceeding underway at the California Public Utilities Commission pursuant to Senate Bill 1371. Staff has been working closely with the CPUC and stakeholders on that rulemaking. Overall, these two regulations cover the entire natural gas system.

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AIR RESOURCES ENGINEER FISCHER: Before moving into the specific measures, I'd like to provide some background on what a basic crude oil system looks like. A crude oil and water emulsion is pumped from the subsurface and piped into a separator where the oil and water are separated into two different products. The oil is sent to a storage tank while the water is sent to a tank or sump. This figure depicts what we define as a separator and tank system.
If these tanks are opened to the air, they can be a source of air pollutant emissions since they would be the first place the fluid reaches atmospheric pressure and pollutants are released from the emulsion, or "flashed off."

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AIR RESOURCES ENGINEER FISCHER: In a dry natural gas system, the basic concept is similar. But here the separator is pressurized and it's used to separate gas from water. This too is defined as a separator and tank system.

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AIR RESOURCES ENGINEER FISCHER: I'll now go through the proposed regulation standards.

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AIR RESOURCES ENGINEER FISCHER: First, I'll take a moment to talk about the regulation development process to outline some of the work that fed into the regulation proposal.

Staff conducted site visits to a number of facilities located throughout California to learn about the different operations and equipment. We also conducted field testing programs to develop the flash analysis test procedure and undertook a comprehensive survey of oil and gas equipment.
We also formed working groups and held stakeholder meetings to discuss the different strategies options. We held five separate workshops, including one in Bakersfield, to present and solicit feedback on the proposed controls and regulatory language.

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AIR RESOURCES ENGINEER FISCHER: This slide summarizes the different proposed controls for the major groups of emission sources, which I will outline in more detail in the following slides.

We are proposing vapor collection for uncontrolled separator and tank systems and leak detection and repair, or LDAR, for leaking connectors and equipment. For underground storage facilities we are proposing additional monitoring requirements. And for other sources, such as compressors and pneumatic devices, we are proposing specific leak standards in addition to LDAR.

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AIR RESOURCES ENGINEER FISCHER: The standards we are proposing today apply to separator and tank systems found at all types of oil and gas facilities. Flash analysis testing is required to determine the annual methane emissions, and vapor controls are required for systems with emissions that are above 10 metric tons of methane per year. We have also included an exemption for
very low throughput systems, because staff estimates that
those systems will not exceed the proposed emission
standard.

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AIR RESOURCES ENGINEER FISCHER: Vapor collection
systems and control devices are used to handle the
collected vapors, and we recognize the importance of
reducing NOx emissions whenever possible because NOx is a
precursor to ground level ozone. The proposed
requirements take a tiered approach to addressing NOx
emissions while still controlling the newly collected
vapors.

First, operators are required to route any vapors
collected as part of this regulation to an existing sales
gas, fuel gas, or underground injection system. This
ensures that the vapors are handled as efficiently as
possible without any undue emission impact.

In the event that the facility cannot handle the
vapor using one of these options, the facility must use a
low-NOx device to handle the collected vapor. The
proposed low NOx standard allows for the use of
microturbines, low-NOx incinerators, and any
non-combustion technology.

The second part of this proposal requires
facilities to replace existing high-NOx emitting flares
with low-NOx devices in the event that their facility is required to control additional vapor as specified in the proposal. This will result in reduced NOx emissions from the exist -- from the existing vapor already being controlled, which will more than offset the overall statewide NOx emissions from combusting vapors due to the proposed regulation.

However, the San Joaquin Valley Air Pollution Control District is planning a study in their flare minimization plan and may require low-NOx devices in the future. Our proposal will get reductions now, and because of the importance of NOx in the valley, ARB will follow the District's rulemaking and it will work with them to quantify and address any additional NOx that warrants further action.

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AIR RESOURCES ENGINEER FISCHER: Circulation tanks are used in conjunction with well stimulation treatments, and are primarily used to remove excess sand from a well after hydraulic fracturing. These tanks may contain chemicals related to fracking fluids as well as crude oil and gases contained in the well bore. In order to be health protective, staff is proposing that all circulation tanks be controlled for emissions regardless of emission level.
Because circulation tanks have never been controlled for emissions, we're proposing a phased-in approach for these sources. First, operators must develop a best management practices plan to mitigate the emissions and then must perform a technology demonstration and report back to the ARB on progress. This provides additional time to design and test equipment such as a vapor storage tank or bladder that does not require supplemental fuel gas to operate prior to the January 1st, 2020, deadline when the control requirements take effect.

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AIR RESOURCES ENGINEER FISCHER: Leak detection and repair, or LDAR, is a program designed for finding and repairing leaking components. Under this proposal, LDAR will be used to find and repair leaks of methane at all types of facilities, including natural gas facilities which are not covered by most district rules. The proposal requires daily audio-visual inspections to check for obvious emission sources, and quarterly instrument inspections to locate additional leaks that are not easily seen or heard. We've also included a special category of components called critical components, which is designed to address components that require additional time to make repairs.

Under the current proposal, operators could step
down to annual testing after five compliant quarters of testing. However, we will discuss a recommended 15-day change at the end of this presentation revising this proposal.

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AIR RESOURCES ENGINEER FISCHER: In addition to LDAR, we are also proposing emissions monitoring requirements for underground gas storage facilities. These requirements are based on the lessons learned from Aliso Canyon and the need for regular monitoring at these high pressure concentrated sites. The proposal includes ambient air monitoring to check for the -- to check the surrounding air for natural gas emissions as well as daily or continuous monitoring at the wellheads for the early detection of leaks.

Because each facility is different, we are proposing requirements that will provide some flexibility for choosing various monitoring systems and different types of instruments. The facilities will need to submit a monitoring plan to ARB for approval.

In the event that a monitoring system detects a leak which is above the specified leak standards, ARB DOGGR, and local district notification is required.

This provision will be taking the place of a similar provision in DOGGR's emergency storage
regulations, as this requires shifts from DOGGR to ARB. This shift is acknowledged in DOGGR’s proposed permanent regulations, and DOGGR representatives Rob Habel and Justin Turner are seated at the staff table to respond to any related questions.

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AIR RESOURCES ENGINEER FISCHER: Natural gas compressors are used to move gas from production fields through natural gas pipelines, and they can also be found at a number of mid-stream facilities including underground storage facilities.

We are proposing testing and emission standards for both reciprocating and centrifugal compressors, and repairs or replacement for compressors that are measured above the specified emission standard. Alternatively, facilities can capture and control the leaking gas. These requirements are specifically for seals and rod packings and are in addition to LDAR.

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AIR RESOURCES ENGINEER FISCHER: Pneumatic devices use natural gas to control when no electricity or compressed air is available. In California, the vast majority of pneumatic devices did not use natural gas. For those that do, the most common types are continuous bleed devices, which vent gas on a continuous basis.
This proposal requires the replacement of continuous bleed devices with non-emitting or no-bleed devices, and the same requirement also applies to natural-gas-powered pneumatic pumps. Alternatively, facilities can capture and control the venting gas with the use of a vapor collection system.

All intermittent bleed devices are subject to LDAR to ensure that they remain sealed when not actuating. According to our data, these are a small portion of devices and estimated emissions.

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AIR RESOURCES ENGINEER FISCHER: Finally, we are also proposing two different requirements to quantify emissions from liquids unloading and well casing vents that are open to the atmosphere. These will require operators to perform measurements and report results to ARB annually. Both requirements are designed to collect additional data for possible future rulemaking activity.

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AIR RESOURCES ENGINEER FISCHER: The proposed regulation allows both ARB and the districts to enforce the standards. However, both ARB and the districts prefer district implementation because their staffs are local, more familiar with the facilities, and in many cases are already inspecting them.
As a supplement to district permitting, we are also proposing an ARB registration program for equipment not covered under a district permit or registration program to ensure all equipment can be tracked and monitored. The districts have the option to enter into an MOA agreement with ARB for information and data sharing, and we plan to develop an MOA agreement soon after this hearing.

Finally, the districts are encouraged to charge fees to help cover cost of implementation, and they can also keep enforcement penalties. The ARB is also working with the APCOs of affected districts and exploring additional resource options.

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AIR RESOURCES ENGINEER FISCHER: This slide shows the implementation dates for the proposal. Beginning January 1st, 2018, the testing, leak detection and repair requirements, gas storage monitoring plans, and registration and permitting programs would first be implemented. This is when operators will begin to measure emissions at their facilities and repair leaking components, and provides time for the installation and permitting of new equipment.

Beginning January 1st, 2019, the equipment change-outs go into effect. This includes vapor
collection and control devices as well as pneumatic
devices and compressor seal change-outs.

Finally, beginning January 1st, 2020, all
circulation tanks must be controlled with the use of a
vapor collection system. These tanks were provided
additional time for implementation in order to design and
test control equipment.

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AIR RESOURCES ENGINEER FISCHER: Included in this
proposal are several ways that we plan to track
implementation progress. The metrics include equipment
installation and reported emissions.

The registration and permitting programs will
allow ARB and the districts to monitor equipment, and
reporting requirements will be used to update the
emissions inventory. I will also note that we are
investigating the possibility of including a web-based
reporting tool to simplify the reporting requirements.

Finally, we also plan to use other research
efforts such as community monitoring and aerial flyover
data to support the tracking of progress.

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AIR RESOURCES ENGINEER FISCHER: I will now
discuss the anticipated impacts from the proposed
regulation.
AIR RESOURCES ENGINEER FISCHER: Overall, this proposal results in just over 1.5 million metric tons of reductions at an annual cost of just over $22 million, for a cost effectiveness of about $15 per metric ton of carbon dioxide equivalent reduced. These results were determined while considering annual natural gas savings and computing the emissions based on a 20-year global warming potential for methane.

AIR RESOURCES ENGINEER FISCHER: In addition to methane, this proposal also results in statewide emission co-benefits, including 3600 tons per year of VOC reductions and over 100 tons per year of benzene, toluene, ethyl benzene, and xylenes reductions.

Due to the design of the proposed low NOx requirement, we expect an essentially neutral statewide NOx impact with approximately a half-ton-per-year reduction occurring in the San Joaquin Valley compared to current year.

AIR RESOURCES ENGINEER FISCHER: Staff completed a draft environmental analysis, or EA, for the proposed regulation. The draft EA was released for 45-day public comment on June 3rd along with the 45-day package.
Staff will prepare written responses to all comments raising significant environmental issues relating to the draft EA which were submitted during the public comment period. And we will present the final EA and written responses to comments on the draft EA to the Board for consideration in early 2017.

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AIR RESOURCES ENGINEER FISCHER: I will now present staff's recommended 15-day changes and next steps.

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AIR RESOURCES ENGINEER FISCHER: We are proposing to remove the annual step-down provision in the LDAR portion of the regulation. This recommendation is based on information we received since the release of the 45-day package, including the EPA's removing of a similar step-down provision in its recently finalized new source performance standard rules.

In addition, at our recent methane symposium, more research came to light emphasizing the random nature of super emitter leaks and that more frequent monitoring is indicated. Finally, there have been other leaks at other facilities, not of the magnitude of Aliso Canyon, but which further argue for not stepping down to annual inspections.

We are also recommending 15-day changes to
clarify the underground natural gas storage requirements
in response to questions and comments we received from
stakeholders.

We are also recommending 15-day changes to
perform cost revisions to incorporate idle wells and
additional uncontrolled tanks that were not included as
part of the original analysis. We also have other minor
clarifications and corrections to the regulatory text.

As we continue to work with the Environmental
Justice Advisory Committee and other stakeholders, we may
also develop and propose additional changes.

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AIR RESOURCES ENGINEER FISCHER: Our next steps
include continuing working with the districts on
resources, NOx, and other implementation concerns. We
will also continue to work with the Environmental Justice
Advisory Committee and other stakeholders on any remaining
issues. We plan to return to the Board in early 2017 to
seek final consideration on the adoption of this proposed
regulation.

In conclusion, staff recommends approval of the
resolution with the direction to address the 15-day
changes.

I will now introduce Alan Abbs, Executive
Director of the California Air Pollution Control Officers
Association, who would like to say a few words about the ongoing collaboration between ARB and the districts.

CHAIR NICHOLS: Thanks. Welcome.

CAPCOA EXECUTIVE DIRECTOR ABBS: Thank you, Joe. Good morning, Chairperson Nichols and members of the Board. My name is Alan Abbs and I'm the executive director for the California Air Pollution Control Officers Association, representing the 35 local air districts in California.

Thank you for the opportunity to comment on these regulations. Mr. Fischer and staff did a good job of laying out the need for the regulation as well as the way it would be accomplished. And I'd also like to acknowledge the work of Elizabeth Scheehle and Jim Nyarady for the work that they've done in collaborating with the districts on this regulation.

As the presentation showed, there are opportunities for large emission reductions in the oil and gas sector from the measures proposed: 1.5 million tons of CO2 equivalents, over 3600 tons of VOCs and over 100 tons of toxic air contaminants per year. In addition to the greenhouse gas reductions, the regulation provides local public health benefits, with the reductions in ozone precursors and toxic air contaminants. Overall, we support the regulation and the emission reductions that
would be achieved.

Also, we support greenhouse gas reductions from these measures that are achieved in ways that also reduce criteria and toxic air contaminants.

The implementation of this rule however is going to be challenging, and we look forward to working with staff to translate the regulation into MOUs that define district responsibilities as well as incorporating current district permitting and operational methods and requirements as well as our fiscal requirements.

As staff noted, this regulation will add many new stationary sources, particularly in air districts with nonassociated gas production.

Some districts will be able to incorporate this regulation into their existing rules and regulations and some will have to make some very big changes to their programs. This will require significant investment of time and money to write permits and modify existing permits, purchase equipment, train staff, and then allocate staff for checking compliance at what is going to be a very widely dispersed stationary source, especially when you include idle wells into the regulation and district requirements.

These costs may be difficult for districts to recoup, depending on the number and type of sources and
throughput levels of the local operators.

But as staff correctly noted, local air districts enforce stationary source regulations and we would be the logical choice to enforce this regulation. And so again we look forward to working with staff to work on the implementation aspects of this regulation.

The proposal suggests an effective date of January 1st, 2018, to start. And we think this is reasonable. A regulation isn't any good if it can't be effectively enforced. And ARB and the districts still have some pretty significant work ahead as the proposed regulation moves towards final consideration.

January 2018 gives us the time we need to work through how the implementation would work and the programmatic changes that districts would need to make to meet the requirements of the regulation.

So thank you for the opportunity to speak on this item; and we'll have representatives from some other air districts with oil and gas production to provide further comments.

Thank you.

CHAIR NICHOLS: Okay. Further staff comments?

OIL & GAS AND GREENHOUSE GAS MITIGATION BRANCH CHIEF SCHEEHLE: We're done with the staff presentation.

CHAIR NICHOLS: Oh, okay.
OIL & GAS AND GREENHOUSE GAS MITIGATION BRANCH

CHIEF SCHEEHLE: We're ready to answer any questions.

Sorry for the --

CHAIR NICHOLS: All right. That's fine. And I wasn't sure if you had other guests you wanted to introduce or additional comments.

Let's just proceed then to take testimony. I was handed page 1 of the list of witnesses who's signed up to speak to us. I believe there's now 32 and counting. So time to get started.

And let's -- just a reminder, the three-minute rule. I have been asked, I'll say at the outset, to have a group presentation at the end. Western States Petroleum Association asked for a combination of four of their people to testify together; and they've asked for extra time to do that. And so I've indicated that they could do -- that they could do that. Just so people are forewarned.

Yes, Senator Florez.

BOARD MEMBER FLOREZ: Thank you, Madam Chair.

Maybe before the testimony, a question for staff on flaring and its impact and trade-offs for NOx. I'm trying to figure out how it -- we have a greenhouse issue but at the same time we have a NOx issue. I wanted to see how that -- how staff looked at that and weighed it out.
CHIEF SCHEELE: Yeah, and this has been a very important part of our regulatory development. So we do -- as Joe pointed out, we do have a tiered approach to addressing any vapor that's collected from tanks. And that prioritizes non-combustion routes or routes that may displace natural gas authority used at the facility. And then if that's not available - because it's not available at all oil facilities or natural gas facilities - then you can use a combustion route such as a flare.

But what we are requiring is for that to meet a low NOx standard. So it would be a low NOx incinerator or some sort of other -- like a microturbine or something like that.

And what that requires is -- in most cases they might have an existing flare. Those flares would actually be changed out to meet that low NOx standards or you're having a reduction from the gas that's already going through that. So overall you actually end up with a reduction overall from the tank measure and from the -- from any incineration that does happen. But we are trying to move people to the non-combustion routes.

Also, as pointed out, there is -- San Joaquin Valley does have a flare minimization plan. And we will be looking at that and following that and determining, if
that does go into place and there's a different scenario
to look at, what would be the impacts of that rule
compared to that scenario. And then we would mitigate
that NOx or work with them on ways to mitigate that.

BOARD MEMBER FLOREZ: Thanks.

CHAIR NICHOLS: Excellent question. Thank you.
Okay. Let's --

BOARD MEMBER EISENHUT: A follow-up --

CHAIR NICHOLS: Yes.

BOARD MEMBER EISENHUT: Just a follow-up on
the -- on that measurement and mitigation. I would just
request that we -- that you give some attention to
periodic reports back to the Board so that we're able to
follow -- we're able to follow that and the mitigation.

OIL & GAS AND GREENHOUSE GAS MITIGATION BRANCH

CHIEF SCHEELE: Yes, I think that we can do that.

CHAIR NICHOLS: Okay. Good.

All right. Now, Morgan Lambert again.

Welcome back.

MR. LAMBERT: Good morning again. Morgan Lambert, Deputy Air Pollution Control Officer with the San Joaquin Valley Air Pollution Control District.

Our Executive Director, Seyed Sadredin, asked me to specifically thank Mr. Corey, who has taken the time to understand the unique circumstances in the Valley and has
taken seriously the concerns that we have had regarding this proposed regulation.

Specifically the potential for NOx from emissions associated with increased oil and gas flaring activity has been a significant concern to us. As you are aware, NOx is a critical pollutant to the District's attainment strategies for both ozone and PM2.5 emissions and, as such, we really have no tolerance for additional NOx emissions in the Valley.

And when looking at the potential for increased NOx emissions, we think it's important both to look at it from a perspective of where we are today as well as potential control measures that are included in upcoming or current State Implementation Plans. And we're appreciative of ARB's recognition of that in the presentation and their willingness to work together with the District.

In addition, flaring activities at oil and gas operations have been an area of great concern within the Valley's disadvantaged communities, something that needs to be taken into consideration.

That being said, I would like to express our thanks and gratitude to ARB staff who have worked diligently with the District to address our concerns and to make changes to the regulation where feasible to
address some of those concerns. We are pleased with ARB's commitment in the proposed regulation, which we understand to mean that ARB will work with -- or commit to work with the District to quantify and mitigate any increased NOx emissions which may occur as a result of this regulation in the future. And we at the District are committed to working collaboratively with ARB staff to do so.

Furthermore, the District is committed to working with ARB to ensure the most efficient and effective implementation of this regulation. Towards that end, we are already working with affected stakeholders throughout the Valley to develop a program to implement the regulation locally given the permitting and enforcement infrastructure we already have in place and the expertise that we have in permitting and inspecting oil and gas operations.

Although we are sensitive to some of the issues that stakeholders have raised regarding this proposed regulation, I have come here to express our District's support for the regulation given ARB's commitment in the resolution to quantify and mitigate any NOx impacts in the Valley.

And thank you for the opportunity to address your board today on this item.

CHAIR NICHOLS: Thank you very much. As I think
what you're commenting and others have indicated, you
know, this is a landmark in terms of the Board's evolution
of trying to integrate our ongoing and -- and
increasingly, I think, focused air quality efforts into
the new greenhouse gas program and making sure that we're
really trying to optimize for both of these things. And
it's a challenge, but I think it's not impossible. And it
looks to me as though things are coming together quite
well from an implementation perspective.

    Dr. Sherriffs, you wanted to comment?

    BOARD MEMBER SHERRIFFS: Well, and I just would
want to -- my understanding of how these discussions have
gone. In fact, the gap between what the Valley was
concerned would be produced in NOx through this, in fact,
the staff have worked very hard to figure out ways to
close that gap. And we still don't know what the gap will
be. But I appreciate very much, and it is absolutely
important, that we're committed to measure that, to track
it, and think about how we're going to mitigate it if
there does come to be an increase in the NOx emissions.

    Because again, very timely that we talked about
the SIP just before this, the District worked very hard
and we're talking 12 tons per day in terms of stationary
sources that the District was able to squeeze out. So
indeed every ton of NOx is very important. So thank you
for the hard work on that and the ability to adjust this
to close that gap and maybe eliminate that gap, but
certainly to think about how we're going to mitigate it if
it still exists.

BOARD MEMBER SPERLING: Could I ask a clarifying
question on something?

CHAIR NICHOLS: Yes, please do.

BOARD MEMBER SPERLING: So this is supposed to be
a greenhouse gas regulation, essentially a methane. So
I'm unclear why there's so much discussion of NOx
emissions. I mean, I understand partly some of the
actions might result in NOx. But is that the only reason
we're talking about NOx here? Because otherwise there
should be a whole separate proceeding and rules dealing
with NOx emissions.

OIL & GAS AND GREENHOUSE GAS MITIGATION BRANCH

CHIEF SCHEEHLE: Well, we are trying to ensure that any of
the greenhouse gas reductions we're getting don't have any
impact on criteria pollutants. So that's why we're -- we
have this tiered approach. And we've looked at this as
just -- if there is any impact from the regulation, we
want to make sure we understand that.

BOARD MEMBER SPERLING: But any efforts to reduce
NOx -- so it doesn't have anything to do with reducing NOx
from venting or whatever other way, right? Am I correct?
OIL & GAS AND GREENHOUSE GAS MITIGATION BRANCH

CHIEF SCHEEHLE: Correct.

BOARD MEMBER SPERLING: Okay.

BOARD MEMBER BALMES: I would just say though, one of the things I like about our whole approach to greenhouse gas emissions over the last few years has been to make sure that we also achieve co-benefits with regard to other pollutants. And, again, it's one of the things I like about our work. And so having a separate regulation for air quality issues other than greenhouse gas emissions, I don't even like that idea. I like doing things an integrated way.

(Laughter.)

CHAIR NICHOLS: Well, we are in a Clean Air Act world and we do have to do SIPs for criteria air pollutants.

BOARD MEMBER BALMES: I understand that. But we've been very -- I think this Board should be -- and staff should be lauded for the fact that we've always tried to integrate -- especially when it comes to advanced cars, which Dr. Sperling knows well, we tried -- we try to integrate climate change benefits with public health benefits related to air quality.

CHAIR NICHOLS: It does require that you be able to think in two different time frames and two different
dimensions at the same time, and that is a challenge. But I think we're at least making a good effort at it, yeah.

All right. Thank you.

Ms. Roggenkamp.

MS. ROGENKAMP: Good morning, Chair Nichols and members of the Air Resources Board. I am Jean Roggenkamp. I'm the deputy executive officer at the Bay Area Air Quality Management District.

I appreciate the opportunity to come before you this morning to testify on behalf of the Bay Area Air District on this important rule this morning.

First off I'd like to express our appreciation for working with Richard Corey and his staff on this important regulation. It has been a very productive process and we appreciate it very much.

We support ARB's proposed rule. The staff has articulated the benefits that would occur in terms of reducing CO2e, VOCs, and toxic air pollutants. And these reductions are really a very important step towards our joint goals of improving public health and protecting the earth.

So it will be complementary to the local air district's regulations to reduce VOCs from these kinds of facilities and benefit the communities that are near them.

The robust process that ARB has undertaken for
developing this rule over many years has really been a very productive process. We appreciate all the workshops, the communications, the working groups that they've had with us and other stakeholders.

The Bay Area Air District does intend to incorporate this rule into our local rules, and plans to work cooperatively with ARB on implementation and enforcement. We will work with ARB and other stakeholders and other air districts on the implementation issues that have been articulated.

The rule does provide flexibility for air districts to be more stringent, and this is something that we at the Bay Area Air District will explore. Many of the facilities in our area are smaller than the facilities that would be regulated under the Air Resources Board rule, and we will explore whether to include them in our rule.

We look forward to working with ARB on this rule and other important climate protection and air quality benefit rules.

Thank you so much.

CHAIR NICHOLS: Thank you.

Mr. Greene.

MR. GREENE: Chair Nichols, members of the Air Resources Board. I'm Larry Greene, the Director of the
Sacramento Metropolitan Air Quality Management District.

We too would like to commend the ARB staff, Richard. And all the work that we've done on this, it's been a long effort - and we're not finished - but we've made a huge amount of progress and I think it's been a very cooperative effort amongst all of us.

We support this regulation and we think the timeline that's been laid out by the staff is a reasonable timeline. We anticipate, like Bay Area, incorporating this regulation within our regulations and permitted sources, so we think we will be able to implement this.

We do recognize that some of the smaller districts and some districts that won't be able to do that as easily have some issues regarding fees and support -- and paying for the regulatory effort, and we appreciate ARB's willingness to go ahead and continue discussing that particular issue.

Also, idle wells remain -- continues to be an issue that we're interested in. There's a lot of them, and finding them out on -- up in Northern California is not the easiest thing and it requires a lot of work. So -- but we both know that and we're going to continue to work.

We support CAPCOA's comments, and we again appreciate this collaborative effort moving forward and
we'll be participating fully in that.

Thank you.

CHAIR NICHOLS: Thank you.

MR. TOBIAS: Good morning, ladies and gentlemen.

My name is Elias Tobias. I'm here on behalf of EDF. And I'm the founder, CEO, and lead engineer for Safety Scan U.S.A.

We are the specialist invited here. We do optical gas imaging leak detection, or infrared as it was called on the suggested technology after Aliso Canyon by the Emergency Proclamation. So we do just that. We detect leaks using that technology, we quantify the leaks, and we help emissions management for LDAR and the greenhouse gases.

I found that recently Colorado University and Carnegie Mellon University done a study on the ground 5,000 locations -- gas locations throughout the U.S. and numbers of data last year. They found that the facilities lose around 100 billion cubic feet a year of gas. That's serious stuff. And 30 percent of that hundred billion are vented, are intentional vented gas. The rest is like fugitive emissions. Being the big leakers, compressor stations, transmission and storage, and underground pipelines.

The optical gas imaging technology is very
accessible. I have the equipment here if somebody wants to see it on the break. It detects leaks at a very early stage. A good example I give is -- I always bring a cigarette lighter with a camera. When I press the button of the -- just the gas part, the camera's able to pick up that small of a leak. Its 3 grams per hour or 0.1 ounces per hour. So it picks up at the very early stage. So the earlier we pick the leak, it's easier to mitigate or to fix and avoid shutdowns and things like that.

So it's very important that the technology was a suggested technology on the Emergency Proclamation after Aliso Canyon.

I was here in January and I took -- from a three-mile distance I took a few videos from the leak while it was happening. And the first time I turned the camera on and I look at the image, I thought something was wrong with the setup, so serious it was, so big it was. So it was a serious unfortunate event that obviously is teaching us how to prevent it. And from my studies, it's probably one of the most serious events of that nature in the history of our planet.

So, yeah, I feel honored to be here to help a little bit and how we can help, you know, move forward to a better future on that respect.

Being a gas industry, or natural gas, leaks is
going to occur. You know, nature is unpredictable. So it's kind of a utopia to think we're going to have zero. But we can -- we can actually work towards finding it at the early stages.

And places --

CHAIR NICHOLS: That's the buzzer for your three minutes. I'm sorry.

MR. TOBIAS: Well, all right. Well, I appreciate very much the opportunity, and have a good day.

CHAIR NICHOLS: And we do have your written comments also. So thank you.

Elizabeth Paranhus.

Hi.

MS. PARANHUS: Thank you. My name is elizabeth Paranhus. I'm an attorney for EDF. I wish to thank the Board for providing us an opportunity to comment on this landmark rule and urge the Board to adopt it.

EDF has participated in the development of clean air measures to reduce methane and other natural gas emissions from oil and gas facilities at both the federal and the state level.

We participated in the development of the first ever rules to regulate methane from oil and gas facilities in Colorado in 2014. The proposal before the Board today surpasses that rule in terms of the scope and the
comprehensiveness and the rigor of the requirements.

We commend staff on working with a broad range of stakeholders to propose cost-effective and feasible requirements. These requirements are critical to ensuring that ARB meets legislative and gubernatorial objectives aimed at reducing statewide methane emissions and achieving other co-benefits as discussed.

ARB should not delay in adopting these requirements and it should not weaken in any way to proposed requirements. In particular, we strongly urge the Board to retain the quarterly monitoring provisions for well sites, compressor stations, and gas processing facilities; and the daily and continuous monitoring provisions for underground natural gas storage facilities, with no provision that allows for a reduction in inspection frequency to annual.

We commend the staff on proposing the removal of the, quote, step-down provision and urge ARB to approve of this removal. As the catastrophic leak at Aliso Canyon and recent leak at McDonald island demonstrate, leaks can and do pop up unexpectedly, and if not detected and remediated immediately, can cause significant harm to public health and the environment.

Moreover, as ARB has demonstrated, quarterly monitoring is highly cost effective. Indeed, per our
comments, we believe ARB's cost estimates are conservative and quarterly instrument-based monitoring can be achieved at a lower cost than ARB suggests.

While we strongly support the rule before today, there is room for improvement. In particular, we urge ARB to phase out or prohibit venting from intermittent bleed controllers. We believe the data demonstrates there are a significant number of these devices in the state, and if the emissions are left unaddressed other than by just the LDAR provision, it -- the significant methane emissions from those will undercut some of the other reductions achieved by the rule.

Lastly, going forward, new information or emissions identify -- or identified regulatory gaps may surface, necessitating further analysis or review. For example, in 2014 a near-surface waste gas line at an oil and gas line at an Oil and gas facility in Arvin, California, leaked for nearly eight months. And reports indicate that little, if any, requirements existed for inspection and maintenance of those kinds of gas lines.

As ARB moves forward with this oil and gas rule, pollution instances should be thoroughly reviewed and revised.

Thank you very much. Really appreciate the time.

CHAIR NICHOLS: Thanks.
MS. BENSON: Hi. My is Elly Benson and I'm an attorney for the Sierra Club, which have over 145,000 members in California. And in recent weeks over 7,000 of our members and supporters have signed on in support of the proposed rule, and urging the Board to improve this -- certain provisions and implement the rule as soon as possible.

First I'd like to submit a disc which contains the exhibits contained in the joint comment letter that we submitted with other groups on Monday, and an updated version of our letter that has those exhibit numbers in it.

I'd like to start by thanking the Board for proposing a rule that contains cost-effective, technically feasible mechanisms that will reduce the release of harmful methane emissions from a broad suite of new and existing oil and gas facilities.

Methane is 87 times more powerful than carbon dioxide over a 25-year frame. And as the Board is aware, significant methane directions are necessary for California to reach its greenhouse gas emission reduction goals.

The draft regulation will also achieve co-benefit reductions in volatile organic compounds and air toxics that threaten human health, as has been discussed.
My timer doesn't look like it's going up here, just FYI.

We commend the Board for proposing this rule and urge the Board to adopt it.

There are several provisions that we urge the Board to strengthen before finalizing the rule. These provisions and suggestions for making them more robust are explained in detail in the comment letter that I mentioned earlier. Today I'd like to briefly touch upon three of them.

First, leak detection and repair. Given the geographic and temporal unpredictability of leaking equipment, one of the most important aspects of an LDAR program is the frequency of inspections. Studies strongly support at least quarterly inspections using modern leak detection technology to identify leaking equipment.

We strongly support the staff's suggested modification to remove this step-down provision, because neither the percent nor number of leaking components is an accurate predictor of a facility's emissions performance. We thus urge the Board to finalize a quarterly inspection requirement and to remove the provisions that allow for operators to reduce inspection frequency to an annual basis.

We further urge the Board to lower the leak --
initial leak threshold to 500 parts per million.

Our second, compressor emissions. We support the Board's approach to control emissions from compressors, both in the production and non-production segments, through either vapor collection systems or through requirements to measure emissions of the vent point, and to repair when those emissions exceed thresholds.

We urge the Board to reduce the flow-rate threshold that triggers repair or replacement of rod packing or seals. Currently the threshold for repair is much too high, as detailed in our written comment. A standard set in the 0.4 to 0.5 standard cubic feet per minute range would be cost effective and would more appropriately balance the need to reduce some of those emissions and the social costs of those emissions while keeping costs reasonable.

Lastly, pneumatic equipment, which Elizabeth from EDF just covered pretty well and I'm running out of time. So I think instead I will just say thank you for your propose and for the opportunity to comment today.

Thanks.

CHAIR NICHOLS: Thanks.

MR. MANN: Chairperson Nichols, Board members, staff of ARB, concerned citizens. My name's John Mann. I'm with the 360-International M². And this is Charles
Mann with Charles Mann Company, a distributor of mine on the West Coast.

We're here -- or we support your regulations. We agree with your reductions. We think it's a great --
great address. And we've worked there for the last three years with the EPA making several petitions for
reconsideration with reduction, trying to address their reductions for emissions and VOCs. And after those three
years they directed us to the California Air Board regulations, said that they're more progressive, they're
aggressive, and they actually direct them and they monitor them. And so that they're the people who actually help
them. They monitor them. They help them to direct -- the direction that they're going to go and the way they move
the country. And they set -- they actually set -- help them set the regulations.

So that's why we're here today. Joe Fischer's been very helpful to help us do that.

We actually came today to show you a product that we're actually using and we've had for last five years.
That is a packing leak detector. It actually -- is the device that actually monitors 24 hours a day. Very cost
effective, very inexpensive for the operators to use. And it actually measures and actually detects the leakage of
the packing on compressors. Any reciprocating compressor,
no matter how large, no matter how big, for gathering
midstream or upstream.

And it can be monitored 24 hours a day. Not just
one time. And you don't have to worry about whether the
packing starts failing at that point.

So we have the material here. We also have
brochures and we are on line.

While I do understand the operators' concern and
the cost, and I do understand their frustration. What
they're trying to do is focus on what they really have to
do. What we're trying to do is help focus that direction
and get direct from California Board to see if we can help
them focus that direction and make all those things come
together so we can help them focus their costs, so we can
help lower the reduction of the methanes, the VOCs, and
make it all one package.

So we thank you for your time. We thank for your
efforts. And we hope that we can move forward and help
you to achieve your goals.

Thank you.

CHAIR NICHOLS: Thank you.

MS. DEROHANIAN: Good morning. My name is Cheri
Derohanian. I happen to work at Auto Club. But that was
just my business card where I work full time. I'm
actually a member of the Porter Ranch Neighborhood
Council. But I speak to you today as a parent and a resident of Porter Ranch.

I have a personal story that how it affected my family and my community. I have two daughters that attend Porter Ranch Community School. During the first week after a gas blowout, they were running the mile and nobody even knew about this gas leak. So notification systems from the gas company or any other companies where there's a leak detected is first and foremost.

Then it took about two months for the school district to decide, "Oh, we'll close the schools." So the school my daughters attend, there's 1100 students and Castlebay, an elementary school, there were 800 students. So 1900 students had to relocate, and the schools were moved and it was very, very inconvenient.

In addition, out of the 30,000 residents reside in Porter Ranch, approximately 15,000 relocated their households. That's not only stressful, it's awful, it's an inconvenience. Loss of personal liberty and happiness and our way of life was taken away for four months over the holidays, Thanksgiving, Christmas, my kids' birthday. They couldn't even have a decent party because all the kids were dropping out of school like flies.

So the stress of the uncertainty of a four-month gas blowout catastrophe is unacceptable. This is bad for
public health. This is bad for our air, our climate, everything.

And what we seek is that you strengthen the rule and do not allow that step-down that could possibly go to a year. Three months of rigorous testing is necessary and it must be implemented. Any kind of lax rules, lax testing, lax any of the above is unacceptable. This is not only true for the Aliso Canyon, for Porter Ranch and surrounding communities, but for our state and our country. We must maintain public health. We must allow residents of all these areas to enjoy their clean air and their way of life. Again the four months of stress and uncertainty was unacceptable and this silent catastrophe is just horrific.

So I again thank the Chair and the entire Board for considering this and for listening to my story.

CHAIR NICHOLS: Thank you. We will make sure that you're not listed as representing the Auto Club of Southern California.

MS. DEROHANIAN: Just resident.

CHAIR NICHOLS: Okay. Thank you.

MR. CARMICHAEL: Good morning, Chair Nichols, members of the Board. Tim Carmichael with Southern California Gas Company.

First of all, let me say we have been working
with the staff for more than a year on this proposal. We support the objectives laid out by the staff. And we've submitted extensive comments on details, identifying several concerns with the details, and we're going to highlight four of those.

I'm joined today by one of my colleagues, she's a technical expert in this area, Karen McInnis, and she'll speak next.

But we want to highlight four areas of concern and request that the Board direct the staff to spend more time on each of these with the affected industries to work through some of these details.

Those areas are:

The storage monitoring proposal, which, as we identified in our comments, was only really fleshed out in the most recent version of the proposal. And there has not been adequate time to engage the staff on the details, and we request more time on that.

Technical and process feasibility concerns, cost estimates. The -- karen will provide more details on this. But our cost analysis actually found costs three and a half to four times what you see in the staff proposal. So not a small difference but a very significant difference. And that's fleshed out in our comments, but Karen will speak to that a little bit more.
And then I think the staff did a good job of noting the multiple layers of regulation, the number of agencies engaged in this area, either today or in the process of developing regulations, from the local air districts to the PUC, the Department of Oil and Gas. And our request is a direction from the Board to the staff to take the time to ensure that there's strong coordination between all of those agencies so we're not having multiple regulations that don't add additional benefit but may add significant cost without additional benefit.

I think -- oh, the staff 15-day changes noted that they were going to take time to work on clarifications on the storage monitoring provisions. We respectfully believe that it's more than clarifications that are needed. And we would like Board to direct the staff to work with our industry on that segment in particular.

Thank you very much.

MS. McINNIS: Good morning. My name is Karen McInnis, and I'm here representing Southern California Gas Company, as Tim, my colleague, stated.

So the first item I wanted to speak to you on is regarding the economic analysis that was published with this last draft on May 31st. And we performed an extensive comparison between that analysis and did our
own, and what we found is, first of all, there were some
calculation errors, just simple mathematical calculation
errors in the published analysis. And then we found, just
to read some numbers, that 9 million versus $36 million
for the economic analysis CARB prepared for the LDAR
portion of the rule — this is only for the leak detection
and repair portion, one segment of the rule. So it's
almost four times what CARB stated versus what we believe
the costs truly would be.

So we recommend that staff is directed to go back
and prepare a more complete analysis, more comprehensive,
especially because as a public utility, we have to go
towards the CPUC for our rate case authority, and this
would be a reference document.

The second item is regarding process feasibility.
And as a utility, we are required to provide service. And
so system availability and reliability are a major
concern. And we believe that the way that the language is
currently proposed, that even though there is a critical
component definition and a repair delay provision, it does
not accurately or adequately meet our needs to ensure that
our system will not be impacted by the repair timelines as
represented in the rule.

We want to ensure that we can serve our customers
reliably safely, and so we once again direct -- or ask
that you can provide direction to staff to work with us. We definitely would be pleased to work with modifying the language to meet both of our needs.

There are other rules in existence which have repair delays that can be referenced. EPA's Quad O(a), Colorado's regulation has some repair delays, as well as some local air districts.

So we believe a successful solution can be reached.

And my final comment is regarding the technical aspects of the rule. There are several monitoring and screening detection devices that are referenced within the rule, and we believe that in the storage monitoring area that the technology as represented is not -- has not been proven to meet and address what's been requested. So we ask that that be looked at as well.

And I'm out of time, so thank you.

CHAIR NICHOLS: Thanks.

MR. BEGTSSON: Good morning, Chair Nichols and members of the Board. I'm Nathan Begtsson here to represent Pacific Gas and Electric Company today.

PG&E is strongly committed to providing safe, affordable, and reliable natural gas to our 15 million customers. And on that note, I just want to say that we agree with SCG's economic analysis. Anytime that an
analysis like that is performed, we worry about the cost impacts to our customers.

The second note I have today is a process note also related to the storage requirements. As Director Corey noted earlier, the other requirements in this rule have been under consideration for two years, if not more. And the new storage requirements were added in on the May 31st version of this document, and I think they're important enough to warrant a little more time and discussion with staff. So we ask you to direct staff to do that.

And my final point today regards the concept of the regulation itself. As you just heard from Karen, there are critical component exemptions in the current regulation, and PG&E strongly supports those because it's critical to the safe and reliable operation of the natural gas system. However, not every component that's going to leak will be a critical component. And the way the rule is structured with the aggressive repair timelines, there may be cases where blowdowns are required; and that would result in greater emissions even than leaving the leak be for even a fairly long period of time.

And so what this is really about is PG&E does support the goals of this regulation and believes that the natural gas system can perform in a more
environmentally -- have higher environmental performance and lower emission. It's about structuring enough flexibility in the rule to allow an operator to bundle repairs, to delay repairs when it makes sense in order to avoid the kinds of emissions that would be associated with blowdowns.

So as it stands, the repair requirements are very thorough, they're very fast. What we're asking for is the kind of delay provisions that would provide the kind of flexibility to make sure this regulation can reach its ultimate goal, which is emissions reductions.

And I want to thank staff for their openness to working with us so far. It's just sort of a challenging question because there are so many different kinds of components, it's a complex system, and that one-size-fits-all sort of -- this amount of time for this kind of leak is not necessarily the right answer.

So we look forward to and hope to continue working with them on this, and we're working very hard to come up with language that would make sense.

The final thing is: The Method 21 U.S. EPA reference measurement system, which is concentration-based, which is the sort of baseline for this rule because it's the measurements upon which the repair timelines are driven, there has been demonstrated
that there is a fairly low correlation between the
correlation measurements and actual leak rates, and this
is something we'd like the Board to direct staff to take
into account going forward in the future. We realize it's
important for now and cannot be changed, but volume-based
measurement probably is the right way to go about this in
the future.

Thank you.

CHAIR NICHOLS: Okay.

MR. RIVERA: Good morning, Board members and
staff. My name is Willie Rivera. I'm here on behalf of
the California Independent Petroleum Association, CIPA.
CIPA represents nearly 500 independent crude oil and
natural gas companies as well as service and supply
companies operating throughout California. So I'm here in
the Sacramento area.

Our association's goals include highlighting the
economic contributions of our members, fostering the
efficient utilization of California's petroleum resources,
and striking a balanced approach between environmental
protection and resource development.

You should have received a letter earlier today.
I just wanted to highlight a few items from that letter.
I have some of my members here in the audience as well who
will speak more specifically on some items of concern to
Our members.

Our letter focused on four main sections, four categories related to the implementation and enforcement of the rule before you, mandatory reporting inconsistencies, the need for reasonable standards. And there are some specific technical concerns related to vapor control and flaring that you'll hear about as well from some of our members.

You know, I think this part is clear, and we get it and I understand it. The ARB's wish to have this implemented at the local level I think is the best thing. It's the most efficient use of resources, and they know their areas better than anyone else. However, you know, we believe there's little clarity issues on that front how that will work, how it will be enforced. You know, we believe it's critical that it be made clear who that lead regulatory body is going to be. You know, right now I think there's a possibility for double jeopardy; there's a possibility for two agencies to be enforcing the same rule, which I think adds undue burdens to our industry, and certainly deviates from regulations you folks have considered and passed in the past.

I think there's a lot of work that can be done to better incorporate local priorities and incorporate local control. I think in the process of developing MO --
memorandums with the local air districts, I think that process needs to be public. I think stakeholders should be a part of that process. We should be at the table. And that has happened. Your staff has done a great job. We appreciated the fact they came down to Bakersfield and joined stakeholders for a day to answer our questions and learn from our industry and hear our concerns. And we hope that that continues in this 15-day package you folks will consider. We look forward to working with you through that process.

And thank you for your efforts up and to this point.

MR. LOVLEY: Good morning. My name's Tim Lovley. I'm with MacPherson Oil. And I was really happy to hear that we're at harmonization today, because I think that's important for us when we're looking at the different agencies, the different people that are engaged in this process, the different shareholders. When we get to this regulation when it actually hits the ground, that harmonization is going to be important to us for lack of reducing duplication, the issue of having multiple or different types of testing requirements to be done such as a flash analysis.

Additionally, I've got a couple other items here that I wanted to talk about real quick.
The gauge tanks were recently added. These are tanks that are hundred barrels, they're portable. Some are stationary. These are used for measuring one well at a time. These are very low emission especially in the heavy oil fields. And I think there's more opportunities to discuss this with the staff when the outgoing discussions we've had.

Additionally, the timeline, the 180 days, seems unrealistic. If you go through the permitting process, you have the engineering process, the study process, before you even get to a permitting process. Then somewhere along the line you actually get to spec out and order your materials. That timeline is very short. You're looking at -- what we try to do is plan out a year ahead. If we have an issue that we've got to make a quick response to, we need more than 180 days to respond.

Additionally, the downtime issue. We run like most businesses, try to keep our inventory spares to critical parts. If we have compressors in our facilities that go down, 30 days is sometimes too short. Some of these equipment require specialized parts, especially when you start talking about mechanical seals that takes significant amount of time to put together especially if they're designed for a specific compressor. These are something that manufacturers don't even have on the shelf.
Additionally when you talk about compressors, I think there's a difference in the opportunity to harmonize the regulation for the specific portion of the industry for this. To understand the difference between production where our compressors may run at different rates, low flow, high flow, the gas use for the filtration is much different than it is in the PUC gas system. And it has a much higher failure rate when you look at dry seals in the compressors.

Finally, the casing vapor was a recent addition. I think there's more opportunities there to discuss with staff how the casing vapor actually works; where you see casing vapor; when it's not there; how it's affected by the difference within the reservoir, the pump, the pump stroke - a lot of activities there - the pressure, so that they can understand that.

Again, I think there's a lot of opportunities to harmonize a regulation for the specific industry along with the different regulatory bodies.

Thank you.

MR. HORNE: Good morning, Chair Nichols and the Board. Man, is this imposing or what. I'm just first time doing this, so I appreciate the opportunity to speak with you.

My name is Randy Horne, and I represent NAFTEX
Operating Company. We're a small producer for oil and gas in the Bakersfield area.

Thanks to staff for what they've done so far, working with us as industry.

What I'd like to talk about is that I agree with many of the comments that have been made previously with the speakers with LDAR. We're a small operator. We were 24-people strong last year. We're now down to eight people. And we're trying to operate and, trust me, we are environmentalists as we operate. But this LDAR requirement, particularly with the step-down provision proposed, could impact us on the heavy oil side. That would almost be 300 percent increase in cost to us. So we ask that staff continue working with us with regards to reviewing that step-down provision, as well as looking at some of the other requirements noted earlier in the presentation.

And, Joe, thank you very much. That was really a nice presentation.

As we continue through this effort, our industry as Willie has indicated, looks forward to working with you, continuing to improve it, and try to minimize the duplicative regulations that we are working through at these points.

So I appreciate again for the opportunity.
Apologize for the nervousness. But we look forward to working with you again, staff.

CHAIR NICHOLS: It wasn't so bad, was it, really.
(Laughter.)
CHAIR NICHOLS: You did fine. Thank you.

MR. BAIZEL: Chair Nichols, Board. My name is Bruce Baizel. I'm the energy program director for Earthworks. We're a national nonprofit that works with communities to mitigate the impacts of energy development and mineral development. And we've submitted written comments, which you'll see.

What I'd like to do is focus a little bit on the unique niche that we occupy. In the NGO world we're one of the few that actually has the gas imaging technology. And so for a number of years now we've been working with communities, including some here in California, to look at oil and gas sites, looking for emissions using that technology.

I would say that in addition to California we worked in 12 other states, looked at several hundred sites; and regardless of the state of the operator or, in general, the type of facility, we find that at three-quarters of the sites we look at there are unplanned methane emission leaks.

So it's not that any particular operator or any
particular state is different. We find it's pretty consistent across those states.

Specific to California we've looked at well sites; we've looked at gas processing plants; we've looked at your operation waste pits; we've looked at storage fields, including some of the images on Aliso Canyon are from our thermographers. We don't -- we don't see a difference between those facilities really. It's pretty consistent.

We're very pleased that you in fact are stepping out -- we were a party in the Colorado 2014 methane rulemaking on oil and gas. We're pleased that you're stepping out with both existing and new sources. We think that's very significant. For the people that we work with, it's the sources that are there right now that are the problem, and your rule would address that.

I think the other comment I would make in terms of our experience, we've done work down in the L.A. Basin as well and urban settings. And a couple of the images that we submitted, we did one from Kern County, the Lost Hills Oil Field, and then one from the Murphy oil field; and in both cases, whether it's a large site or a small site, you can still see those emissions coming off. One's from a vent, the other was from storage tanks. So we really encourage you to continue on.
We saw on the 15-day change the removal of the step-down provision. In our experience, over time, we would encourage you to take that out. It doesn't really -- we don't see that it will provide the incentive to actually find leaks. We, in fact, think it will provide a perverse incentive to not find leaks. So we encourage staff -- you to take that recommendation.

Thank you.

CHAIR NICHOLS: I'm going to prolong time for just a second. Because I did read your written testimony, and I wasn't sure what you were proposing when you talked about citizen science, in addition to your comments about transparency and making information available and so forth.

Did you have some additional idea about how that would work?

MR. BAIZE: Well, there's suggestion in the regulation that there would be a web portal for reporting information. And as part of that, we presume there would be submission by operators when they do -- when they bring in a paid contractor, which many of them do in other places, to the leak detection reports. We think you should also allow for certified operators with OGI to actually submit directly in. And we've done that with partner community groups with some of the air districts
here in California. But as long as you meet the
requirements for certification and recordkeeping and so
on, we think you could tweak the rule to allow for
submission of that when you have a certified operator.

CHAIR NICHOLS: I see. Okay.

MR. BAIZEL: That would be our suggestion.

CHAIR NICHOLS: Yeah. I appreciate that. Thank you.

MS. HERRERA: Gloria Herrera. I'm here today to
support the developing proposed regulation.

CHAIR NICHOLS: Could you move the microphone
closer.

Thank you.

MS. HERRERA: I'm Gloria Herrera. I'm here today
to support the developing proposed regulations. As
resident of Kern County, our health and well-being has to
be over any industry. There is so many respiratory
problems, asthma problems, cancer problems due to all
these contaminants.

I will appreciate that you listen to our
petitions. Thank you. Have a nice day.

MS. TRUJILLO (through interpreter): Good
morning, everyone. My name is Felipa Trujillo, and I
would like to -- I'm part -- I'm a member of the community
of Shafter where I feel that the air is most contaminated.
I am petitioning to stop fracking, please, because we do have some cancer and asthma issues.

And I also support solar energy.

Thank you very much to all.

CHAIR NICHOLS: Thank you. I wish we had simultaneous translation, but we don't. So please ask if people can pause.

Thank you.

MR. FLORES: Good morning to all the Board members. My name is Juan Flores. I'm a resident of deny Kern County, Delano as a matter of fact. And today will be a landmark date once you guys approve these new regulations.

For many decades, residents of Kern County have stand in front of this Board and many other boards asking to protect their well-being and their health. What the residents prior to me just mentioned, it's completely truth. It's so sad to go to these communities and that your children say, "I already know the steps that I have to take when I have an asthma attack. I know that I need to relax first and then I need to wait for an ambulance and go to the emergency room." And this is all because of the poor air quality that we have.

And it is also a landmark today that the oil industry will accept that they have responsibility -- and
the gas industry as well -- that they have responsibility over these burdens that are affecting the health of our community members. It was about time.

In Kern County at least we have been doing oil drilling for 117 years. And today would be the first day that we're going to regulate and maintain emissions coming from this industry. Long overdue. Long overdue.

Today I'll be happy to go back to my community and to finally speak to community members and say, "We don't have excuses anymore. Now we have a clear plan to come and help and protect your health."

Thank you so much.

MS. STANO: Good morning and thank you. My name is Madeline Stano and I'm an attorney with the Center on Race, Poverty, and the Environment in Delano, California.

I'm offering public comment on behalf of our clients, some of whom you just heard from; in addition, residents from Bakersfield, Arvin, Delano, Shafter, Wasco, and Lamont in Kern County.

We offer our support for this essential rule to protect some of our state's most overburdened residents from life-threatening pollution, overwhelmingly residents where low income and residents of color; as the Chair stated earlier, in disadvantaged communities.

We support the removal of the step-down provision
as stated in the proposed 15-day changes.

Additionally, we respectfully request that CARB release an annual report to the legislature with aggregate emissions data from owners and operators collected under this rule and data from CalEnviroScreen for the purposes of prioritizing inspection and enforcement of this rule in the areas most overburdened by pollution in the state.

Thank you very much.

MS. DECENA: Good morning, members of the Board. My name is Vinai Decena. I'm a registered nurse and a public health nurse, and I'm representing the Alliance of Nurses for Healthy Environment, any of the national organization comprised of nurses who are concerned about health issues that are related to environmental exposures.

We are engaged in nursing education, practice, research, and advocacy. Our members include hospital-based nurses, school nurses, public health nurses, occupational nurses and academic nurses.

California already experiences the worst air quality in the nation, with more than 95 percent living in areas with unhealthy air, according to the California Air Resources Board. Currently approximately one out of every three days is considered unhealthy for ozone population. This is based on California's own health-based air quality standards in areas such as the South Coast Air Basin and
the San Joaquin Valley.

Also according to the California Air Resources Board, the annual health impacts of exceeding state health-based standards for ozone and particulate matter already includes 6,500 premature deaths, 4,000 hospital admissions for respiratory disease, 3,000 hospital admissions for cardiovascular disease, 350,000 asthma attacks, 2,000 asthma-related emergency room visits, elevated school absences due to respiratory conditions including asthma, reduced lung functions growth rates in children.

Leaking methane gas is yet another contributor to our already challenging air quality. In combination with other pollutants, methane causes ground-level ozone, which is associated with the inflammation of the lungs and exacerbation of asthma conditions in children and adults.

Patients exposed to methanes have reported incidents of dizziness, fainting, headaches, fatigue, numbness in the limbs, muscle tremors, memory loss, and irritability. Some other generalized symptoms are hearing loss, sleep disturbance, nose bleeds, increased blood pressure and decreased mental performances.

As nurses, we see panicking parents as they bring their children to the emergency room in asthma crisis. We see frail elderly people whose lungs have been ravaged by
years of breathing bad air.

We must take all the precautions possible to reduce the conditions that causes ground-level ozone that contribute to these lung conditions.

Methane is also an extremely powerful greenhouse gas that contributes to global warming and climate change. We are already seeing many of the health impacts of climate change, and it is critical that we mitigate any and all contributors to public health crisis.

In California, we must have the strongest methane standard possible. It must include tight schedules for regular inspections. Given the aging gas and oil infrastructure in California, we urge the Board to remove the step-down.

We need -- thank you.

CHAIR NICHOLS: We do have your written testimony also. It's quite extensive. So thank you.

Okay. We're on to page 2.

MS. SCHROEDER: Hi. Good morning. My name is Jaclyn Schroeder and I'm here with Moms Clean Air Force. I'm here just as a concerned parent.

When I was first invited to come today, I almost quickly declined because I have three young children at home. But that's exactly the reason I decided to come, because I am their mother first.
So being a mother first to me is being that voice for my children. Being a mother first is making sure I provide a healthy environment for them. I am a mother first today by speaking up for my children's health.

So thank you for taking this important step in addressing the methane pollution from oil and gas operations. And I urge you to move forward with your proposal while considering two important changes.

One, remove the step-down provision which would allow operators to shift to less rigorous monitoring requirements. This would create a perverse incentive to avoid finding and reporting leaks and less of a reason to avoid fixing them quickly.

Second, the current proposal pushes implementation timeline by a year, from January 2017 to January 2018. Our families can't afford to wait till 2018.

I currently own a home in Porter Ranch, where the Aliso Canyon gas blowout was. I have again three kids, a son who's five-years old and twin daughters that are two and a half. My family, community, and I understand the direct impacts of methane pollution, especially the exposure to co-pollutants that leak alongside methane pollution from oil and gas development.

I grew up in the San Fernando Valley in Porter
Ranch and decided to raise my family there as well. However, never did I realize that we lived on top of one of the largest gas storage reserves in the United States that was not regulated properly, and what that could mean for the health of my family.

October 23rd in Porter Ranch the largest methane gas blowout in U.S. history was reported. Ironically a month earlier my daughter Emma, 22 months at the time, was sent home from Kaiser with a nebulizer with -- that's an at-home breathing treatment. She began showing signs of asthma and continued to show these signs over the next few months.

October 31st, Halloween, unbeknownst to us the leak had been reported a week earlier. My children that evening were sniffling, complaining of headaches and fatigue. There was an odd odor in the air, and my kids barely lasted 30 minutes trick-or-treating.

November 5th we took our daughters to Kaiser again because they were having trouble breathing. Just days later, my daughter Grace developed really bad eczema on her cheeks.

December 10th, my girls were back at Kaiser and diagnosed with asthma with acute exacerbation. These are real impacts of oil and gas development and the hazards that can come from the co-pollutants leaked alongside
methane pollution. Our most vulnerable chil -- are little lungs and bodies.

I just encourage you to strengthen the proposed rule.

Thank you very much.

CHAIR NICHOLS: Thank you.

MS. RUSSELL: Good morning. I'm Loni Russell. I'm here today as a concerned citizen, a daughter, and an aunt. I'm a member and community organizer for Moms Clean Air Force, California, a community of over 80,000 California parents fighting for clean air. And on behalf of our members, I want to thank you for the opportunity to testify today.

I thank you for taking this important step and addressing methane pollution from oil and gas, and respectfully urge you to move forward with your proposal, while considering two important changes:

One, the current proposal includes a step-down provision which would allow operators to shift to less rigorous monitoring requirements, which would create a perverse incentive to avoid finding and reporting leaks and a reason to avoid fixing them quickly.

And, two, the current proposal pushes the implementation timeline by a year, from 2017 to 2018. Our communities cannot afford to wait.
The scientific record and public health co-benefits demonstrate that cutting methane pollution would provide strong public health protections for Californians and, most importantly, for our children. I'm no stranger to poor air quality, growing up in the San Fernando Valley, where my family still resides and many of my relatives still suffer from asthma.

Nearly one in every 10 school children in the U.S. has asthma, asthma being the number one health issue that causes kids to miss school.

Co-pollutants that leak along with methane lead to ozone formation or smog. Numerous studies have found elevated smog in regions with oil and gas development largely due to emissions of VOCs and the nitrogen oxides from these activities.

Standards that reduce methane emissions from oil and gas development will simultaneously reduce emissions and formation of health-damaging air pollutants, including VOCs, hazardous air pollutants, particulate matter and ozone.

So reducing all these would reduce exposure of nearby communities to these pollutants and the subsequent risk of health effects, including respiratory morbidity and premature death.

A large body of scientific research indicates
that oil and gas development associated with health impacts, empirical studies have found evidence of the following:

1) Higher reported health symptoms per person among residents who live close to gas wells.

2) Greater prevalence of adverse birth outcomes, including congenital heart defects, neural tube defects, and low birth weight for infants born to mothers who live in high densities of natural gas development.

Children, pregnant women, and the elderly are the most susceptible to these negative health impacts from oil and gas pollution. Let's keep our most vulnerable safe with a strong standard.

Thank you for this opportunity to testify.

MS. MOELLER: Good morning to the Board. My name is Jennifer Avila Moeller, and I come before you today as a mother, a concerned citizen of Porter Ranch, and a Southern California resident. Thank you in advance for allowing me a few brief moments to tell my story.

I am the mother of three beautiful children five and under. My son Mason is five and a half; Madison, two and a half, and Miles, nine months old.

I can remember October 2015 like it was yesterday. It was two weeks after I had given birth to our third child, Miles. I returned home from a
much-needed outdoor walk when I noticed a letter taped to
my front door on Southern California Gas Company
letterhead notifying me of the biggest Aliso Canyon
blowout known to date. Naturally I panicked. I was
horrified and stricken with more questions than I could
fathom.

Baffled and looking for answers, I immediately
relocated our family to a distant city away from our
current dangerous and hazardous living environment.
Prioritizing my family's health was of utmost importance,
and this mamma bear was not taking any chances of
jeopardizing my children's health or potential exposure to
developing future illnesses.

Because of this catastrophe I urge you to address
high levels of methane pollution in efforts to controlling
oil and gas operations by considering the following
options:

Fixed frequency inspections remove incentives to
shift to loose annual inspections. A substantial portion
of methane emissions across the supply chain come from
leaks. That's why a leak detection and repair, LDAR,
program that requires operators to regularly find and fix
leaks is a straightforward cost-effective way to reduce
oil and gas methane emissions. CARB's proposed rule
initially requires quarterly monitoring of facilities but
allows for a step down to annual depending on whether operators find leaks.

Also, the implementation timetable needs to be faster. Recent amendments push back to the implementation of the rule by a year. California communities need reductions sooner than that.

Did you know that children's lungs continue to develop after birth. Children breathe faster and spend more time outside than adults. That children are especially more vulnerable to air pollution in organs, much like a child's brain and reproductive system will continue to develop post birth. You can see why my sense of urgency to immediately relocate my family to safer and cleaner grounds was nothing less but my main priority when high levels of methane along with other cancer-causing chemicals such as benzene were being emitted into the air due to a lack of regularly regulated aging infrastructure in an oil-gas storage facility.

Living in a dense and overly populated city such as Los Angeles where driving vehicles is a commonality, smog and air pollution is already a heavy and weighted ongoing issue, let alone allowing for the release of high levels of methane into the air.

As parents and grandparents, I leave you with this question: What would you have done?
Thank you for your time.

MR. PAKUCKO: Hi. My name is Matt Pakucko. I'm the president and co-founder of the group called Save Porter Ranch, a nonprofit citizens education and action group; and I live right next to the blownout Aliso Canyon well.

So I know firsthand the effects that methane and its components have on people. And I'm saddened and really tired of hearing and seeing daily, still, after the blowout was supposedly stopped, of nosebleeds, rashes, headaches, asthma, and other respiratory and breathing problems from people that live near that facility.

So what I'm concerned about, as much as we rely under the new regulations, there's much reliance on local agencies to enforce the regulations. What's missing is clear enforcement and penalties for noncompliance.

In the case of Aliso Canyon, our local AQMD failed to do anything substantial even in the biggest blowout in, what, U.S. history. They gave a slap on the wrist, saying they have little authority over the operation of the facility, and issued that a temporary abatement order, which did little more than to monitor the problem, didn't actually stop anything.

So who has the authority to do something, to actually stop emissions? To actually shut down a repeat
or major offender that keeps on violating?

Apparently nobody, as we found out in the Aliso Canyon situation. Every agency claimed that it's not their jurisdiction to actually stop the emissions. It took, you know, a State of Emergency declaration by the Governor. Is that what it's going to take when there's an ongoing offender? Fines and more fines by our local agencies doesn't stop emissions from going into our lungs.

So what has worked and subsequently uncovered more massive failures by SoCalGas, including finding that many, many, a huge number of their wells failed basic integrity inspection, is shutting down the facility. The penalty of a facility shutdown must be included and enforceable by the State. This is the one thing that has been proven effective in getting the industry to do the right thing and actually stop the emissions.

And regarding the step-down thing, a step-down -- I'm glad you guys are trying to make it quarterly, because at our facility alone continuously leaking after all the scrutiny that's going on there.

March 18th, Termo, another operator, was busted by DOGGR illegally venting methane.

April 13th, another mysterious gas release. 43 complaints to the AQMD.

April 16th, Crimson Resources, another operator,
July 2nd, another pipeline leaking by SoCalGas. Our own real-time monitoring system shows spikes in methane every day.

So, yeah, we need quarterly, at least, if not a real-time monitoring fenceline around all these facilities, because this is just -- this is just one. We got 13 of those in the State. And this place is already under tremendous scrutiny and it's still spewing. So we need to get a little more stringent on that one.

Thank you very much.

CHAIR NICHOLS: Came right under the buzzer too. That's great.

MR. MAGAVERN: Good morning. Bill Magavern with the Coalition for Clean Air. And this is a rule that, as you know, has been in the works for a long time. I think your staff have done an excellent job of holding public workshops and listening to the input of a number of parties. And now I think it's time for you to take this first step and hope that the second step will happen early next year so that we can get this rule into effect.

It's important I think nationally and internationally. As you know, methane is a very important short-lived climate pollutant. And it's also important for the health of our communities. As you've heard from
people who live in Porter Ranch, who live in the San Joaquin Valley, these oil and gas facilities have a lot of impacts on people who live near them. And this rule will help to reduce some of the volatile organic compounds, some of the air toxics that are coming out of these facilities.

As you've heard, the proposal does very well in terms of cost effectiveness and also does provide benefits in addition to just reducing the emissions of methane.

And on the methane, I think it's very important that this rule does use the 20-year time frame for estimating global warming potential. And given the urgency of the climate crisis, it's very important that this Board continue to look in terms of 20 years or fewer rather than the extenuated 100-year lifetime.

We're glad to see that there are other requirements for vapor collection and for NOx reduction.

And what's particularly important in the staff proposal is the removal of the step-down for the leak inspection. As you've heard, it's important to be consistent with U.S. EPA, and to recognize that annual or even semiannual inspections are not frequent enough. We do need to have the quarterly inspections.

Given the urgency that we've talked about, we do hope that this rule will be implemented as soon as
possible. I know they still have some steps to go through with your final approval and also with OAL, but we're hopeful that some of it could be implemented before January 1st of 2018, which is a year and a half away.

And also, we're supportive of any efforts to try to get additional resources to the air districts to help them to enforce this important rule.

Thank you.

CHAIR NICHOLS: Thanks.

MR. HECTOR: Hello. My name is Jason Hector. You can put me down as a Porter Ranch resident. And --

CHAIR NICHOLS: I think you stepped ahead of your turn. Keith Nakatani was next.

MR. HECTOR: Sorry about that.

MR. NAKATANI: Thank you.

Good morning. Keith Nakatani. I'm with Clean Water Action. Our mission is to protect the environment, health, and economic well-being of communities. We're a national organization with over a million members.

First we'd like to thank the Air Resources Board for the methane regulations. But given the magnitude of the problem, we urge you to strengthen the regs, as you've heard from several speakers.

I think it's also important to highlight that the methane emissions are not only a huge environmental
problem, but they're also a huge public health issue. I was really glad to see my colleagues from the Central Valley and also the Porter Ranch residents highlighting the public health impacts.

So Aliso Canyon of course is something that everyone knows about. But what is less well known is that almost five and a half million people in California live within one mile of an oil or gas facility. That's almost 14 percent of the State's population. So the nausea, nose bleeds, dizziness, asthma, skin rashes, and other afflictions that people near Aliso Canyon experienced are experienced by residents of other communities on a regular basis.

For example, the town of Lost Hills, which is about 40 miles from Bakersfield, northwest of Bakersfield, is situated immediately adjacent to the Lost Hills Oil Field, which is the sixth largest oil field in California. So it's a huge facility.

If the Board members have not taken a tour down to Kern County - I'm sure some of you have - I would urge you to do so. To say that it looks other-worldly is a major understatement.

As Lost Hills is immediately adjacent -- is immediately east of the oil fields and the prevailing winds blow from the west, the noxious odors blow through
town on a regular basis. And so the residents, who are predominantly low income and Latino, regularly suffer from those afflictions that I mentioned before. Again, almost five and half million Californians live within a mile of an oil or gas facility.

Reducing methane emissions is an environmental issue, but it's also an issue of fairness and justice. Please keep this foremost in mind as these proceedings go forward.

Again the proposed regulations are a good start. But you need to do more to strengthen them.

Thank you.

CHAIR NICHOLS: Thank you. Okay. It's your turn now, Mr. Hector.

MR. HECTOR: Thank you. My name is Jason Hector, Porter Ranch of residents. I was asked to speak on behalf of our community by Moms Clean Air Force. I want to thank them. I want to also thank -- it's an honor and pleasure to speak in front of the Board here.

And I want to tell you I'm a long-time resident of Porter Ranch. I'm a husband, a father of an amazing three and a half year little girl. I'd taken care of my elderly grandmother for over a decade. She was 98 years old and went through this gas leak with us together.

Or I -- number one, I want to say that the
step-down provision, I agree with staff, that should be removed so they can get leaks fixed quickly. Number two, the time frame should be as quick as possible. I know some industry folks that are complaining about that. But if they would have been doing the preventative maintenance that they knew about, you know, they're aware all of these facilities were in shambles and they could have been doing this a long, long, long time ago. So stop bellyaching about it.

During the massive gas blowout I personally experienced severe headaches, nose bleeds, blood in my phlegm, lethargy, sick feeling, extreme allergy-like symptoms. My daughter had difficulty breathing and other sickness symptoms for a long time, even after we relocated. My first severe symptoms started after being outside and exposed to the methane blowout for several hours. I suffered from a severe headache and my wife felt very dizzy. After speaking with public health officials, we left our home, checked into a hotel. My 98-year-old grandmother was relocated as well. Unfortunately when we returned to our home to pick up clothes and mail and things like that, we'd get sick.

I'm very concerned about the health effects of children who live and go to school near oil and gas facilities.
We still don't know the chemicals they may have been exposed to since they haven't been -- they've been deemed confidential and proprietary. Once moving back oily residue was found in the parks; and since, we haven't returned to those areas.

I'm concerned about the concept of storing gas underground. It's a flawed concept in my eyes. There's not a steel scuba tank underground to ensure containment of this very high pressure reservoir. Also, how can we confirm there are not leaks coming up from this reservoir? We're talking about geologic formations here. And I submitted for the record the fault lines that run through Aliso Canyon. How can we be sure that the gas is not moving up through the reservoir, through the ground and through the water as it reaches the surface?

And I submitted a lot of data for you to review because I'm making testimony to the South Coast AQMD regarding the leak detection programs. Just a few quick suggestions. NASA and JPL have drones that they're working on, they're mobile, for monitoring methane. I think this needs to be incorporated, along with the LI-COR vehicle which you are probably all familiar with, the mobile methane monitoring vehicle. We need that vehicle on site daily at Aliso Canyon and other facilities too that have nearby communities.
Thirdly, I think they should develop an "I smell it" application where people in communities once they smell it they can hit the app and send it right to where it needs to go.

Thank you very much.

CHAIR NICHOLS: Thank you.

Les Clark.

Take your time. It's okay.

Good morning.

MR. CLARK: Madam Chairman, good to see you; Board members. My name's Les Clark. I'm with the Independent Oil Producers Agency. Represent a lot of the mom-and-pop operators in the Kern County area.

I have some concerns with the reg. But we've been working with your staff to address a lot of those concerns, and I'm appreciative of that, and we'll continue to do so. A lot of work to be done.

I think one of my biggest concerns is -- now, you've addressed it, but I still want to make a point and that's the registration as far as who's going to be running this program. Is it going to be the Air Resources Board or is it going to be the local air district?

I went through this about -- about 12 -- 10, 12 years ago on registration. And I'll tell you at that time, it was confusing. No one knew who was on first
base. So no matter what happens, it needs to be clearly defined as far as I'm concerned.

And we don't want to be, like you said earlier, double jeopardy as far as who's actually enforcing the rule.

I'd also like to mention some of the words that most people ignoring, and that's technically feasible and cost effective. And I think as we go through this regulation, those two -- or that phrase needs to be considered.

As you know, in Kern County we're over the last month -- or year and a half, we're probably around 3,000 jobs lost in the oil industry.

And what this regulation will do will add to that cost of producing a barrel of oil. So that means -- that's called lifting cost. So that means there are probably more jobs lost for that. So I want to make sure everybody knows that. Everybody talks about health. I'm with it. But I live in an area too right next to an oil field in Taft, California. In fact, I think I'd probably be considered an EJAC recipient myself, I've lived there so long. But there was a gas-like coast right by my place, so -- but I would just caution and let's use some common sense as we develop this regulation.

I appreciate the time to be here. Thank you.
CHAIR NICHOLS: Thank you.
Okay. I think we have now arrived at the group presentation. Is this -- okay, we have four more and then we are finished with the witness list.

MS. PITCHER: Good morning, Chair Nichols. The three speakers behind me do acquiesce their three minutes to me. So there'll just be one speaker.

Good morning, Chair Nichols and members of the Board. My name's Jenifer Pitcher, and I'm a life-long resident of Bakersfield, and I represent the Western States Petroleum Association. WSPA is a nonprofit trade association representing companies that explore for, produce, refine, transport, and market petroleum and petroleum products in California and four other western states.

WSPA and WSPA member companies as key stakeholders have worked extensively with ARB staff for well over a year in the development of the methane regulation. Staff has accompanied us in the field to observe voluntary testing that WSPA members conducted on circulation tanks in the rule development process.

From the beginning of the rule development process we have emphasized the importance of ensuring that the methane regulation recognizes existing control requirements and does not unnecessarily impose duplicative
requirements on operations. In that regard, it is
important that the final regulation be consistent with
current, successful local, state, and federal air quality
regulations.

On Monday, July 18th, we provided extensive
comments to your Board and staff. WSPA's concerns with
the rule as currently written are centered around:

ARB's focus on insignificant emission sources;
questionable emissions estimates; proposal of nonexistent
control technologies; duplicative requirements with other
regulations; and the increasingly compressed timeline for
implementation.

So my comments today will summarize the following
key issues that need to be resolved:

The first, significant source of methane
emissions; secondly, circulation tanks; third, gauge
tanks; fourth, leak detection and repair, or LDAR; and,
five, the compliance schedule.

So first, for insignificant sources of methane
emissions. As WSPA has previously stated in our previous
written comments, we believe that this rule unnecessarily
focuses on insignificant emission sources, like
circulation tanks and gauge tanks.

For example, circulation tanks have an average
methane emission of 26 pounds per tank per event. To put
that into context, 26 pounds of methane is about 10 percent of the annual emissions of natural gas consumption used in a two-person household, and there's more than 12 and a half million households in California.

WSPA does not believe the ARB's focus on small sources of methane emissions, such as circulation tanks that are a total of 72 metric tons of methane statewide, is efficient or necessary to achieve the statewide 40 to 45 percent methane reduction goals.

Secondly, circulation tanks. ARB is proposing control requirements for circulation tanks beginning in 2020. As noted in our comments, we remain concerned that there are no feasible control technologies currently available that can achieve the requirements to be able to meet 95 percent control efficiency, including disposal — and I want to emphasize the disposal — of the methane without the use of supplemental fuel and/or that can be disposed of in a safe manner.

So for -- to point out to Senator Florez's question earlier about the NOx, we cannot have flares without supplemental fuel because it's a low quality of gas and it's noncombustible -- expected to be noncombustible according to our studies. So essentially we have no compliance mechanism, and we addressed this in our comment letter. So I urge you to read that section.
And, Dr. Sperling, this also addresses your concern from earlier.

While there are ideas and concepts that ARB staff presented to you today, right now they are just that; they are ideas and concepts which have not been proven that they will work without compromising worker safety, which is always our number one concern.

We would also point out that these concerns were not addressed in the Environmental Assessment. And that is in the event that no technology meets the proposed requirements by January 1, 2020, operators would essentially have no viable compliance options to comply with the 95 percent control requirements and would have no choice but to shut down.

ARB must consider all potential scenarios and allow operators alternative compliance mechanisms for all potential sources beyond 2020. Therefore, we recommend ARB revise the section on circulation tanks to allow the continued use of best management practices beyond 2020 if no control technology is developed.

Without such clarifying language in the regulation, the language as written would prohibit hydraulic fracturing after 20 -- after January 1, 2020. We do not believe the NOx gap is closed.

So, Chair Nichols, we were just basically asking
to be -- for this to be clarified in the rule that if such
technology is not developed by 2020, that we would
continue to use best management practices until that
technology is developed.

Gauge tanks are another small source of methane
emissions, representing less than half a percent of ARB's
estimates for separator and tank systems. These tanks
were not mentioned or discussed in any of the previous
versions of the rule, in ARB's economic impact analysis,
the standardized regulatory impact analys -- or
assessment, or the SRIA, or the draft environmental
assessment.

We are concerned with the last-minute addition of
this source category without conducting any feasibility
studies or economic impact analysis associated with
requiring vapor recovery systems on these tanks.

We have included in our comments technical data
and information about our concerns on this issue.

In addition, we also urge you to review our
comments in regards to the separator and tank section of
the regulation and request ARB consider and incorporate
our proposed recommendations.

The fourth, the leak detection and repair. While
we appreciate staff's efforts working with us on the LDAR
requirements and the goal of ensuring that implementation
of the LDAR program is as efficient as possible; i.e., having one inspection program, we remain concerned with this section. As written, it still will result in two sets of inspections; two programs; and two record-keeping requirements, one for the local APCD, one for the ARB, as the programs differ so much in details.

It appears that a staff objective of recognizing existing district programs will not be achieved. Also, as currently written an LDAR program will be required for equipment that in practical use or practical application does not have the potential to emit methane.

The LDAR requirements in the proposed regulation will present significant difficulty for owners and operators to find enough competent contractors to perform and correctly document inspections; not to mention the additional staff time it will take from both the operators and ARB staff or APCD staff should you defer implementation to the districts.

In addition to these concerns, we noted staff's recommendation to remove the step-down. We do not support this. APCDs in California have a long history of LDAR programs and we look forward to working with staff on that and on this proposed recommendation.

Lastly, the Board approved -- the final Board approval of the rule appears to be scheduled for early
2017, which was pushed back significantly from the original intended adoption date. Well compliance deadlines of January 2018, this leaves 35 air districts in California less than nine months to develop, refine, receive, and consider comments and finalize their own rules in order to implement this regulation the ARB will have been working on for over two years. As you know, the districts are bound by certain statutory processes that will most likely not be able to be completed in the time frame allotted in this rule. The compliance deadlines in the rule should be extended to allow time for APCDs to develop rules to implement the new regulation and for operators time to comply.

We do support most of staff's recommendations as listed in Attachment A. We also urge the Board to include certain clarifications as discussed and our recommendation on the circulation tanks.

WSPA and our members thank you for the opportunity to comment. I urge you to review our comments we've submitted on this last go-round or any of the comments on the technical justification for arguments, and we look forward to continue to work with staff and management prior to the next hearing. Thank you for your time today. I am available for questions, as are our technical experts.
Thank you.

CHAIR NICHOLS: Okay. And you now have spoken then for all of the group?

MS. PITCHER: That's all of it, yes.

CHAIR NICHOLS: Great.

MS. PITCHER: Thank you.

CHAIR NICHOLS: Thanks, and appreciate your detailed comments.

We do actually have one additional late sign-up here. So a representative from PSE Healthy Energy.

And this is the last witness.

MS. PISTEY-LYHNE: Good afternoon, Chair Nichols, commissioners. My name is Daisy Pistey-Lyhne, and I'm with PSE Healthy Energy.

We're here today to submit comments on this regulation. And, first of all, we are submitting these comments on behalf of PCE Healthy Energy, a national energy, science, and policy institute that supports the adoption of responsible evidence-based energy policies that aim to protect the climate, public health, and the environment.

We are very pleased that these regulations are moving forward, both in light of the Aliso Canyon gas leak disaster, the recommendations of the California Council on Science and Technology's independent scientific study of
well stimulation completed last year, and the national
commitment made by the Obama administration to reduce
methane leakage from the oil and gas sector by 40 to 45
percent by 2025.

We strongly support CARB's proposed standards for
crude oil and natural gas facilities and especially
appreciate your leadership in proposing these standards
simultaneously for both new and existing sources. These
will be strong regulations and will be leading the nation.
And we encourage swift implementation of these standards
to mitigate climate change and protect the health of
Californians.

We would like to see some improvements to these
proposals to ease public participation in the regulatory
process, especially with respect to the LDAR program as
described below. First of all, we would like to see CARB
not take a step-down approach, as staff has recommended,
to enforcement. CARB should maintain a consistent
standard for inspection frequency. Under this proposal,
falling to discover leaks can lead to ease requirements
and less frequent inspections. And this is flawed,
because the absence of a leak reveals nothing about the
probability of a future leak.

If falling to detect leaks can result in reduced
requirements for inspections, companies are incentivized
to encourage less rigorous inspections. Operators may
find it in their best interests to not find leaks rather
than repair them. This reproach may set a poor
regulatory precedent as methane leakage is regulated in
other states and at the federal level and for regulations
of other pollutants.

If addition to these regulations, we also urge
CARB to engage in community scale air quality monitoring
to ensure that communities exposures to air toxics
attributable to oil and gas development are not elevated
beyond thresholds for health.

We also recommend that CARB consider the
implementation of minimum surface setbacks, as recommended
in the CCST independent scientific study of well
stimulation completed last year.

We applaud your attention to underground storage
with special monitoring requirements. And we are
conducting a nationwide study of best practices on gas
storage facilities currently. The proposal to have the
ability to remotely access readings from the continuous
monitoring of ambient air from underground natural gas
storage facilities by 2018 will be important.

Sorry.

CHAIR NICHOLS: Thank you. Your time's up.

MS. PISTEY-LYHNE: Okay. Thank you.
CHAIR NICHOLS: Thank you.

Okay. That concludes our witness list, so we can close the formal record at this point and proceed to some Board discussion here. Maybe we can just start off if anybody has any specific questions that they want to ask of the staff at this point or ask staff to respond to any of the comments.

Ms. Berg.

VICE CHAIR BERG: Just to get us started, could staff go over the process once again from this time going forward, what you're going to be looking at, kind of what direction you're taking. That might be helpful in formulating some of our questions up here.

SENIOR ATTORNEY SEGALL: Sure. I'll started, Vice Chair.

Our plan going forward is to continue many of the collaborative processes we've already been undertaking with stakeholders and members of the public in the air districts. So we'll be exploring with CAPCOA and air district staff appropriate memoranda of understanding to help clarify implementation and enforcement, as you heard from today. And we'll also be working with many of the technical stakeholders, environmental justice groups, and members of the public on many of the technical issues you've heard about. So you'll see that reflected in a
15-day package when it comes back to you.

CHAIR NICHOLS: Yes, Supervisor Serna.

BOARD MEMBER SERNA: Thank you, Chair Nichols.

There's a question of the economic analysis as it related to the LDAR that was mentioned by one of the speakers; and it sounded to me like there was a pretty distinct noticeable difference of opinion there in terms of the actual impact. I'm wondering if Emily can maybe chime in and maybe give us an idea of where you think maybe that difference of opinion -- what the genesis of that is.

CHIEF ECONOMIST WIMBERGER: Yes. No, I think it's really important to get the numbers right to the extent that we can. So we will be taking a careful look at the analysis that was done.

There were a few different pieces that were done on the economic side. As you've heard, this has been sort of a lengthy process to get the regulation through. So there was an addition -- an initial SRIA. There was an original macro-economic analysis that was submitted to DOF I think in April of last year. And then that was recently revised to reflect all the changes that this regulation has undergone.

So we do want to make sure that the numbers are right and that we are looking at all of the right pieces.
We were -- we're happy to work with the different stakeholders to make sure that what they're seeing -- if they have better data, we want to use that better data. We do want to get these numbers right.

BOARD MEMBER SERNA: Thank you.

CHAIR NICHOLS: Yes, Professor Sperling.

BOARD MEMBER SPERLING: You know, like many, I'm very alarmed by what's happening with climate change, and I'm a strong advocate of many policies and regulations. But I have to say, kind of looking at it big picture, I am somewhat apprehensive about this whole set of regulations. We are talking about really a small source -- relatively small source. We're talking about four percent of the methane, which is about 20 percent of the total. So we're talking about less than 1 percent of the problem. And then we're talking about a huge number of small sources. So that 1 percent is really thousands of smaller sources.

And then I hear from CAPCOA about the difficulty of adopting and enforcing all of these regulations. So I -- I'm a little queasy about this overall thing. But to give it a positive twist, you know, given that we've gotten this far, I would suggest -- I would kind of urge that we really think really deeply about what are the really big problems, the big sources, and stay
focused on that and try to do things that really are cost
effective and are going to have a big impact. And there
are failures. There's the Aliso Canyon example. But
that's not -- as I understand it, would not have been
prevented by anything that we're proposing here.

And so -- you know, so that's one principle
that -- if we can use.

The other principle is -- it's more of a
question -- is, do we need to be really leading on this so
much? I mean, this is not -- this is a greenhouse gas
regulation. It's a global problem. It's not a health
problem. Yes, I understand there can be small amounts of
copollutants, but it's essentially a greenhouse gas
regulation, and EPA -- as I understand -- so I'm not an
expert in this -- EPA is moving in the same -- is going to
be adopting rules for these same sources at least in a
general sense.

So I don't know that there's -- so I think it's
more that we should think about this going forward with,
you know, the kind of regulations we do and the policies
we do. We have limited staff, limited resources; you
know, we can be imposing a lot of costs. So a note of
cautions.

CHAIR NICHOLS: You know, your comments, I
probably give you the factual background, but come to kind
of a different conclusion.

I have lived through the experience of the whole leak detection problem and early days of working on VOC regulations where we were worrying about valves and flanges and floating roof tanks and things. There's a few of us around who still remember all of that.

By focusing on that issue, we did really move the whole state of the art and the state of technology around these facilities. And, yeah, at the time, it wasn't -- the leaking wasn't worth it to the companies to fix it. This was a product there for them to really, you know, care about recapturing. And in the end, they began to realize that this was something that they were going to have to pay attention to, and the state of housekeeping improved enormously as a result of it. And to a big extent, this a housekeeping issue that we're dealing with.

I mean it's expensive and annoying to have to look all the time for leaks. But what we see is that there's a huge amount of leaking going on relative to the total amount of the product.

So, you know, the alternative -- and there have been people who have suggested that this is the correct alternative -- if you really want to look at the big picture and the biggest cost effectiveness, get rid of the product, switch to something else that doesn't leak. I
mean, that's the answer - just use less of it. And then, lo and behold, there's a lot less leaking.

Because whatever is out there is going to leak to some extent, and we're not going to be able to prevent a hundred percent of it. So you're right on that point.

I just -- I think that obviously there's a -- there's a question here about, you know, how perfect we can be. But I do really like the new emphasis on the public side of this information, because living in Los Angeles where we have old wells -- I'm not talking about the current storage facilities. There's only a couple of those. I'm talking about abandoned facilities out there in communities as well as all kinds of still small mom-and-pop type operations going on, the public when they find out about these things oftentimes become fixated on them and, you know, to the level of really having health issues just associated with the anxiety of living near some of these facilities.

And people need to know what's going on. They need to be able to assess what's happening and to know that there is at least somebody looking at the problem, and making sure that they have access to that information and to know that the standards are being maintained.

So unfortunately, I don't think we have any option of just not doing it at all. And the question is,
if we're going to do something, you know, how do we do it as -- in as pointed a way as possible.

And Supervisor Roberts has something to say on that point, I know.

BOARD MEMBER ROBERTS: Thank you, Madam Chairwoman.

You know, as somebody who has trouble understanding the plumbing in my own house, to look at the complexity of all these valves and all of that stuff is -- I have to admit is a little bit beyond me. But I do know, when you have a leak, you fix it. So in that sense, it seems to me that there's some good reason to move ahead on this.

I was concerned and I think with a point that was already made in terms of the -- seems a wide discrepancy on the economic analysis; and I understand staff's going to address that.

There was one other point that was made, and I think it might have been made a couple times, and I think it might have been Tim Carmichael that made it, and he referred to an effectiveness because of coordination between efforts of agencies. And I hope staff will dig into that and find what's being referred to and -- we don't need inefficiencies that drive the cost without any benefits. We -- you know, that's not been part of our MO.
So I hope we'll understand fully. It wasn't clear to me exactly what's happening, but it sounded like there may be duplication of efforts and an overlap of responsibilities that could be driving some of that cost without a commensurate benefit.

So I'd like to make sure that staff looks into that also, and lets us know what they would find.

CHAIR NICHOLS: Yeah, I see head nodding at the staff table. But maybe we could just be explicit and say that, you know, before we go final with this, that we'd like to see a plan for implementation that includes some understanding of the roles of the various entities that have authority here.

I'm going to turn to Mr. De La Torre since he hasn't spoken yet.

BOARD MEMBER DE LA TORRE: Thank you.

I want to congratulate staff. I think -- and I don't do this often. It's just I think I take it for granted that you know that we appreciate you.

(Laughter.)

BOARD MEMBER DE LA TORRE: But for a first-time-ever regulation, in an issue area that it's fraught, I didn't hear a whole lot of disagreement. I mean, obviously, you know, the folks on the industry sides have some concerns and then folks on the advocacy side had
a couple of concerns. But there isn't a whole lot. For something like this, it is really impressive that the areas of disagreement are relatively narrow. And so I wanted to thank you for all of the work that you put into it to get us to that point.

And obviously we'll hash those things out, as we always do, and well have to make decisions on those tough few things.

And then the other point I wanted to make is, unlike the federal, this is for new and existing. And again, for the people of California, for us to be looking at all of this -- I mean, we are an agency that regulates gallon gasoline cans. We regulate antiperspirant spray. So, I think this on the scale of things is a little more important. And so I'm very, very proud that we're here today and we're going to be moving this along.

Thank you.

CHAIR NICHOLS: Thank you.

Yes, Mr. Serna.

BOARD MEMBER SERNA: Thank you, Chair.

So I think that this is one of those issues that really -- an opportunity that really requires us to reflect back on our mission as an agency and, that is, to first and foremost protect and promote public health, obviously with consideration for our economy. That's
clearly stated in our mission as well.

But, you know, I guess I'd respectfully disagree with my colleague, Dr. Sperling, in terms of viewing this as such a small element of what we're charged to do. I actually, you know, think it's very much a part of what we're expected to do in principle, regardless of the order of magnitude here.

And as was mentioned before we heard from the speakers today, this particular pollutant, this particular air contaminant does have a bearing on climate change and our charge to address that and greenhouse gas emissions, but it also has a very important health aspect; and I'm very glad to see that the folks from Aliso Canyon, near Aliso Canyon showed up today to give us a very I think relevant -- some very relevant testimony about their personal experience, having gone through the largest gas leak in the history of this country.

So I -- you know, I'm very prepared to support what's in front of us today. I think it -- the alignment of what we're being asked to consider with our mission as an agency is crystal clear for me. So I'm prepared to move the item at the right time, Madam Chair.

CHAIR NICHOLS: Okay. Thank you.

Yes, Ms. Takvorian.

BOARD MEMBER TAKVORIAN: Thank you. And I have a
couple of comments and then a question for the staff.

I wanted to add my congratulations to the staff
and thanks for a really job well done. I think this is a
major, major issue. And certainly I want to thank
everyone who came from the public, but especially to the
community members who -- for whom I know it's very
difficult to come to Sacramento. This isn't something
that's easy for you to do. You have to make adjustments
in your daily life to take care of your kids, to take time
off work. And so I think all of us here really appreciate
that you're here and that you represent some of the
communities that are the most impacted by these pollutants
and that have gone for so long with lax regulation or
nonexistent regulation. So many of you are the ones who
have both suffered the acuteness of the Aliso Canyon leak
but also the chronic conditions that many of you,
particularly like in Kern County, have expressed -- have
endured over many decades

So I would say that to the degree that we can
expedite the timeline and get this rule back in front of
the Board in early 2017, that I think would be something
that would be important to do because I think we need to
be more responsive to the community members who are
enduring this.

And with all due respect, I don't think that this
is something that anybody thought wasn't going to happen
over the last several years. And I know you've been
working hard on it. So I have confidence that all of the
industries that need to are gearing up for this.

And I really do appreciate the removal of the
inspection step-down. I think that's appropriate to do.
It's clear that monitoring and disclosure works,
transparency works, so let's inject more of that.

And I would agree with our Chair, that there are
those that might join them to say there's a way to solve
this problem, pollution prevention is a good way to solve
it, and we switch to another source of energy and then we
won't be doing -- we won't be arguing about whether it's
too fast or too expensive. We'll be talking about how we
can have a sustainable, renewable health-promoting source
of energy.

So I think we are talking about that in other of
our rules and others of our programs. So I appreciate
that and I think it's appropriate.

My question is: I understand that - and I want
to make sure I'm understanding this correctly - that Bay
Area Air Quality Management District does have similar
rules in place now; and I wanted to understand what the
relationship is and comparison is between the standards
that are being promoted or proposed in this rule and
those -- and how you see those integrating.

Thank you.

OIL & GAS SECTION MANAGER NYARADY: Sure. This is Jim Nyarady.

The Bay Area has -- currently has rules for refineries and they also have a rule for marine vessels and they have a rule for oil and gas fields, all of which have an LDAR leak detection component, but they do have different standards. Some go down to as far as a hundred ppm and some are as high 10 thousand ppm.

So what we've done in ours is to set a standard of a thousand ppm as the trigger. And the idea being mostly because we're, you know, looking at some sources that haven't been regulated before like the -- you know, the natural gas storage and so on.

So that's kind of the range that they have in the various rules.

BOARD MEMBER TAKVORIAN: But aren't the mechanisms similar in terms of the leak detection in terms of the equipment itself? And if those are working well at the lower levels, can you talk about why the lower levels weren't incorporated or what your thinking was about that?

OIL & GAS SECTION MANAGER NYARADY: Well, yeah, we were really looking at the other oil and gas rules that are out there, and the field rules so a lot of those have...
2,000 ppm or a thousand ppm. So we were looking to be consistent in this effort of what the local air districts are doing with oil and gas inspection.

But, you know, clearly there's the, you know, looking forward to -- the idea of being that when these first get implemented, they usually start at a high number and then they lower down over time. So in the Bay Area's refinery rule, for example, it started higher; but as they controlled other parts of the refineries, the fugitive portion became a larger and larger portion, so they kept coming down in concentration for those. But we're going to be starting with some of these that haven't been regulated before and some are starting at the thousand ppm limit.

OIL & GAS AND GREENHOUSE GAS MITIGATION BRANCH

CHIEF SCHEEHLE: I also just wanted to add on one point, that when you're moving from something like 10,000 to 1,000, you got a significant percentage increase in the leaks that you find; going from a thousand to 500 we found was in the like 1 percent -- a couple percent range. So we felt like this was a good place where we could get the majority of reductions.

BOARD MEMBER TAKVORIAN: Thank you.

CHAIR NICHOLS: Thanks. That's helpful. I wanted to ask a question about the step-down,
because it's -- was raised by a number of the speakers. And I understand there's sort of an intuitive idea that if somebody's doing a good job, we want them to be able to inspect less, and that that could -- not having to do so many inspections would seem to be an incentive for people to do a really good job on leak detection and repair.

But, conversely, if we really believe that everything is going to leak eventually, I'm not sure that that's actually the right way to go about addressing the problem. And I'm -- I'd like to ask you sort of to justify your thinking a little bit more, especially with relationship to other safety situations that we know about, because it is safety as well as air quality that we're -- one way or another is implicated, and whether there are other alternatives that might be out there as incentives to people to do a really good job on the repair side of things as opposed to just doing less inspecting.

OIL & GAS AND GREENHOUSE GAS MITIGATION BRANCH

CHIEF SCHEEHLE: Well, we -- there's several reasons why we decided to propose to remove the step-down, which was -- as you were saying, just because you find leaks, it doesn't mean that -- you know, just because you do that and you do that in a good manner for five quarters, it doesn't mean that you won't have a leak after that. So looking at the analysis that was out there, the scientific
papers about how leaks can occur at any time and any
place, we decided that this -- you know, keeping the
quarterly inspections was the appropriate way to do that,
and to make sure that we're on the ground in a regular
fashion to -- in order to address things like leaks that
have happened at the storage facilities as well as --
because there were some that even happened after Aliso
Canyon, I think somebody mentioned -- smaller -- but
McDonald island, and there was another --

CHAIR NICHOLS: So your current position, just to
be clear, is that you're not going to reduce the frequency
of inspections?

OIL & GAS AND GREENHOUSE GAS MITIGATION BRANCH
CHIEF SCHEEHLE: Yes, yes.

CHAIR NICHOLS: Okay. Great. I had gotten that
backwards then. Thanks.

Other -- yes, Dr. Sherriffs.

BOARD MEMBER SHERRIFFS: Thank you.

I'd also like to congratulate staff. You know,
you've clearly hit the sweet spot when we have angry
mothers on one side and oil and gas on the other. So
great job.

(Laughter.)

BOARD MEMBER SHERRIFFS: You know the co-benefits
I think are worth emphasizing, because we're focusing on
methane, but part of the this regulation -- methane is not traveling alone. There are other chemicals we have to be aware of. And I am haunted by an early death in my practice related to a brain tumor, somebody working in oil and gas. And I worry about benzene and toluene and those other chemicals that we do know are associated with those kinds of problems. And I can't be sure -- I don't know if that death was associated with that, but certainly there's a strong literature that we need to be concerned about those kinds of things.

So the health co-benefits beyond methane alone are certainly very important.

You know, the districts know this is coming, and the San Joaquin District, we've talked about this at a couple of Board meetings. So the staff are gearing up. Clearly, not -- no details because the details are not out yet, but it's expected. And then in fact the district is looking forward to accepting this responsibility and working with the local stakeholders on it.

The other issue -- yeah, we want to focus on big resources. But again it's preventive medicine because it's the potential big sources. And so a lot of this is preventive medicine. And nobody should expect to be thanked for preventing something that didn't happen because nobody knows it didn't happen, unless they believe
(Laughter.)

BOARD MEMBER SHERIFFS: But it is so important, it is such important work.

I guess I would want to be sure that staff rethinks, you know, 26 pounds per tank per event doesn't sound like a very big number. I'm not sure how many events per year we're talking about. So doing the math.

But I would also want to be sure that our friends, colleagues, collaborators, and the industry are looking at that and saying, "Well, if we think it's too hard to get it here, where is another place we could get that," kind of equivalency. So I think that's a fair question to ask too.

Thank you.

CHAIR NICHOLS: Yes, Mr. Gioia.

BOARD MEMBER GIOIA: Let me first start by saying I wouldn't call them angry mothers. I'd call them passionate mothers.

(Laughter.)

BOARD MEMBER GIOIA: So we appreciate you being here and being great advocates.

And I don't want to add much more to those who've already spoken, that I think that the staff has struck a balance on this. I think this is an important role for us
to have. And as we heard from the staff representative from the air district, there will be some additional regulations on top of what already exist at the Bay Area and intending to sort of look at these standards even further.

So I will be supporting this.

CHAIR NICHOLS: Any other comments here? Well, Ms. Berg hasn't spoken on this issue, somewhat to my surprise.

So I'm going to say something about it. And it has to do with implementation in areas where you've got a lot of small operators working. I'm hoping -- I don't like to see exemptions or, you know, easier regulations when you've got a multiple city of small people, because you're still going to have a lot of emissions out there. But I would like to see if there's a way that we could facilitate some kind of reporting and monitoring requirements that could be effective across a group rather than having to be necessarily implemented separately by each and every one of these folks. And I think maybe the industry association might be helpful in that regard in terms of developing some sort of a methodology whereby a whole region could perhaps get together to make the process more cost effective. I just think that's something that's worth trying to figure out. If you can
facilitate that happening, it would be a good thing.

VICE CHAIR BERG: Thank you, Chair Nichols. I am working with several of the smaller groups and had a great briefing with staff, and have also had a couple of meetings with staff through this process. I'm very encouraged and really looking forward to continuing to facilitate between the groups that I'm working with and with staff. I'm getting very positive responses on both sides. There's several technical areas that I am pursuing for them.

CHAIR NICHOLS: Good. I'm glad to hear it.

VICE CHAIR BERG: And thank you for bringing it up.

CHAIR NICHOLS: Okay. All right. So do we have a motion to approve the resolution?

BOARD MEMBER SERNA: So moved.

CHAIR NICHOLS: I'm sorry. You did it. All right. Do we have a second?

BOARD MEMBER ROBERTS: Second.

CHAIR NICHOLS: All right. A second from Supervisor Roberts.

I think we can do this again by voice vote.

So all in favor please say aye.

(Ayes.)

CHAIR NICHOLS: Opposed?
And nobody is abstaining.

Okay. Terrific.

Thank you. Thank you, all. Thanks, everybody.

This is obviously not the end. It's a point in the process and there's a lot of work left to be done, but we're all committed to seeing it come to a successful conclusion.

So, this is probably a very good time to break for lunch.

And give the court reporter a break too.

Okay. Let us adjourn and be back at 1:30 then.

Thank you.

(Off record: 12:23 p.m.)
(Thereupon a lunch break was taken.)
AFTERNOON SESSION
(On record: 1:46 p.m.)

CHAIR NICHOLS: Good afternoon, ladies and gentlemen. I'm on. We're back in session. The Board is returning from lunch.

And the next item on our agenda is going to be a presentation update on the status of the greenhouse gas emissions from light-duty vehicles from 2017 through 2025 model years. But before we get started on that, I do want to report that we did have a closed session at lunch, and our counsel briefed the Board on the status of ongoing litigation. There were no decisions made.

Okay. So we're on to Item 16-7-5. And we're now going to be hearing about the technical assessment that was just released. ARB and our partners in the federal government, EPA and the National Highway Transportation Safety Administration, worked together to do a technical assessment of the appropriateness of the federal greenhouse gas standards for light-duty vehicles for the 2022 through 2025 model years. This is part of the mid-term review of the standards that California adopted along with the federal government.

And so we'll hear from the staff at this point, but there will not be any formal action taken on this item.
And, Mr. Corey, do you have anything to introduce here?

EXECUTIVE OFFICER COREY: I do, briefly.

In 2004, ARB adopted the Pavley regulations, the first in the nation to require reductions of greenhouse gas emissions from motor vehicles. Those regulations covering 2009 through 2016 form the foundation for the Federal GHG Program for passenger vehicles for 2012 through 2016 model years.

In May of 2010, a presidential memorandum directed the United States Environmental Protection Agency and the National Highway Traffic Safety Administration, or NHTSA, to work jointly to develop GHG standards for model years 2017 through 2025. The memorandum requests that EPA and NHTSA work closely with ARB to assess technologies and costs for the standards.

This led to a comprehensive technical coordination between our three agencies that resulted in federal passenger vehicle GHG standards that closely mirror the California standards for the same model years.

So an important element of the standards was requirement that U.S. EPA and NHTSA and ARB conduct a mid-term review to assess the appropriateness of the standards for 2022 through 2025. And, as the Chair noted, there's a report that was recently released, and this an
informational status report on that document.

So with that, I'll ask Mike McCarthy to give the staff presentation.

(Thereupon an overhead presentation was
Presented as follows.)

VEHICLE PROGRAM SPECIALIST McCARTHY: Thank you, Mr. Corey.

Good morning, Chair Nichols and members of the Board. Today's presentation will summarize the status and importance of the joint Technical Assessment Report, or TAR. This report, which was released this past Monday, is the first milestone in the California and federal mid-term review of the 2022 through 2025 model years light-duty vehicle greenhouse gas emission standards.

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VEHICLE PROGRAM SPECIALIST McCARTHY: First, let me take a minute to revisit how we got to where we are. In 2012, ARB adopted its second generation of greenhouse gas emission standards for light-duty vehicles as part of its Low-Emission Vehicle III, or LEV III, program. The LEV III regulations established increasingly stringent greenhouse gas standards for 2017 through 2025 model year light-duty vehicles, which includes passenger cars, sport utility vehicles, and pick-up trucks. The LEV III program was adopted by the Board as part of the Advanced Clean
Cars rulemaking package that also includes the ZEV regulation.

Later that year, with the involvement of ARB, the United States Environmental Protection Agency and the National Highway transportation Safety Administration, or NHTSA, adopted federal passenger vehicle greenhouse gas standards and fuel economy standards that closely mirrored the California standards.

One element of the adopted standards was a requirement that EPA, NHTSA, and ARB conduct a mid-term evaluation to assess the appropriateness of the standards for the '22 through 2025 model years. The draft TAR released this week is the first major milestone in that evaluation and provides an update in the technical and economic basis for determining the feasibility of compliance with these standards. This report, which I'll summarize for you today, was jointly developed and authored through a multi-year effort between EPA, NHTSA, and ARB.

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VEHICLE PROGRAM SPECIALIST McCarthy: For the existing greenhouse gas standards, we often think immediately of the direct carbon dioxide emissions emitted at the tailpipe from the vehicle. And while that is lion's share of the greenhouse emissions, the standards
also cover other greenhouse gas emissions emitted from the tailpipe such as methane or nitrous oxides as well as emissions from leakage of the refrigerants used by the vehicle's air conditioning system such as hydrofluorocarbons.

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VEHICLE PROGRAM SPECIALIST McCarthy: Both the California LEV III greenhouse gas standards and the federal standards build upon the emission reductions achieved under the original California "Pavley" regulations that applied to 2009 through 2016 model years, by further reducing CO2 and other greenhouse gases from light-duty vehicles between the 2017 and 2025 model years.

One important feature of these standards is that they are indexed to the vehicle footprint, which is defined as the area between the wheels of the vehicle. Essentially, the bigger the vehicle, the larger its footprint and its associated standards.

Additionally, because trucks are subject to higher loads than passenger cars, they are allowed to admit higher CO2 levels than cars. However, while a bigger vehicle or a truck is allowed to emit at a higher level compared to smaller vehicles, all cars and trucks, regardless of size, are required to improve their CO2 emissions at a similar rate of nearly 5 percent per year
for model years '22 through '25.

Back in 2012, when the standards were adopted, the new vehicle fleet was projected to achieve an average fuel economy of 54.5 miles per gallon and emit at the 163 grams per mile CO2 in 2025. Relative to where the fleet is today, these targets still require an approximate 40 percent improvement in fuel consumption and greenhouse gas reductions by 2025.

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VEHICLE PROGRAM SPECIALIST McCarthy: One last item before I cover the findings in the new report released this week. Shortly after the original adoption of the standards in 2012, NHTSA commissioned the National Research Council within the National Academies of Sciences, Engineering, and Medicine to independently view both the methodology used by the agencies to develop the national program and the appropriateness of the standards adopted. In 2015, the National Research Council had released a report confirming the overall methodologies used by the agencies was sound. Further, it reaffirmed that the standards are feasible and achievable predominantly with improvements to gasoline vehicle technologies, many of which are already being deployed on today's vehicles.

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VEHICLE PROGRAM SPECIALIST McCARTHY: Over the past few years, the three agencies have conducted a wide range of analysis and stakeholder engagements that formed the basis for the draft TAR just released. This comprehensive assessment draws upon data derived from multiple sources, including:

- Vehicle and component laboratory testing of new and industry-leading technologies;
- Tear-down studies of components and systems to determine detailed manufacturing costs;
- Input from suppliers and vehicle manufacturers; and
- Technical publications.

This information formed the basis of input data for the component and vehicle computer simulations used to determine the efficiency and costs of the updated vehicle technology packages in the TAR.

It's important to note that the TAR is not a policy document that draws a conclusion on the appropriateness of the standards. Rather, as I mentioned earlier, it is an update to the technical and economic assessment used to develop these standards.

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VEHICLE PROGRAM SPECIALIST McCARTHY: I would now like to share with you some of key findings of the draft
First, and most importantly, the agencies found that the 2025 model year greenhouse gas standards can be met cost effectively predominantly with advanced gasoline engines and transmissions. Light-weighting, improved aerodynamics, and better tires also provide additional greenhouse gas reductions.

As you can see in the table, compliance with the national standards is not expected to rely on automakers selling large quantities of electric vehicles or hybrids, which keeps incremental vehicle costs lower.

However, because the stringency of the existing national standards does not lead to larger sales of electric-drive vehicles, which are needed to meet California's longer term air quality requirements and greenhouse gas reductions goals, California needs to maintain our additional technology forcing policy through the Zero-Emission Vehicle regulation.

As a reminder, a review of the ZEV regulation will be part of the California mid-term review to be finalized presented to the Board later this year.

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VEHICLE PROGRAM SPECIALIST McCarthy: Additional key findings in the draft TAR relate to projected benefits and costs. The new analysis relies on updated assumptions
of the mix of cars and trucks, which shows people are purchasing more trucks and fewer cars than was projected in the 2012 rulemaking.

Because trucks have higher target CO2 levels than cars, the updated projected fleet average for the 2025 model year is 175 grams per mile versus the original 163 grams per mile projection. The corresponding projected fuel economy is 50.8 miles per gallon nationally instead of 54.5. These updated projections assume that the stringency of the '22 through 2025 model year greenhouse-gas standards does not change.

Finally, the TAR projects that the average incremental cost per vehicle to comply with the greenhouse standards in model year 2025 will be about the same or lower than the original projections used in the rulemaking. The payback period for recouping this cost, however, is longer than originally estimated. This is because current and future fuel prices, as forecast by the U.S. Energy Information Administration's 2015 Annual Energy Outlook, are lower now than what was projected back in 2012 during the original rulemaking.

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VEHICLE PROGRAM SPECIALIST McCARTHY: While the overall message of the TAR is a good-news story, automakers have raised a number of issues of concern to
them.

First, to contend that the actual emission reduction benefits from advanced technologies are lower than those predicted in the original rule and that the cost of these technologies are higher. These conclusions are not supported by the findings of either the study by the National Academies or by the new draft TAR.

Second, automakers argue that the fuel efficiency is not a consumer priority given the lower fuel prices. They point to higher sales of trucks and a slow pace of hybrid market growth to support their arguments. However, manufacturers are already overcomplying with the first few years of the greenhouse gas standards during a time where they have concurrently increased sales for six years in a row, with a record-setting number of new cars sold in 2015.

Another example includes a recent survey released last month by Consumer Reports that found there was a strong public support for improving fuel economy in new vehicles, with 84 percent of those surveyed indicating they felt automakers should continue to improve fuel economy for all vehicle types.

Automakers also claim that compliance with the current greenhouse gas standards will require them to sell substantially more hybrid electric vehicles than they do
now. But this claim is also not supported by the TAR. As I previously mentioned, EPA's updated analysis in the TAR finds that the 2025 model year greenhouse gas standards can be met cost effectively predominantly with advanced gasoline engines and transitions.

Finally, automakers are concerned that the California zero-emission vehicle regulations make compliance with the national greenhouse standards more costly. However, as the Board well knows, we have a zero-emission vehicle regulation because increasing zero-emission vehicle sales is essential to putting us on a path to meet our longer term air quality requirements and greenhouse gas reduction goals.

Further, as reflected in the draft TAR, battery costs are declining at a more rapid pace than we projected four years ago, helping to increase the cost effectiveness of these vehicles.

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VEHICLE PROGRAM SPECIALIST McCarthy: My final slide outlines the next steps for the federal rulemaking and the California mid-term review.

A pending notice in the Federal Register will start a 60-day public comment period on the findings of the draft TAR. Comments received through this process will be reviewed by ARB, as well as our federal partners.
The next step in the California mid-term review will be an Advanced Clean Cars Technology Symposium, which is scheduled for September. This symposium will cover technologies not addressed in the TAR as well as other elements of our mid-term review - the one milligram per mile PM standard and the zero-emission vehicle regulation.

In December, staff will present to the Board the findings and recommendations of the California mid-term review. The basis for these findings, including the TAR, will be discussed in a technical report that staff will release prior to the hearing.

On the national level, EPA's expected to release its preliminary determination on the appropriateness of the '22 through '25 standards sometime in 2017. Subsequently, by April of 2018, a final determination is expected, along with any necessary regulatory changes, on the appropriateness of the national greenhouse standards for model years '22 through 2025.

And this concludes the staff's presentation.

CHAIR NICHOLS: Thanks.

Just as a reminder, California had to take regulatory action to allow for cars that met the federal standards to be deemed acceptable under California rules, because prior to that time we had a standard for GHG emissions that was more stringent than the federal
standard. But we were able to make a finding that by
selling nationwide, the net effect on climate would be as
good as California enforcing its own standards. So we
went ahead and did adopt the federal standards to now have
one national GHG standard.

The -- there is always the possibility that those
things could break apart. And certainly the fact that we
were able to do this to be able to be part of a national
program was a big incentive for the auto manufacturers to
participate in this agreement.

There's also a sort of ongoing, I would say,
tension, for lack of a better word, I think there is a
legal tension at least between the requirements of the
cafe law and the requirements of the EPA/ALD Greenhouse
Gas emissions approach to the world, and I think the
TAR -- or the process of getting to the TAR really kind of
strained all of us because of those differences in
approach and a sense of what the missions of those
agencies are.

So looking ahead, it's going to be interesting to
see where this program evolves, I think, because, you
know, as NHTSA is now facing increasing pressures to
devote more resources to the safety issues, which if
anything are becoming more challenging to them in a world
where cars are adding all kinds of features that are
related to autonomous driving, the ability to do this as one national program is definitely going to be more of a challenge in the future. But for the moment all that we're really looking at is just making a -- sort of a binary decision about, well, we could decide -- it would decide that the standards were needed to either be weakened or strengthened. I think what we're saying about the TAR is that, if anything, it shows -- it indicates the potential that you could actually strengthen those standards. But nobody is putting any requirements -- nobody's putting any proposals out there at the moment. We're strictly in the realm of looking at the data and what it shows.

I think the task for today, however, in addition to hearing from members of the public who want to comment on that, is to also reflect on California's own ongoing review of our Zero-Emission Vehicle Program, because as again people will recall, this -- the TAR does not address the ZEV mandate and it really only minimally addresses the issue of ZEVs at all as part of the baseline of what's -- what's contemplated as a way of dealing with the existing standards. And what we've learned is that it doesn't do much at all in the way of pushing for a greater role, even though it's the policy certainly of the Obama administration to try to dramatically increase the use of
electric vehicles nationwide. But nothing in the current regulatory structure actually requires that to happen. So we now have the opportunity once again as California to think about what we want to be doing and where we want to be headed. So that's the context here. We do have 12 entities that have -- people -- they're actual people who've signed up to speak to us. (Laughter.)

CHAIR NICHOLS: So why don't we hear from them, starting with our visitor from NESCAUM, our partner in many activities relating to the ZEV alliance.

Mr. Solomon, Hi.

MR. SOLOMON: Hello. Good afternoon. Matt Solomon with Northeast States for Coordinated Air Use Management, also known as NESCAUM. Appreciate the opportunity to comment today.

We commend and thank ARB staff for the extraordinary effort that went into this report, along with their counterparts in the federal agencies.

The findings of the draft TAR reinforce what we have seen over many decades with state and federal environmental policy that's setting aggressive yet feasible pollution control requirements, fosters technology innovation to the benefit of consumers, the economy, and the environment.
I'll also note -- or echo comments that Mike McCarthy made a few minutes ago, that the finding in the TAR that compliance can be achieved without substantial reliance on electrification underscores the continued need for strong state ZEV programs. And to that point, I have brought with me a letter that was signed yesterday, addressed to you-all, signed by the top environmental regulators in the states of New York, Massachusetts, Connecticut, Rhode Island, Vermont, and Oregon. It is in the mail to you right now or will be very soon.

And it reads:

"As lead environmental agency officials in states that are implementing the California Advanced Clean Cars Rules, including the ZEV requirements, and who are partners with California in the development and implementation of the multi-state ZEV Action Plan, we'd like to stress the importance of ensuring that robust and binding ZEV requirements take effect in our states.

"Our states, like California, have adopted aggressive greenhouse gas emission reduction goals. Transportation is the largest source of greenhouse gas emissions in our states and the most difficult sector to control as emissions continue to increase. For this reason, transportation electrification is a key strategy to achieve in our climate goals."
"The Clean Air Act, however, precludes us from adopting vehicle emission standards that differ from California's. Accordingly, decisions made by the Air Resources Board in the course of the ZEV mid-term review will have a significant impact on our efforts to support clean transportation and meet our state greenhouse gas goals.

"Regulatory certainty is critical for both the automobile manufacturers and for the states to effectively plan and manage the transition to widespread transportation electrification. Due to the structure of the current regulations, there has not yet been a binding ZEV sales requirement in our states. The binding ZEV sales requirements that are set to begin in 2018 are critical to maintain the" -- excuse me -- "to maintain the certainty necessary to drive both continued investments and innovations by the automobile manufacturers.

"Any further delay would undermine the certainty that auto manufacturers, utilities, charging providers, and others need for effective planning and would put at risk the millions of dollars our states have invested the ZEV readiness.

"States, stakeholders, and the auto industry are working together in an unprecedented manner to build the ZEV market. Regulatory certainty and consistency is a
critical element to this collective effort.

"To be clear, our states are not relying on the ZEV mandate alone to transform the transportation sectors since the 2012 ZEV amendments" -- I'm sorry.

CHAIR NICHOLS: Go ahead. That's all right. We give extra time for state officials even if they're not actually here.

MR. SOLOMON: I need just about 10 more seconds, I'd appreciate it.

CHAIR NICHOLS: Okay.

MR. SOLOMON: "To be clear, since the 2012 ZEV amendments we've been working on many fronts with multiple stakeholders to prepare our markets for ZEVs. Together, the states continue to add to the thousands of public charging stations already deployed, offer purchase incentives for ZEVs and charging stations, promote workplace charging, add ZEVs to public fleets, establish dealer training and recognition programs, and more, all in anticipation of the binding sales requirements that are set to take effect in 2018.

"Our states remain ready and committed to supporting ZEVs in the increasing numbers that will be required to comply with the ZEV regulation and further our collective efforts to combat the grave threat of climate change.
"For the foregoing reasons, we urge you to avoid any changes to the ZEV regulation that would reduce or delay ZEV sales requirements in our states."

Thank you very much.

CHAIR NICHOLS: Thank you. And thank the people who signed the letter as well.

Okay. Eli Love. Yes.

MR. LOVE: Good afternoon. My name is Eli Love, and I'm here today representing CALinnovates.

CALinnovates is a coalition of technology leaders, start-up, and entrepreneurs that serve as a bridge between the thriving tech communities based here in California and the public policy communities of Sacramento and Washington DC.

CALinnovates champions the rise of innovation across California. We work on a variety of new economy issues facing Californians, including the personal enterprise economy, ride and home sharing, net neutrality in a digital divide and access to the internet, hardware regulation and innovation tax incentives.

When it comes to electric vehicles, California leads the nation in EV design, manufacturing adoption, due in no small part to the leadership of Governor Brown and the policies established by this Board.

Fighting global warming, making our air cleaner,
and improving health outcomes are a fundamental challenge facing our state and our nation. California, it is fair to say, has more than any other state to tackle the real and significant challenges we face.

While we have made significant progress, we still have a long way to go. And the simple truth is that we must recalibrate. In 2012, when the 2018 through 2025 credit targets were adopted, the Board anticipated we would achieve 15 percent ZEV sales by 2025. Governor Brown has called for a hundred percent of new cars sales in this state to be zero-emission vehicles by 2050. Yet, unless this Board takes action, we will not meet these goals.

The federal greenhouse gas and fuel economy targets can be met with incremental improvements to traditional combustion engine technology. This means that California's zero-emission vehicle mandate is the sole forcing mechanism to drive traditional automakers to invest in next generational EV technology and mass market programs.

Unfortunately a growing body of data is revealing that the strength of California's mandate is being diluted by a glut of compliance credits. This is why CALinnovates believes that it is urgent that the Board take action now to assess this issue and propose a solution to restore the
original intent of the targets adopted in 2012. We believe that California should require that 15 percent of all cars sold in California be zero-emission vehicles by 2025. If we do this, it will insure that the state continues to be the global leader in automotive innovation, job creation, and policies that mitigate the existential threat posed by global warming.

We at CALinnovates thank you for your leadership on this issue.

Thank you.

CHAIR NICHOLS: Thank you.


I first want to commend staff for the amazing amount of work around the TAR. You know, I think this does not do justice to the 1217 pages of work and the countless hours that went into this document. And as you've heard today, what we see is that the indicators are very positive, that fuel-saving technologies for automobiles are advancing faster than expected. And despite some claiming that the standards should be weakened, there are 1217 pages actually showing the industry can actually meet the standards on time with known technologies and at the same or lower costs than originally expected.
At the same time, I think all three agencies are agreeing that the federal standards, GHG, will only drive advanced combustion technologies. It is California's ZEV Program that is really putting ZEV technologies on a national stage, front and center.

And the ZEV standard has been very successful thus far. Together with state and federal incentives that have made it -- have complemented, we are priming the market and facilitating the ZEV targets to be very much met and overcomplied with.

But one of the concerns we've got is that we're seeing a strong need for ARB to actually redouble efforts, given the ZEV Program needs actually a tune-up to stay on course and to avoid us getting stranded short of our climate and air quality goals. That's because simply the technology has advanced much further than when the credits were set up five years ago and in some cases over 15 years ago.

So Chuck Shulock, who we commissioned to analyze this issue, will be presenting more details on this next. But what it basically means is that we're on a path to 6 percent sales in 2025 instead of 15 percent. Just one automaker, Tesla Motors, could potentially meet the entire industry obligations.

So the good news is that ARB can fix this going
forward. We ask ARB to come back end of the year to make sure the ZEV Program -- to look at some options that the ZEV Program hits 15 percent sales or more by 2025. Let's not delay this, because a modest tune-up today is much more desirable than getting stranded when we're halfway to our goals. It's too important, too critical.

And we also will work together with all of you here around the complementary incentive policies and infrastructure programs. Let's work together and redouble efforts on all fronts.

Thank you.

CHAIR NICHOLS: Okay. Thank you.

And here is a familiar face.

(Laughter.)

CHAIR NICHOLS: Good to see you back.

MR. SHULOCK: Thank you so much.

I'm Chuck Shulock, a veteran of several previous ZEV and GHG rulemakings, and now an independent consultant.

(Thereupon an overhead presentation was presented as follows.)

MR. SHULOCK: As you know, the ZEV regulation by design provides great flexibility to manufacturers. But one consequence of that flexibility is that the number of vehicles required will vary greatly depending on what
manufacturers build.

Given that variability, NRDC commissioned a study to update the results -- update the estimate of ZEV sales under the regulation, taking into account vehicle performance improvements and the existing bank of ZEV credits.

One key finding, as Simon mentioned, is that there will likely be far fewer but longer range vehicles than anticipated in 2012 and called for in the 2025 goals established by California and the other ZEV states. Our base case results show about 1 million cumulative vehicles through 2025 in California and 2025 sales of about 6 percent, as compared to the 1.5 million vehicles and 15.4 percent sales projected in 2012.

This does not mean that the regulation is failing. It thus far has worked as intended, to spur innovation, improvements in vehicle technology, and bring new entrants into the EV market. And manufacturers should be commended for the hard work of their engineers and the large investments that have been made.

The results do, however, raise some issues that the Board and staff should consider.

Next slide please.

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MR. SHULOCK: First, lower than expected sales
through 2025 make it more difficult to define a plausible trajectory that meets the aggressive sales levels needed in 2030 and beyond to meet long-term public health and climate goals absent any updates to the program.

This graph shows annual ZEV and T-ZEV sales through 2025 under the 2012 ARB projection and the updated NRDC projection, as compared to the 40 percent sales called for in one scenario in the ARB May 2016 mobile source strategy.

As you can see, the ramp to 2030 is steep, at best, and made more so by lower early sales.

Next slide.

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MR. SHULOCK: Second, the reduced number of vehicles required from the major manufacturers makes the regulation vulnerable to a credit overload if new entrants such as Tesla and potentially others reach significant sales levels. This slide looks only at the pure ZEV portion of the obligation. It uses a hypothetical scenario under which Tesla California sales grow to about 88,000 per year in 2025.

Under this scenario, Tesla generates more than enough credits to satisfy the entire OEM ZEV obligation each year through 2024. Such projections are of course highly uncertain. But this scenario illustrates the
potential for a significant impact.

Finally, taking a step back from the details of the numbers, it's worth considering, if the regulation will continue to apply, the appropriate degree of technology forcing pressure. The results of this analysis suggest that the level of effort needed to achieve compliance will be declining over time.

Throughout the history of the ZEV regulation the challenge has been to find the stringency sweet spot that ensures ongoing progress yet is feasible for the manufacturers to meet. This balance is difficult to quantify but over the long haul it drives the results of the program.

Thank you for your consideration.

CHAIR NICHOLS: Thank you.

Did you have a question?

VICE CHAIR BERG: Yeah, I had a quick question.

Hi, Chuck.

On your scenario, are you stating that then the auto manufacturers would buy credits from Tesla rather than continuing their own programs?

MR. SHULOCK: That's really a question for them. I think what this is showing is that a sufficient supply of credits would exist to allow them to do that. You know -- I know your staff will be talking to the
automakers about what they actually plan to do, and that will provide additional information. But a supply of credits would be sufficient to meet their needs.

CHAIR NICHOLS: It could happen.

MR. SHULOCK: Correct.

CHAIR NICHOLS: Okay. Thank you.

Kathryn Phillips.

MS. PHILLIPS: Thank you. Kathryn with Sierra Club California.

And thanks to the staff for everything you've been doing over the last several years in collaboration with the federal agencies to develop this very valuable document.

I just want to note that we live in very interesting times. We may live in more interesting times after November. But it's really important to remember that CARB has independent authority to go further than the federal vehicle regulations go. And part of one of those things where we've always had that authority is one of the things that was noted in this report that California is doing well and, that is, the ZEV mandate.

As Simon mentioned and Chuck showed too, and it has -- it was brought out in the staff's presentation, the ZEV mandate is one of the most important things that the State is contributing for accelerating -- developing and
accelerating the possibility of getting to a zero-emission vehicle world. And it's incredibly important for us to continue that, not just for greenhouse gas emissions; but I think it's important to remember that the ZEV mandate began as something to reduce criteria pollutants. And we still have a huge criteria pollutant problem and that's a public health problem in this state. And it's essential that we get to a place where we have zero-emission vehicles to address that.

I also want to just point out a few things -- a couple of things that need fine-tuning; as has been noted, it's the credit system needs some fine-tuning. Need to relook at the kind of credits and the travel provisions that are being given to hydrogen fuel cell vehicles. That technology has advanced a lot more.

I'd also like to note that there is one area that needs exploration that isn't part of the credit system. We have been doing some research with our volunteers visiting dealerships around the country to see what kind of performance they have in terms of getting vehicles -- electric vehicles, ZEVs, on their lots. We're going to be releasing a report in August about this. It's kind of a -- for our volunteers it's been a fun experience, but it's also been a frustrating experience. And it's disappointing to see how many dealers don't have vehicles
on the lot, even though the manufacturers are making them; or if they have vehicles on the lot, those vehicles haven't been charged up. I can't imagine going in to do a test drive on a gasoline vehicle and not having gas in the tank.

Those are just a few things that you would think would be sort of basic performance measures that would be standard.

So what I'm hoping is that as the ZEV mandate is considered for fine-tuning, that the CARB staff explore what are best practices and give us a -- provide some kind of -- consider ways to encourage those best practices. I have no idea what those ways are, but I think it needs to be included. You need to send a signal to the dealers.

Thank you.

CHAIR NICHOLS: Thank you.

MS. GLADSTEIN: Good afternoon. I'm Margaret Gladstein from Capitol Advocacy. Although for the record I should be identified being here on behalf of Global Automakers.

Global Automakers' members represent the 12 international automobile manufacturers who represent 57 percent of new motor vehicle sales and 79 percent of green vehicles in the golden state.

Global Automakers and its members are invested in
the long-term goals of reducing greenhouse gas emissions and improving fuel efficiency and air quality.

First we would like to thank the Air Resources Board staff for their presentation, update, and collaboration with the federal agencies on release of this draft TAR. As noted before on many occasions, maintaining a single national program is a high priority, and California plays a key role in this program.

We continue to support the mid-term evaluation as a necessary and important check point for ensuring a strong national program that reduces greenhouse gases and improves fuel economy.

When these challenging standards were set nearly five years ago, it involved a process that required making assumptions about future conditions including the cost of technologies, GHG savings delivered and future fuel prices, which affect consumer's willingness to buy these technologies.

As the TAR recognizes, many of these assumptions have changed since 2012, and a reassessment is both justified and appropriate.

This TAR is a crucial step in a data-driven approach to assess assumptions and evaluate the implications for future actions. But it is also only a first technical step in a much longer decision-making
process that includes additional analysis and several opportunities for public input.

There remains, however, some concern about the timing of ARB's activities, such as the December 2016 Board hearing aligning with the federal schedule whose next milestone is not slated until sometime in 2017.

In the continued development of a national program, we feel that there is a need for federal agencies and California to collaborate to establish a clear and coordinated regulatory approach.

Global Automakers is currently reviewing the TAR and will be providing comments to both federal agencies and California in the coming weeks.

Thank you.

CHAIR NICHOLS: Thank you.

Mr. O'Connell.

(Thereupon an overhead presentation was Presented as follows.)

MR. O'CONNELL: Thank you, Madam Chairwoman, members of the Board. I noted your earlier reference to NHTSA, their safety mission and autonomy, and I'm going to resist the urge to comment on that.

I am here today to echo much of the commentary already, and that of the staff position, that if the TAR -- and that is an interesting acronym. I can't tell
if it's ironic or appropriate.

    The TAR is indeed indicative of something very important and, that is, the role that the zero-emissions mandate -- the zero -- or regulations have in pushing forward zero-emissions technology and, in our case, electric vehicles in particular.

    As you know, we've been identifying an issue as it relates to what we perceive to be a gap in the likely delivered vehicles in the market going forward and the regulatory structure we have that enforces that. And if I could just review quickly.

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    MR. O'CONNELL: Just a quick reminder that when the mandate was -- thank you very much -- when the mandate was introduced, we originally had a volume mandate and it specified 10 percent of vehicles by volume by 2003. Unfortunately we've sort of blown past that.

        --o0o--

    MR. O'CONNELL: However, today we have a credit goal and that can be met with a wide range of sales options, which, unfortunately, offers the opportunity for multiple different sorts of arbitrage.

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    MR. O'CONNELL: The minimum ZEV credit, as specified in the regulations, is targeted at 16 percent of
sales. And that would be fine, except for the fact that
with ZEVs earning four credits each, we're going to reach
a point where in 2025 where we will meet our credit
requirements but miss our volume requirements, and miss
them significantly. We're looking at 4 percent of volume
given this.

--o0o--

MR. O'CONNELL: The problem gets even worse when
we consider the quarter million banked credits that we
have already and the effect that that could have on the
market. Frankly, that could take us down to 2 percent of
volume by 2025, meaning effectively either we'll have no
more vehicles on the road in 2025 if we're strictly
looking at the requirements here than we do today.

So we commend, as others do, the Board to request
of staff an urgent review of the credit imbalance
situation, that we return with a recommendation for how to
redress this. We think it's vital in the context of our
air quality goals. We think it's vital as far as
encouraging other manufacturers to come into this market
in a meaningful way.

This is vital. The mandate is vital -- if I
could make one last point -- because if anything's been
demonstrated by history, our automotive brethren will,
given empirical evidence, do the minimum in order to
comply with such regulatory constraints. And if we need a reference point to that, all we need to do is look at the recent example of VW's performance in diesel-gate episode.

Thank you very much for your attention.

CHAIR NICHOLS: Okay. Thank you.

John Moffatt.

Hi.

MR. MOFFATT: Madam Chair, how are you?

CHAIR NICHOLS: Good to see you.

MR. MOFFATT: Members of the Board, staff. Thank you for giving me the opportunity to address you this afternoon. I'm here on behalf -- John Moffatt from Nielsen Merksamer on behalf of the Alliance of Automobile manufacturers, whose members include BMW, Fiat-Chrysler, Ford, General Motors, Jaguar Land Rover, Mazda, Mercedes Benz, Mitsubishi, Porsche, Toyota, Volkswagen, and Volvo.

As was mentioned earlier, the Technical Assessment Report was just released this week. While we've found many parts concerning, we have not yet been able to fully review all 1200 pages of the document; and therefore today we just want to highlight two things for the Board: Timeline and the comment period.

Regarding the timeline, the TAR is just the empty-yeast process's first preliminary step, and it appears to be the only step in which ARB aligns with its
EPA and its partners. The federal agencies have stated that they may issue a final TARs as part of the MTE process. The federal agencies have also stated that they anticipate issuing a proposed determination NR and PRM in 2017.

If EPA determines that the standards will not change, EPA will issue a final determination by April 1, 2018, and NHTSA will issue its final rule concurrently. If EPA determines that the standards will change, EPA and NHTSA will issue a final joint rule with at least 18 months lead time before the model year 2022.

CARB should not prejudge the outcome. Doing so would contradict the rational intent of the MTE process. The Alliance requests that CARB cooperate with the EPA and NHTSA for the entire MTE process, not just the TAR. CARB's current timing requires the ARB decisions a year or even more before EPA or NHTSA.

For example, ARB stated in the May 2016 Mobile Source Strategy document that staff will present the findings of the mid-term review to the Board in 2016 and will conduct a subsequent rulemaking to modify the standards if necessary. This is 18 months before EPA's and NHTSA's final determination and months before even a proposed determination.

If CARB goes forward with its current accelerated
schedule, it will issue determinations before the federal agencies and end up jeopardizing the agreed-upon one national program.

The Alliance requests that the Board reconsider and better align its actions with timing agreed upon by the one national program stakeholders. The Alliance would also ask that the Board reinforce the need for ARB staff to adhere to the ONP timelines and not get ahead with the process by writing or proposing new greenhouse gas or increasing ZEV requirements before EPA, NHTSA, and CARB joint -- the joint final determination.

Last, we're concerned about the relatively short TAR comment period. The TAR's complexity, scope, and length require a comment period longer and more reasonable than the proposed 60 days. Due to all of these factors, coupled with the dearth of substantive agency feedback during the TAR writing, the Alliance believes a much longer comment period is needed, and we expect to submit a formal request for an extension as soon as possible.

Thank you.

CHAIR NICHOLS: Thank you.

MR. MAGAVERN: Madam Chair and Board members, Bill Magavern with the Coalition for Clean Air.

I've been advocating for California clean cars since 2001, when first-year assembly member, Fran Pavley,
introduced AB 1058, or which the following year became AB 1493 was signed by Governor Gray Davis; and since then during its implementation has enjoyed the strong support of Governor Arnold Schwarzenegger and Governor Jerry Brown.

And I think that -- of the many accomplishments of this Agency, I think the implementation of these standards absolutely has been a highlight and has really set a model for the entire nation and really for much of the world. So I think what you're doing today is very much carrying on that important work that's been done over the years.

What we glean from this report, a few important points:

First of all, from a national perspective, the report confirms the feasibility of the greenhouse gas standards. Although it also reveals that the size class nature of those standards is a flaw that will cost us some emission reductions if current trends continue.

From a State perspective, it is crucial for California to retain our authority to set our own standards stricter than the national standards. We hope that it's not something that we need to exercise, but we know from the uneven course of national policy over the years, that it's been vital for California to retain that
authority under the Clean Air Act and to exercise it when that's been necessary.

And then, finally, as many have addressed, the ZEV standard remains vital for California policy, not only for advancing the technologies that we need to meet our greenhouse gas emission reduction goals, but also in order to keep moving towards attainment of Clean Air Act standards.

And we see that with battery costs declining, the ZEV standard continues to be feasible, and in fact needs strengthening. We've seen the analysis that Chuck Shulock did for NRDC, and we agree with the points that NRDC and others have made that the ZEV standard is in need of a tune-up to make sure that we meet the statutory standard of 1 million ZEVs on the road by 2023 as well the Governor's goal of 1 and a half million by 2025.

Thank you.

CHAIR NICHOLS: Thank you.

MS. HOLMES-GEN: Good afternoon. Bonnie Holmes-Gen with American Lung Association in California. And American Lung Association in California is engaged in this mid-term review and the ZEV Program because of our great concern about vehicle pollution that threatens health and our climate. We're working with other health organizations and medical groups and our Doctors for
Climate Health to fight climate change as a serious health issue that degrades air quality; increases heat-related illnesses, respiratory issues; and poses many other challenges to health and our future.

On this mid-term review report, although it's a very long report, we've had some review. We are pleased that it does show available technologies to meet the 54.5. We support that standard and we are urging the strongest possible federal and state emission and technology standards to improve fuel efficiency, to reduce greenhouse gases, and of course urging the agencies to not back down or delay these important standards to protect public health.

We are very -- we're concerned of course that California needs to do more. The federal fuel efficiency standards are a great start. California needs to be prepared to exercise its own authority of course if there is any movement to delay or weaken those standards.

But we need to do more. We need to continue to maintain and strengthen our California ZEV Program.

Every year, when Cal -- when the -- every year when the American Lung Association releases our State of the Air Report, we talk about the millions of individuals in California who are affected by dirty air. And we talk about the health damaging impacts of pollution in
especially children, who are impacted in key developmental stages of life. And we get the question: How is California going to eventually meet federal clean air standards? How -- what do we have to do? And we always talk about the critical role of moving to zero emissions, transitioning to zero emission in all sectors of light and heavy duty.

And we are deeply concerned right now that the air quality and health benefits of the ZEV Program could be compromised and falling behind. As discussed by my colleagues with Natural Resources Defense Council and other groups, we have seen data that we could be far below the level of zero-emission cars on the road than we expected when we -- when we revised this program a few years ago.

So we are joining with others and urging a review, taking a hard look, and determine what -- what level of vehicles are we aiming for right now with this credit glut that seems to be occurring, and what adjustments would be needed in the zero-emission vehicle program to make sure that we do achieve that 1.5 million ZEVs on the road.

Thank you for the time. We look forward to working with you as this mid-term review moves ahead. We need to get the cleanest zero-emission vehicles on the
road ASAP.

CHAIR NICHOLS: Thank you.

MR. ANAIR: Good afternoon, Chairman Nichols, members of the Board. My name's Don Anair. I'm the Research Director of the Union of Concerned Scientist.

I just wanted to first acknowledge and recognize ARB's contribution to this substantial and impressive amount of evaluation that's represented in the TAR.

The program itself, the national program in California, the advanced clean car standards, are clearly having an impact both on emissions, oil consumption, air quality, and consumer choices. I think one of the key aspects of this is not just the fact that technology is advancing as we anticipated — in fact, costs are in some cases lower or in line with what was expected — but consumers are adopting this technology. An analysis we did last year looking at 2015 sales of vehicles across the country, some 10 percent of the vehicles sold last year actually met or exceeded the standards for 2020 and beyond. So those vehicles have the technology that's necessary to comply with these standards in the future and people are buying them today.

And the other point of evidence obviously is that the automakers are currently overcomplying with the standards. So consumers are interested in fuel economy
and the emissions benefits of these vehicles.

    Obviously, you know, I think it was pointed out very clearly that conventional technology innovation is having a big impact and the compliance with the standards nationally in 2025 will not require a large amount of zero-emission vehicles.

    So that's good news in some sense. But it's also important that we're moving forward with zero-emission technologies; and California's leadership is key in that.

    The two trends I just wanted to -- they were touched on already by a number of speakers. But the two trends I think are really critical to look at as California staff look at the mid-term evaluation coming before the Board in December.

    The first is the trend towards larger vehicles. We know that the standards adjust for that in terms of the compliance of the automakers, so it's not really an issue of complying with the standards themselves. But the overall emissions that we'll see in 2025 will be affected by that. And so we'd like to ensure that when the Board discusses this issue in December, that there is a clear evidence of what that means in terms of the emissions and what potential options are to address that.

    The second is of course the rapid and somewhat unexpected technology advancement in the zero-emission
vehicle space. That's leading to -- around what the actual zero-emission vehicle requirements would be from a number of vehicles perspective. We -- our own analysis shows we might achieve about 1 million vehicles by 2025 instead of 1.5. And we think that's critical because it's not just about 2025, it's about being on track to 2030 and beyond.

So I would just finish by asking that, in December, that as the Board's looking at the mid-term review, that there are options considered to address any issues that may arise from either the shift to trucks or the rapid advancement on ZEV.

Thank you.

CHAIR NICHOLS: Thank you.

And Sekita Grant.

MS. GRANT: Good afternoon, members of the Board.

Thank you very much for the opportunity to provide comment today.

My name is Sekita, legal counsel with the Environmental Equity Team at the Greenlining Institute. We're a social justice organization advocating on behalf of low-income communities and communities of color.

I'm also making comment on behalf of Communities for a Better Environment, who are not able to make it here today.
So as our colleagues from the Union of Concerned Scientists and NRDC and Coalition for Clean Air, American Lung and others have laid out, there's -- they've done a lot of great robust research on this topic, and there appears to be a clear need at this point to do more in order to reach our ZEV goals; in particular, our goal to reach 1.5 million zero-emission vehicles on the road by 2025. And our regulations need to do more to drive at least 15 percent of vehicle sales in California as zero emission.

For us it's really critical from both a health and equity standpoint. 89 percent of people living in the State -- in California are living -- people of color living close to heavily polluted regions, including near busy freeways and roads as well as for refineries.

So the California ZEV policies are incredibly critical to drive down those emissions, and the Air Resources Board and other agencies have done a great job to date in supporting these mandates. At this point we need to tighten them up to ensure that the ZEV credits are effective and are really enabling us to reach the 15 percent goal and drive the next generation of zero-emission vehicle technologies that are widely accessible. And this is where our organization and organizations like us are really concerned that we're
promoting regulations that are really driving increased accessibility to low-income communities and communities of color.

So I'll just -- so I'll say that as we're looking -- as staff is looking at all of this work and looking to provide revisions that improve the ZEV mandate, we want to ensure that their -- would support prioritization of credits to ensure that there's deeper penetration of this technology for low- and moderate-income communities and communities of color.

And, finally, we recommend - and this is something we could talk with staff more about - but how can we increase the transparency of the impacts of this regulation and others that are working to bring zero-emission vehicle technologies into the State? Where are we seeing zero-emission vehicles being used and where are they not being used? And making sure that we have the flexibility to make changes necessary to ensure widespread adoption.

So thank you for your consideration.

CHAIR NICHOLS: Thank you.

That concludes the list of witnesses that we had on this item.

There is no official action to be taken. But this is a time for some comments and discussions and to
gave some direction to staff about what we would like to see coming next. So I'll take it to the Board.

Several of you have indicated to me that you've been thinking about this issue and wanted to weigh in on it.

The first person who contacted me however doesn't have his hand up, so maybe he wants to wait until the end.

Senator Florez, do you want to make a comment now? Would you rather wait? I know you're...

BOARD MEMBER FLOREZ: Thank you. I just wanted to say thanks to the staff for the great work. And I know this is mid-term till December. But I guess the issue would be: What are we doing in the interim?

So I would only ask that we take a look at three items. One would be to look at a floor for actual cars sold, not credits. So just to come back and give us some advisory thoughts on a market that is car driven by number versus kind of credit driven, if you will. We heard a couple presentations on that earlier.

The second thing I would probably ask is that we start to look at the issue of the credits and the amount of credits per car. You know, what does that look like if something is for and something is higher and something is lower? I guess at some point maybe we can get to a one to one. But I know that we're far away from that. But I
think trying to come back to the Board with something that will allow us to reflect on what that looks like going forward.

And then the last would probably be the issue of - we've talked about these - travel provisions that are expiring in 2018. I know that's for ZEV. But I would also wonder as you come back in December what that looks like for kind of the hydrogen side of it as well; you know, what does that ending look like, if you will, looking forward? Are we in shape enough to do that going forward?

But those would be three things I would ask staff to definitely look at, and look forward to hearing from you.

CHAIR NICHOLS: John, you had your hand up. Mr. Eisenhut.

BOARD MEMBER EISENHUT: Thank you.

I have comments along the line of Senator Florez, however without the specificity. But as I look at these issues, I think not just of what are the possible outcomes -- or what are the likely outcomes, but what are the possible outcomes. And the possible outcomes have been outlined given the number of car credits out there.

So as we move forward to our December review, I request, as we've heard, that the staff look carefully at
car credits.

    That's what I have. Thank you.

    CHAIR NICHOLS: To Professor Gioia.

    BOARD MEMBER GIOIA: Yeah. I think there's been just a fair amount of concern over the fact that it looks like we're not going to meet sort of the goal of the number of vehicles we thought would be out on the market. So I agree, I think allowing staff to take a look at a suite or -- suite of measures that would help us ramp up the program to achieve the goal, and especially in light of the now -- the mid-term 2030 goal, when you're thinking about how do we align the ZEV goal with the 2030 mid-term goal.

    So that's...

    CHAIR NICHOLS: Okay. Dr. Sherriffs.

    BOARD MEMBER SHERRIFFS: Yeah. I think I very much share the sentiments that have been expressed. As a ZEV owner, I am passionate. I'm not angry. I'm very passionate.

    (Laughter.)

    CHAIR NICHOLS: This is going to be kind of a watch word in this organization, I can tell going forward.

    BOARD MEMBER SHERRIFFS: You know, I --

    CHAIR NICHOLS: T shirts.

    (Laughter.)
BOARD MEMBER SHERIFFS: You know, I haven't met a ZEV owner who's not actually thrilled. And I guess the -- the few that I've heard about it didn't have a chance to sit down with another ZEV owner and work through the problems and discover, oh, yes, this is a great place to be.

So, yes, I want -- I want to share this with everybody.

Although it may not exactly be the car for everybody, I think there is a much, much bigger market out there.

Is a valley resident. This is obviously very, very important. Every gram of NOx counts. And if we have a pure electric use, that that makes a difference, that makes a big difference. So it's very, very important.

So, yes, I want to be sure that staff in the update in December are including options that ensure -- options that would ensure that we get to that 1.5 million cars. What are some of the ways that we can be sure we do that?

Thank you.

CHAIR NICHOLS: Thank you.

Any other comments?

Professor Sperling.

BOARD MEMBER SPERLING: How can I not comment,
you know

(Laughter.)

BOARD MEMBER SPERLING: I actually started testifying on the ZEV mandate back in the early '90s, well before I had any relationship with ARB.

So just -- so, with that -- just very briefly I would like to take us back to the basics, why we're doing this. And the goal of the ZEV Program is to accelerate the development and commercialization of advanced technologies, with the clear idea, that clear goal of making a smooth transition to more efficient and lower carbon vehicles over time. So as we just saw, that as of through 2025, just through the greenhouse gas and cafe standards, we're not likely to have a lot of electric and plug-in hybrid vehicles and fuel cell vehicles.

And as one senior automobile executive said in a public meeting not so long ago, he said -- he says, "I get it about the ZEV Program." He said, "If we don't have to, we're going to procrastinate. We're going to get to 2025 and we're going to say, 'Oh gosh, you know, we don't have the technology. You've got to give us a break. You can't tighten up the greenhouse gas standards, the cafe standards.'"

And so this is kind of what we're doing is making sure we do have that smooth transition so we can continue
on that path of 4 percent or so improvement per year in greenhouse gases.

So bringing it back to the ZEV Program, the question is: Is the ZEV Program as it's structured now going to provide us what we need? And I think a lot of the testimony here was -- certainly to me was persuasive that we really do need to go back and look at it and see if some changes should be made in the formulas, how it's structured. And I know -- you know, one thing that I know the staff is working on is taking those analyses by Tesla and by NRDC and saying okay, you know, do we agree with those? What are the different scenarios, you know, that lead to those kind of numbers? And then we have to determine, is 6 percent, if it is 6 percent, is that enough? And is that putting us on that trajectory? And I think that's a determination we're going to have to make.

And I would point out another reason for the tune-up -- and just like I think TAR is a bad name for, when you're talking about --

CHAIR NICHOLS: Many reasons a bad acronym.

(Laughter.)

BOARD MEMBER SPERLING: Yeah, bad acronym. And tune-up isn't exactly the right one for electric vehicles either.

But --
(Laughter.)

BOARD MEMBER SPERLING: Sorry, Simon.

(Laughter.)

BOARD MEMBER SPERLING: But, you know, those tune-ups are -- have to do with the idea that for this to be successful, we need the technology to spread across the industry, across the companies, and across vehicle types. And right now, you know, one shortcoming of the ZEV Program is it really heavily incentivizes companies to only have subcompact and compact cars, because that's the easiest, cheapest way to make it. And so there's a few things like that I think that we need to re-examine.

Thank you.

CHAIR NICHOLS: Okay. Thank you.

I think people especially appreciate hearing from you on these issues because you have been involved in the program from the very beginning from the outside. I didn't get involved until I came back on the Board as an appointee of Governor Schwarzenegger in 2007. And not long thereafter, in the summer of 2008, I was approached by a representative of the auto industry to have some discussions about greenhouse gas emission standards and where things might be headed, that led ultimately I think in a pretty direct line to the adoption of the standards that we're now at the point of reviewing.
So I feel a sense of ownership of this program. And I am very mindful of the concerns of the industry that we give the process its appropriate due and that we do all the kinds of analysis that need to be done. At the same time, I have been really impressed and moved by the level of analysis and comments that we have been getting about the ZEV Program and about the role of the ZEV mandate.

And so I do think - and I'll give them a chance to say a few words, you know, before we end this - that the staff is now hearing loud and clear and thinking themselves that by the time we get back together again in December to address these general topics, that they need to have identified some areas where they feel ARB could really improve the program so that it will accomplish its goals.

Recognizing that this is not the only place or the only way in which we're going to be attempting to move the whole transportation system in the direction of advanced technology and zero-emissions; that we have to mobilize consumer support, we have to make sure that we are working with the cities which in many cases are leaders in the provision of infrastructure and all kinds of other incentives for zero-emission transportation, as well as our partners in the air districts.

And so there's a lot going on on this front. But
the mandate itself does play a critical role and so we need to make sure that it's doing what it needs to do.

I believe Mrs. Berg had some additional comments.

VICE CHAIR BERG: I really appreciate your wrap-up. And I appreciated your comments this morning where you were saying that there is a group that is really looking at how to take this commercialized and looking at it holistically. I will join my fellow colleague. I am an avid zero-emission car owner and love my Tesla, before that loved my Leaf. And so I am really looking at this holistically as to how do we really develop this marketplace to have a transformation. And it has three legs to it. We obviously have one of the most important legs, but as we have very exciting vehicles.

And addressing the other things that some of my other colleagues just identified. The infrastructure's coming along, albeit that people could talk about where some of the shortcomings are over the last five years. It's remarkable where we are there.

And we know that it's time to see how to rev up the consumer side. So I'm very excited about that.

And congratulations. Good report, I thought.

CHAIR NICHOLS: Yes, indeed.

Do you want to make any final comments, Dr. Ayala?
DEPUTY EXECUTIVE OFFICER AYALA: Well, sure, I'd be happy to, Chair Nichols. And perhaps just briefly to acknowledge that everything that the Board said today is entirely consistent with our goals and expectations for December. We hear you loud and clear. We fully understand that you want us to be comprehensive and completed and bringing you our best understanding of where ZEVs are going to be, not only in 2025, but perhaps most importantly, beyond 2025, so we are very much working on that.

Again, also on target, the fact that we are going to be working on scenarios similar to what you heard from NRDC and Tesla. The reason we haven't done that is because we've been a little busy.

(Laughter.)

DEPUTY EXECUTIVE OFFICER AYALA: But now that we've got the TAR done, it really becomes the most critical data point so that we can move forward on the analysis.

I do want to remind you that when we come back in December, we're going to do three things. Not only are we going to be -- bring you our assessment on ZEVs. We have to bring you back our assessment on the greenhouse gas standards; and most importantly perhaps to some of you is our assessment on the PM standards for California. So
again it's a multi-element mid-term evaluation that applies to California.

So that's the reason we've been working hard on all three fronts.

The last thing I'll say is - because I want to make sure that you're confident - the comment from the Alliance about the inconsistency of the timing: Of course we recognize we don't want to fall out of line in terms of the way that the process is going to continue at the federal level. We are going to continue to work with our federal partners. We are going to continue the process, so that as they march towards a final determination, we can bring you back whatever staff recommendation we're going to end up bringing you back.

What we bring back in December, it is going to be as definitive as we can, as clear a picture of where we think we need to go. But it will not be regulatory changes. Regulations to the extent that they need to be amended, changed, renewed, what have you, we obviously need to come back with those in 2017, which is exactly the timing that we think our federal partners are going to be working on as they get to the final determination on the standards.

So we get it. We know what you want. We understand the industry concern. And, again, we just want
to go back to work and bring you back the best assessment
we can in December.

CHAIR NICHOLS: Great. Well, once again,
December's going to be an exciting Board meeting.

(Laughter.)

CHAIR NICHOLS: I don't how we do it, but every
year we manage to finish up the year with a bang.
Okay. Thanks so much. We will look forward to
that.

We have -- does the court reporter or anybody
else just need a stretch or -- yeah, maybe five minutes.

Okay. Five-minute break. And then we'll move on
to zero-emission transportation and near-zero-emission
transportation, a related issue. And then finally
spark-ignition engines at the very end. Okay.

(Off record: 3:01 p.m.)

(Thereupon a recess was taken.)

(On record: 3:07 p.m.)

CHAIR NICHOLS: All right. Ladies and gentlemen,
come back to your seats please. Break time is over.

We're moving on.

We're going to move through the informational
update on overcoming barriers to zero- and
near-zero-emission transportation. I think we can move
through this report briskly, but this is a really
important topic that the Board needs to be updated on.

Section 7 of SB 350 charges ARB with conducting this study on understanding the barriers that low-income residents face to accessing zero- and near-zero-emission transportation options in their communities. So this effort is in support of one of the broader goals of increased transportation electrification throughout California.

The study represents an opportunity not only to better understand transportation challenges in some of California's most impacted communities, but also potentially to identify means and opportunities for overcoming these barriers in order to promote transportation independence and healthier communities.

Mr. Corey, could you please -- could you please begin this item.

EXECUTIVE OFFICER COREY: Yes, I will do that, Chair. And as you noted, this is an informational update on a study, a report that will come back to the Board later this year.

So with that, I'm going to ask Ashley Dunn from the Innovative Strategies Branch to give the staff presentation.

Ashley.

(Thereupon an overhead presentation was
Presented as follows.)

AIR POLLUTION SPECIALIST DUNN: Thank you, Mr, corey and good afternoon Chair Nichols and members of the Board.

Today I will be providing an informational update on the study ARB has been developing for overcoming barriers to zero- and near-zero-emission transportation options for low income residents. This effort is a result of Senate Bill 350, the Clean Energy and Pollution Reduction Act which passed last year.

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AIR POLLUTION SPECIALIST DUNN: Senate Bill 350 is critical climate and energy legislation for helping California move towards meeting our emission reduction goals.

A large portion of the bill calls for widespread transportation electrification across California, and requires several studies to be developed in support of energy and transportation goals.

Today we are discussing the study ARB has been developing. The bill requires that on or before January 1, 2017, ARB, in consultation with the Energy Commission and with input from relevant state agencies and the public, shall develop and publish a study on the barriers for low-income customers to zero- and near-zero-emission
transportation options, including those in disadvantaged communities, as well as recommendations on how to increase access to zero-emission and near-zero-emission transportation options to low-income customers, including in disadvantaged communities.

Based on discussions with stakeholders who advocated to include this study in the bill and the limited time frame we're working under, we're framing this effort as a guidance document with clear barriers, opportunities, and recommendations. I will be referring to this study as a guidance document for the remainder of the presentation.

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AIR POLLUTION SPECIALIST DUNN: This guidance document is being developed in close coordination with the Energy Commission with the goal of increasing the understanding of the barriers that low income residents face to access zero- and near-zero-emission transportation options.

We're defining low income as residents who have income levels less than or equal to 225 percent below the federal poverty limit, which is in line with ARB's current low-carbon transportation investment projects such as the Enhanced Fleet Modernization Program, or EFMP.

In addition, the bill requires that we define
disadvantaged communities as identified by the Environmental Protection Agency as a result of Senate Bill 535. Therefore, we will be using CalEnviroScreen designations.

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AIR POLLUTION SPECIALIST DUNN: We already know that low-income residents across California have many unique barriers to accessing transportation, including clean transportation. Of course, the current cost of zero- and near-zero-emission technology would be one of the most obvious barriers within low-income and disadvantaged communities, and in the mainstream vehicle market itself as a whole.

Access the zero- and near-zero-emission vehicles is an important transportation option. But in order to provide a more comprehensive understanding and gain clearer insight into all of the barriers, we're conducting a review of multiple mobility options.

We're characterizing zero- and near-zero-emission transportation options as more than just new and used cars and trucks, though this is an important component. We are exploring many barriers to access across a broad spectrum of transportation options, including active transportation, public transportation, and ride sharing.

We want to shed light on the main hurdles
low-come residents face, in particular when it comes to be able to access clean transportation within their communities.

In addition, we will also be looking into the barriers to having infrastructure in place in order for these technologies to be within the low income communities.

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AIR POLLUTION SPECIALIST DUNN: One of our main goals is developing this guidance document, not only identify the barriers and opportunities, but also to provide specific actionable recommendations. The intent of these recommendations will be to help inform future policy and investments in clean transportation programs. For example, the results would help guide investments in equity projects such as EFMP, school buses, and transit.

Also, this guidance document could be utilizing by communities as part of their land-use and transportation planning processes by local and state-elected officials, or by others to help guide future policies targeted at providing increased transportation access to low-income residents and disadvantaged communities.

Since research on zero- and near-zero-emission transportation options is fairly new, we believe that this
work will help foster an increased understanding and inform future efforts on barriers and opportunities.

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AIR POLLUTION SPECIALIST DUNN: We want to acknowledge all the great work that has already been done to identify and address transportation challenges throughout the State. Staff continue to review the transportation documentation and resources to ensure we are building upon available research and filling any gaps identified to increase access to low-income residents.

As an example, we have been working with transportation agencies such as the California Transportation Commission to better understand Regional Transportation Planning Guidelines and their Active Transportation Program, along with how we can add this effort with our guidance document.

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AIR POLLUTION SPECIALIST DUNN: Senate Bill 350 requires that ARB consult with relevant State agencies and the public as we develop this guidance document, which is a process that is very much underway.

Since the beginning of this year, staff has been conducting an extensive outreach effort across the State to make sure we are being as inclusive as possible and will continue to do so moving forward. So far, we've
reached out to low-income residents; many State, local, regional, and metropolitan planning organizations and transportation agencies; air districts; environmental organizations; environmental justice; equity; and advocacy groups. It's important to us to develop and maintain an open public process and encourage continued input into the main barriers and opportunities in which we should be focusing our efforts this year. We appreciate all of the support and the engagement that we have received for this effort to date.

Though we have consulted with many stakeholder groups and agencies so far, it's critical that this engagement in the process continue to allow for staff to complete a more thorough review.

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AIR POLLUTION SPECIALIST DUNN: In addition to working with public agencies and stakeholders, staff is also collaborating closely with multiple programs across ARB and will continue to do so in the long term. We see this as an important opportunity to share lessons learned across our programs and our Agency and build upon a available transportation research and our successes.

The next slide will provide an overview of the progress we have made on this effort and ongoing milestones.
AIR POLLUTION SPECIALIST DUNN: As can you see, we've been working very quickly on accomplishing our goals for this effort.

We're currently in the community-based meeting phase of the project. Along with conducting a literature review, this is our primary method of gathering input from low-income residents on barriers and opportunities to transportation access.

As discussed previously, staff sees this effort as ongoing past 2016. We want the opportunity to be able to build upon our report in 2017 as additional information becomes available, particularly as a result of our continued meetings with low income residents across the State, as well as our lessons learned from low-carbon transportation programs currently being developed and administered.

Prior to finalize the study, we anticipate coming back to the Board with an informational update specific to our findings, recommendations, and next steps.

AIR POLLUTION SPECIALIST DUNN: To date, ARB staff have held a project kick-off discussion and two roundtable meetings with stakeholders.
We are also invited as guests for a community-based meeting in June hosted by Communities for a Better Environment in southeast Los Angeles community of Huntington Park. We heard directly from low-income residents that live within the community and the surrounding areas, which provide an important insight into the barriers that exist within that community.

We’ve organized many one-on-one conference calls and meetings with interested stakeholders in order to provide additional information on this project, receive input, and gain a better understanding of the main transportation access barriers across transportation modes within the various regions. We plan to continue with this personal outreach effort.

Staff is also planning for additional community-based meetings in partnership with local organizations and some more roundtable discussions through the fall. Additional meetings may be held past the fall of this year; but due to the time frame we’re allotting for review and comment of the guidance document itself, the information that is gathered would be included as part of a supplemental report.

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AIR POLLUTION SPECIALIST DUNN: Given our desire to better understand the diverse nature of transportation
access barriers, we are focused on multiple low-income and
disadvantaged communities across California, which
includes rural, tribal, and urban areas.

For each of the community-based meetings, staff
will develop case studies. These case studies will help
highlight the main barriers and opportunities to
transportation access allowing for review of issues that
are community specific.

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AIR POLLUTION SPECIALIST DUNN: Staff is focusing
their review on five main barriers categories. The
barrier categories were identified through discussions
with the public, stakeholders, and feedback we've already
received from some of the Board members. These categories
include recurring themes we've identified in our
preliminary review on issues that most directly impact
transportation access for low-income residents, including
disadvantaged communities. We look forward to additional
input and will continue to refine the scope of our work
and review through the fall.

Each of the barrier categories, including example
characteristics we are reviewing, are described further in
the next five slides.

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AIR POLLUTION SPECIALIST DUNN: One of the
primary barrier categories is how accessible transportation modes are; proximity in terms of physical proximity from home, work, or school; how the different modes are connected to each other; and also whether affordable housing is located close to transportation centers. Benefits to overcoming some of these barriers include increased access to goods and services, employment opportunities, and health care.

For example, being able to ride a bike for the first or last mile of your journey may make the difference when it comes to one's ability to ride public transportation.

Another example is having access to technologies, such as being able to use a smartphone and online banking which can impact whether or not someone can access information or participate in ride-sharing option opportunities.

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AIR POLLUTION SPECIALIST DUNN: This category explores how mode choices are made based on what's available and how much transportation costs are, not just for low-income residents and disadvantaged communities, but really for all residents in California. A substantial portion of a household's budget may be required to pay for daily transportation costs, so the type of transportation
options that are available does matter. In addition, we'll look at other barriers such as the quality of transit and gaps in transportation services or connectivity that impacts residents.

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AIR POLLUTION SPECIALIST DUNN: It's important to note that not all transportation barriers or opportunities are created equal across California. Each individual community has unique needs and barriers to access transportation and potentially differing solutions which can depend on factors such as regional or geographical differences. This is why it's critical that our case studies include different regions across the State and corporate low-income resident feedback from rural, tribal, and urban communities. Although the barriers we identify may be unique, similar communities will benefit from the review being conducted.

Consistent with the first barrier category, community-based needs also includes review of some of the public health and safety challenges at the community level.

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AIR POLLUTION SPECIALIST DUNN: Another important barrier category that we have identified, which is also a tremendous opportunity, is transportation education and
outreach. This category includes awareness of transportation options, accessibility reliability of information, and exposure to cleaner alternative modes.

Staff has found that there is a gap in information regarding public transportation availability and other alternative modes, including these modes that are used -- and including how these modes are used and how they're connected with each other.

Overall, access to up-to-date transportation information is critical, in addition to ensuring this information is in a place that low-income residents frequent, such as the Post Office, shopping centers, or other public places.

Further exposure to cleaner advanced technologies and cleaner transportation options can reduce fear and misunderstandings and increase confidence in these transportation modes.

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AIR POLLUTION SPECIALIST DUNN: We cannot discuss barriers to transportation access without talking about planning infrastructure and investment. Although progress has been made, there are specific needs for updating existing transportation systems and communities to accommodate zero- and near-zero-emission transportation modes.
For example, there are currently barriers in many locations across the State to having livable, walkable communities that are centered around multiple transportation options. As we look at opportunities to increase access for low-income residents, as well as the disadvantaged communities, we must consider the potential air quality impacts as well as the cost. This is an area we will continue to explore in close coordination with the Energy Commission and other transportation agencies.

For all of the barrier categories we will continue to refine the characteristics we are exploring as much as feasible. What has become clear is that there's a silver bullet or a singular solution to increasing transportation access to overcome barriers for low-income Californians.

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AIR POLLUTION SPECIALIST DUNN: In conclusion, there's much work ahead of us this year and in the future. Recommendations for increased access will be developed based upon our continued work.

We anticipate holding a roundtable discussion or a meeting in mid-September to present our preliminary findings and recommendations to the stakeholders. We will present the recommendations to the Board and release the
guidance document in December of this year.

Staff are hoping that once the guidance document
is released, we can return to the communities in which we
attended the meetings and provide a feedback loop as to
how their input was incorporated into the process.

We would also want to continue working with the
stakeholders along with State and local agencies on an
ongoing basis to ensure we support efforts to provide
clean transportation options to low income people
throughout the State.

I would now like to introduce representatives
from the Energy Commission and The Greenlining Institute
who will be speaking today just briefly.

First we have Alana Mathews, a public advisor
with the Energy Commission, who we've been working with
very, very closely and has been instrumental in our
efforts to coordinate the SB 350 studies that are ongoing
both on the energy side as well as transportation.

Second will be Sekita Grant representing The
Greenlining Institute. She has also been working with us
very closely since the beginning of this year, and has
provided critical insight for us in terms of some of the
main challenges and opportunities that low-income
residents are facing.

Alana, would you please come to the podium.
MS. MATHEWS: I'm here.

CHAIR NICHOLS: She's there.

AIR POLLUTION SPECIALIST DUNN: Oh, she's there.

(Laughter.)

MS. MATHEWS: Good afternoon. Is this on?

Good afternoon, Chair Nichols and the rest of the Board members. I -- again, I'm Alana from the California Energy Commission. I'm the public advisor and I'm leading the 350 barrier study that we're doing. And we have been working together since day one. Ashley has been kind enough. But we both did our scoping meetings and we both participated together.

And from our -- our kick-off meeting was June 3rd. So we decided to approach this in four different ways or -- basically four different steps. First we did a literature review to understand what's out there to cover the areas of the report that we're mandated to look at, which includes energy efficiency and weatherization investments, contracting opportunities for small businesses in disadvantaged communities, and access and barriers to renewable technology; and then ultimately making recommendations.

So after we did a literature review to see what's out there, we are now in sort of the second phase, looking at a gap analysis, seeing what information we feel like we
really need to make very meaningful and substantial progress in these areas.

The third part is our public engagement, which is a series of public workshops. So they're stakeholder workshops. We're going to have a technical workshop where we have the opportunity to hear from local governments, industry, academia, as well as environmental justice / environmental equity groups. And then we're having community meetings.

So we have at least four meetings scheduled throughout the state. We will have at least one of our Energy Commissioners present.

They will be in Riverside, Fresno, Oakland and -- I'm sorry -- Los Angeles. Then we also will be having a joint workshop with ARB in Ukiah so that we can make sure we covered the energy barriers with our tribal communities. And Ukiah was identified because they're one of the regions where we need -- they need -- they thought they needed the most help.

So we are certainly also planning to reach out to all of the tribes in the form of a survey so that we can at least get some input. Because depending on the resources a tribe has and their location and topography and what kind of issues they're facing, we will then in September have our draft workshop so that we can get
feedback on the barriers we've identified, what we've incorporated, and to look at our recommendations which is the final fourth phase of what our study will look like.

And is there anything else you want me to cover?

AIR POLLUTION SPECIALIST DUNN: (Shakes head.)

MS. MATHEWS: If you have any questions. I don't know if I'm missing anything, Ashley. But we're just glad that we're able to work together.

Oh, I should mention also that we have had the opportunity to attend some of the EJAC community scoping meetings in that there is a small portion that talks about energy. And so for those where we've had an opportunity to engage in the questions, I've actually gotten a lot of successful -- or very good useful information that can go in our report. So those are still going on. So to the extent that I have staff that can go, we will attend.

And, again, Ashley and I, we just continue to coordinate and share ideas about how we can be effective going into communities, understanding what the barriers are so we can really have meaningful recommendations at the end.

Thank you.

CHAIR NICHOLS: Thank you.

MS. GRANT: Hi. Hello. Sekita Grant again with the Greenlining Institute. Thank you. Very excited to
talk about this topic.

Also a representative from Coalition for Clean Air asked if I could make remarks on behalf of that organization as well.

So the first thing I have in my notes to say is Ashley Dunn is awesome.

(Laughter.)

MS. GRANT: I could just leave it at that.

(Laughter.)

MS. GRANT: No, but it's been a pleasure working with Ashley and her team on this project. She's been incredibly responsive, dedicated, professional, organized. As you can see from her report, her presentation on this, it's been a really great process. And I think more importantly, Ashley's very genuinely passionate about these issues, which makes a huge difference in terms of kind of the output for a study like this.

And have heard similar feedback from other attendees of outreach events, and it's really having a big impact I think in the community, which I'll talk a little bit more about.

And so I'd like to acknowledge and really appreciate the close collaboration with the Energy Commission on both of these parallel studies. I think other folks are really impressed with this level of
collaboration as well. But there's so much -- we're really dealing with the same target group, which is low-income communities, communities of color, disadvantaged community. And so to the extent that we are more collab -- the state is more collaborated in the way that we engage with these communities, it becomes a lot more impactful. So we're really excited to see that.

We're also excited to see staff is really supporting a comprehensive approach to the 350 study. We're looking -- State is looking very closely at electrification and electric vehicle opportunities as well as looking at complete streets and public transit and biking, along with other mobility options that could be available for low-income communities.

And then just to speak a little bit more about the community outreach. It has been very robust and successful, I'd say, to date. It's really helping the Air Resources Board produce a community-driven study, which I think for community groups is a really big deal and folks are very excited about it.

And as Alana alluded to, there's been some both deliberate and kind of a little bit accidental overlap between what's happening with outreach on this 350 study and what's happening on outreach with the Environmental Justice Advisory Committee, of which I'm a member. We
just had a meeting -- The Environmental Justice Advisory Committee just had a really successful meeting in Oakland, and we had a great turnout.

I led the transportation group deep dive discussion and it was great. And folks were asking -- the community was asking questions about how do I get into an electric vehicle, how can I make sure my public transportation is frequent enough and safe and accessible; and really asking questions that are relevant to the scoping plan and also relevant to access to clean mobility options, which is really the mandate under the 350 study.

So it's really -- it's cool to see. And the communities are representing -- are responding very positively to the efforts of the Air Resources Board and the Energy Commission. And so it's -- it's not -- you know, it's the right thing to do, it's great, and it's also just having these -- it's really going to have very lasting impacts I think for the State relationship with disadvantaged communities and underserved communities. And these are, from a political standpoint from what we see in our organization, the same communities that are manipulated by the oil industry and are really used in pushing their political agenda. And so this type of engagement and relationship building with community groups in communities is really impactful.
Let's see. I think I've covered about -- that's about it.

So we really look forward to what comes out in the draft report. We're excited to see really bold and actionable recommendations. And just happy to be engaged and appreciate staff's work on this.

Thanks.

CHAIR NICHOLS: Thank you.
Does that complete the staff presentation?

AIR POLLUTION SPECIALIST DUNN: (Nods head.)

CHAIR NICHOLS: We don't have anybody who signed up to speak to us from the public. But I think a couple of our Board members wanted to comment about it.

This was a challenging assignment to try to conceptualize and figure out what it meant and how you could do it in a way that complemented other work that we're doing. I think this has been a very useful exercise, and I can see a lot of good that's already starting to emerge. But I would like to ask both Diane and Dean to comment a little bit further as to how they see this effort going since both of them have taken on some specific responsibilities for overseeing the environmental justice aspects of our program.

So I could start with you.

BOARD MEMBER TAKVORIAN: Thank you very much.
I just wanted to first I guess build off of Sekita's comments and thank the staff who have been staffing the EJAC and the workshops that are going around the State.

We had ours in San Diego a week ago. It was really successful. I know Oakland and San Bernardino were successful as well. I want to thank Richard and Floyd and Trish and everybody else who has been really leading to make those really great conversations. I think people really felt listened to, and there was lots of conversation about transportation.

So the intersection's really there.

And then also to add my thanks to the staff that are here, Ambreen and Annmarie and Violet, who also came to San Diego and I know are going other places to engage in a conversation about the low-carbon transportation fund. And again great intersection.

So it seems like those -- the scoping plan, the transportation fund, SB 375, all of this is really coming together I think at least in our minds - and we'll see how it all comes together. Ultimately that all of these things are definitely related.

And I want to say about the study specifically that I really appreciated your understanding of social inequities. I mean, this is a huge thing to get your arms
around. And I feel like you're doing it in a really respectful way and one that really takes into account the challenges that are in our communities.

You know, you're looking at issues about who has a smartphone, and not assuming that everybody can get on a computer or get on their smartphone or that they have a credit card or that they have a grocery store in their neighborhood or that it's safe for them to walk from the transit stop or it's safe for them to ride their bike either because of, you know, criminal activity or because the road is so messed up that they can't actually walk or ride safely. So all of those things are really about social injustice and it's a lot to take into consideration.

And I appreciated your broad definition of clean transportation. It's not about getting everybody into a ZEV, with all due respect to those. It's just not going to happen for everyone. It shouldn't happen. I mean, we should have clean transportation in other ways that we're moving people around.

And I think ultimately this is related to land-use and transportation policies and practices. So I kind of anticipate that navigating the governmental and regulatory barriers associated with that might be the biggest hurdle of all. So I wonder whether when you go
back to communities that you've heard from - and I know you're talking with agencies as well - if there can't be some joint collaborative meetings, both with the stakeholders and with the agencies, so that at a local and regional level essentially CARB is helping to facilitate those conversations with the local agencies and maybe laying the groundwork for what will come next, be that state policy, local policy, you know, regional practices; but any way that I think we can inform and facilitate that to go forward. So just a suggestion.

Thank you very much.

CHAIR NICHOLS: Great.

Senator Florez, did you want to add. And then Supervisor awe Gioia.

Dean.


All right. John.

BOARD MEMBER GIOIA: Just to add. I appreciate that you're really delving deep into this issue. And I think the success also really depends upon being in contact with the right organizations and communities. And of course, you know, I'll offer for the Bay Area at least separately -- it sounds like you're talking to a number of organizations, but I'll offer some other thoughts.
The one item I assume your dealing with as well, you talk about infrastructure, is this -- there is a lack of EV charging infrastructure more often, more often in lower income communities. And one of the areas we see a lot the gap in multi-family housing. A lot of lower income residents who live in -- tend to live in more multi-family housing, let's say, that's been identified as a major gap in terms of the absence of EV charging. And I know the utility companies have had proposals before the PUC to put in more charging and prioritizing multi-family as one of those areas. I don't think PG&E's reached final. Theirs hasn't been approved yet, but the other two have.

So I do think that remains a major issue. I think the comments that my colleague down at the end mentioned I think are all important, and it is about showing respect and understanding, unique issues in communities, and giving a chance for people also to provide input in ways that are not necessarily publicly provided. I mean, I'm sure there's going to be focus, you know, one-on-one interviews or in small groups, however it's most convenient and respectful to do those.

And I'll provide some ground level organizations that are doing this work in the Bay Area if you're not already in contact with them.
So thanks.

CHAIR NICHOLS: Thank you.

Mr. De La Torre.

BOARD MEMBER DE LA TORRE: First of all, there was the reference to the legislation. But before the legislation there was an Executive Order, Governor Brown had this component in it. The legislation just reflected the Executive Order. So it's important to go back to the root of where this all came from.

Second, in terms of the vehicles and things that can help in those communities, I agree in terms of the depth of the analysis and certainly going into communities like Huntington Park, which is right next to the town I live in, is very important. But we also have to keep in mind the bigger picture of the marketplace of these vehicles and in two things, which I shared with staff. One, I think it's extremely important to create a secondary market for these vehicles that reflects the regular car market. Which is, you buy a car, and it retains its value whatever percentage, and that makes that car valuable as well. It isn't just the driving experience and the time you're going to have it. It's going to be -- you're going to sell it and you want to get as much back for it as possible when it's time.

For many low income people, they're not going to
buy the new one. They can buy the used one like they do with regular cars.

And so we need to -- we need to figure out that mechanism. We need to figure out how this ZEV marketplace behaves differently with regard to used vehicle, leased vehicles that get returned, for example. And getting those out there and having value for the vehicle and for the customer, for the lower income person who's buying this vehicle and using it every day.

So we need to figure that out and where are the breakdowns in this marketplace relative to the normal one.

And then the other is, as we start to see more high-occupancy vehicles, like vans, et cetera, getting those zero-emission vehicles into these communities for -- and we've talked about it before -- whether it's jitney service or something where you're bringing people to transit through these communities, with zero-emission vans, vanpooling, et cetera, to really minimize the emissions, and give the folks what they need in order for them to get from A to B and from A to B to C. So I think those are the two key component of this, that are more market based, but clearly will impact the benefits for these communities.

Thank you.

CHAIR NICHOLS: Thank you.
Ms. Berg.

VICE CHAIR BERG: Well, I was very excited from my briefing yesterday. We have a very passionate group. And, congratulations, it's really -- and exciting to see this pull together.

I'd really like to look beyond December. We're going to have a lot of great information from this. How terrific would this be to, Mr. Corey, look at our future regulations on transportation, put this group in with our regulatory group to look for opportunities as part of different programs that we have going forward. So I think we're going to have a wealth of information and a great knowledge base, and to be able to do some cross-teams will be real exciting.

So congratulations and thank you.

CHAIR NICHOLS: Great suggestion.

I think that's it then. Thank you very much. We'll look forward to hearing more.

Great. Thank you.

We're going to be shifting casts here as we move to the last item of the day, which is the amendments to the off-road large spark-ignition, or LSI, fleet regulation. And I am going to ask our Vice Chair to get this item started off, and I'll be back in just a couple minutes.
VICE CHAIR BERG: Thank you, Chair Nichols.

So as staff changes out, as Chair Nichols mentioned, our final item on the agenda we will discuss amendments to our off-road large spark-ignition, or LSI, fleet regulation. These amendments would establish new reporting and labeling requirements and extend existing recordkeeping requirements.

ARB first adopted emission standards for the new LSI engines in 1998, then adopted fleet requirements in 2006 and subsequent amendments in 2010.

The staff proposal to amend the LSI fleet regulation will increase enforcement effectiveness, overall compliance, and ultimately aid in deploying of zero-emission off-road technology.

Mr. Corey, would you please introduce this item.

EXECUTIVE OFFICER COREY: Yes. Thanks, Vice Chair Berg.

So we're proposing amendments to the LSI engine fleet regulation because the current regulation requires in-use fleet operators of four or more pieces of LSI equipment to meet a declining hydrocarbon plus NOx fleet average emissions level, with a phase-in implementation schedule that ended in 2013.

The regulation has achieved significant emission reductions in the freight and airport ground support...
equipment sectors.

The amendments as noted being proposed today will strengthen the regulation by establishing new reporting and labeling requirements and extending existing recordkeeping requirements.

The amendments will also set the stage for future regulatory action by providing staff with valuable population and emissions data information.

And with that, I'm going to ask Todd Sterling of our Mobile Source Control Division to give the staff presentation.

Todd.

(Thereupon and overhead presentation was presented as follows.)

MR. STERLING: Thank you, Mr. Corey.

Good afternoon, Ms. Berg and members of the Board. Today I'll present staff's proposal to amend the current large spark-ignition, or LSI, engine fleet regulation. But first a little background.

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MR. STERLING: Before the LSI rule was conceived, new LSI engine emission standards were first adopted in 1998 and later amended in 2006. The fleet rule, adopted by the Board in 2006, targets high emitting uncontrolled equipment by encouraging fleet turnover to cleaner engines
or retrofitting with cleaner technologies.

The fleet rule currently regulates fleets of forklifts, floor sweeper/scrubbers, industrial tow tractors, and airport ground support equipment. The engines used in this equipment are spark ignited, typically fueled by gasoline or propane, and are greater than 1 liter displacement and rated at 25 horsepower or more.

We estimate that there about 96,000 pieces of equipment operating in California.

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MR. STERLING: You can see the fleet average emission level standards required by the existing regulation for California LSI fleets. The fleet emission -- the fleet average emission level is declining NOx plus hydrocarbon standard that varies depending on the size and type of equipment, with the most aggressive reductions for large forklift fleets. Small fleets, 3 or less pieces of equipment, are exempt from the requirements.

As shown, these standards were first implemented in 2009, with full implementation in 2013. Fleets are required to continue to meet the final 2013 standards and required to maintain records until June 30th, 2016.

Because of the lack of required reporting in the
current regulation and the broad number of industries and facilities where LSI equipment are used, ARB does not currently have an effective mechanism in place for determining and tracking overall statewide fleet compliance with a fleet average standard.

However, of the limited number of fleets we do have information on, and for fleets that have been in contact with staff, a majority are in compliance.

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MR. STERLING: The adopted LSI emission standards and the fleet regulation are an integral component of the 2003 Ozone State Implementation Plan. In the absence of emission standards and the fleet rule, it is estimated at the time that the LSI equipment would emit about 20 tons per day of NOx plus hydrocarbon in 2020.

The combined benefit of these rules was estimated to be about 6 tons per day of NOx plus hydrocarbon reduced. To put that in perspective, that reduction is equivalent to about 75,000 cars removed from the road today -- 750,000 cars per day.

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MR. STERLING: With that background I will now discuss the proposed regulatory amendments. Revisions to the existing performance requirements including the fleet average emission levels are not part of the staff's
proposal. This means that they would continue to remain in effect irrespective of adoption of the proposed amendments. Today's proposal focuses on three main elements: recordkeeping, reporting, and labeling.

As previously stated, recordkeeping under the current regulation ended June 30th, 2016. The proposed amendments would extend recordkeeping until June 2023. Additionally, the proposed amendments will require fleets to report owner and equipment and engine information to ARB. Reporting will start June 2017 and continue through June 2023.

Finally, fleets would be required to label their equipment, much the same way diesel off-road equipment are labeled.

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MR. STERLING: The benefits of these amendments are numerous. First, reporting labeling would help increase enforcement effectiveness and compliance rates. ARB enforcement would be able to visit a facility, see the equipment labeled, and verify that the equipment is being properly reported. Once the fleet information is entered into the reporting system, the fleet owner would verify themselves whether the fleet is meeting the fleet average emission standard.

Second, we have not updated the modeled LSI fleet
emission inventory since the fleet regulation was originally adopted in 2006. The reporting requirements for these amendments would provide a better understanding of the LSI emissions in California in 2017 and beyond. The reporting would also allow ARB to identify where electric equipment has penetrated the fleets and where additional progress can be made through potential incentive funding and other means.

Lastly, these proposed amendments are one of several ARB data collection efforts that support the objectives and strategies contained in the Mobile Source Strategy and Sustainable Freight Pathways document. The data collected from these proposed reporting requirements would be essential for the development of future off-road regulatory measures as explained further at the end of my presentation.

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MR. STERLING: Now a closer look at the proposed amendments. The reporting for the LSI equipment would be done using an existing diesel off-road on-line reporting system, or DOORS. This will make reporting relatively trouble free to the end user since the reporting mechanism is already established.

Current DOORS users will have the ability to create an LSI fleet from the current account. The on-line
system would allow fleets to enter their applicable information and receive an equipment identification number, or EIN. This is the number or label that is placed on the specific piece of equipment.

To address stakeholders' concerns regarding the challenges with reporting large numbers of equipment, fleets have the ability to import required information into DOORS using Excel spreadsheet.

Staff is still in the process of expanding DOORS to include LSI equipment, but we expect to be fully operational within 90 days, allowing plenty of time for the June 2017 reporting and labeling deadline.

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MR. STERLING: In-field agricultural LSI equipment are not subject to the LSI fleet requirements since most of the in-field equipment is diesel powered and covered under the ARB -- other ARB programs. They would be -- they would continue to be exempt on the proposed amendments.

Agricultural Crop Preparation Service facilities, such as packinghouses, nut hullers, grain mills, and dehydrators, do however have significant numbers of LSI equipment. These facilities currently must comply with applicable emission standards and other emission control requirements under the LSI fleet rule. However, this
equipment would not be subject to the proposed regular reporting and labeling requirements. Instead, ARB staff has been working on an extensive equipment and usage survey with the ag community for LSI as well as other equipment. This survey would provide information above and beyond what we would gain from the proposed reporting requirements.

We anticipate the survey being ready to be sent out after summer harvest.

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MR. STERLING: While we have attempted to make the reporting and labeling as easy and streamlined as possible, there will be some modest costs to the equipment owners.

We estimate that it will take a fleet operator one hour to collect equipment and engine information and label the equipment, thus totaling $67 per piece of equipment.

So, as an example, for fleets with four pieces of equipment, the proposed amendments would cost a fleet owner about $270; a fleet owner with 100 pieces of equipment would cost a fleet owner about $6,700.

Additionally, there will be some additional costs in the future as equipment would be added to fleets or
retired or new equipment replaces old equipment. This
would of course require additional reporting and labeling.

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MR. STERLING: We have engaged in a robust public
process to develop the proposed amendments. We have had
multiple workshops in the summer and fall of 2015 to
provide the public an overview of the proposed amendments.
We have also participated in numerous conference calls and
email exchanges with stakeholders.

Additionally, we have participated in seven of
the one-stop truck events last fall. These events were
held throughout the State and provided the regulatory
community an opportunity to meet with staff involved with
multiple ARB regulations.

We have had, and will continue to provide,
training for the LSI fleet community. Through this
process we have listened to and addressed stakeholder
comments.

I should note that environmental justice concerns
were not specifically raised during the workshops or
comment period. However, this equipment is used
extensively in freight transit within EJ communities. The
existing rule did much to reduce these fleet emissions,
but more still needs to be done.

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MR. STERLING: That concludes my discussion on the regulatory amendments. But before I finish let me spend a little time discussing how these proposed amendments are essential for the development of future off-road emission reduction measures and the exciting possibilities for integration of advanced technologies.

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MR. STERLING: The proposed regulatory amendments will feed into an updated fleet inventory. The updated fleet inventory can be used to identify where zero-emission equipment is currently being used and look for opportunities to deploy additional equipment. Additionally, the data can be used to coordinate a set of opportunities and identify road blocks or technology gaps. Ultimately, the goal is to expand zero-emission equipment into other off-road equipment types as discussed further in the next slide.

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MR. STERLING: Just as LSI was one of the first ARB fleet regulations, we believe the LSI equipment could lead the way through zero-emission off-road equipment. The LSI sector is expected to serve as a launching point for many transformative technologies that could one day penetrate the off-road diesel sector. Already we have seen common usage of electric and hydrogen
forklifts. Staff beliefs increasing the deployment of zero-emission technology in the LSI sector first would facilitate the necessary technology innovation and maturation that needs to occur in order to transfer such technologies into larger higher-power-demand applications; drive down technology costs; increase market acceptance of zero-emission technology; and help identify opportunities to optimize infrastructure in order to support both the on- and off-road vehicle equipment.

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MR. STERLING: With that, I conclude my presentation. Thank you for your attention today. We ask that you approve the amendments to the LSI fleet regulation. And we'll be happy to answer any questions you have.

VICE CHAIR BERG: Thank you very much. We don't have any witnesses signed up. So I will first turn to the Board to see if there's any questions. So I will --

BOARD MEMBER RIORDAN: I don't have a question. But I think it is reflective that we don't have comments that they've done a very good job of the outreach, and I appreciate that. I have been briefed, and I don't know if Board members have any questions.
I would certainly move the item if there are no questions.

BOARD MEMBER SPERLING: Second.

VICE CHAIR BERG: Great. We have a first and a second.

I will say that I feel like I'm wearing multiple hats here, because not only a Board member. I could go down and sit in the audience as a stakeholder. I do have eight forklifts, and they are all electric, so I'm proud to say that.

And for the purpose of this vote, I will be recusing myself.

So we do have a first and a second. And I think it would be fine with a roll call vote.

CHIEF COUNSEL PETER: That's fine. Could we close the record though. Even though there's no witnesses, we need to officially close the record.

VICE CHAIR BERG: Yeah, I'm sorry. I thought I said that.

So we will officially close the record.

And with that, all in favor?

(Unanimous aye vote.)

(Ms. Vice Berg abstaining.)

VICE CHAIR BERG: Any opposed?

And I will abstain.
With that, the motion passes.

So our last item -- I mean that was our last official item, but we do have open comment.

And we do have one person signed up for open comment. And Nathan from PPG will be addressing us.

I'm sorry. PG&E.

It's the PPG in my industry. I start out and my brain doesn't work. Thank you.

Nathan.

MR. BEGTSSON: Thanks so much for the introduction. Chair Nichols, Board members. Long time no see. I'm sure you have lots of places to be, so I'll keep it brief.

I just wanted to give a quick update on the agreement that PG&E announced last week alongside NRDC, IBEW, A4NR, FOE, and Environment California regarding the closure of the Diablo Canyon Nuclear Plant.

So PG&E has joined with these labor and environmental organizations to imagine a different kind of energy future. This is a coalition of labor and environmental partners, as you can imagine, with some diverse perspectives. That's why it's such a powerful statement that collectively came together with a shared vision for what we believe is the best and most responsible path forward with respect to this nuclear
plant in California's energy future.

Together we developed a proposal that would increase investment and energy efficiency, renewables and storage, while phasing out PG&E's production of nuclear power in California in 2024 and 2025 at the end of the original operating licenses for Diablo Canyon.

The proposal includes a PG&E commitment to a 55 percent renewable energy target in 2031, which is an unprecedented voluntary commitment by a major U.S. energy company.

A key element of this vision is that it recognizes the value of carbon-free nuclear power as an important bridge strategy over the next eight to nine years. And the transition period will help ensure the power remains affordable and, importantly, that we don't increase the use of fossil fuels as we move forward to support California's energy vision in the future.

Equally important, this transition will provide essential time needed for our valued employees and for the community to plan for a future without Diablo Canyon.

We are really proud of Diablo canyon's track record of industry leading safety and liability. And the results have been made possible thanks to the skilled team of professionals who run that plant. And the transition of the joint proposal provide -- the transition that the
joint proposal provides will allow us to finish safe and
finish strong.

So to continue to deliver those positive results,
the parties agree that it's important for us retain that
team of professionals. That's why we've included it in
the joint proposal before the CPUC. We've included in
that proposal a package of retention benefits and
retraining opportunities for our team. And for the
community we're also proposing a $50 million transition
package that would keep tax payments at current levels
until 2025 and allow essential time for planning.

Here again, that certainty that we've come
together and made this agreement is really essential.

So these replacement resources and employee and
community benefits all have to be approved by the CPUC and
there is much more work to be done. But with the
agreement, license renewal's off the table.

And I just wanted to invite the Air Resources
Board's support for the joint proposal before the CPUC.
Together we can really move forward to a future where
clean, affordable and reliable energy dominates our energy
supply and helps us build a better California.

So thanks for hearing me out. And I won't even
offer to try and answer any questions you have, but I'll
certainly take them back to the people who are in the
Thank you.

CHAIR NICHOLS: Thank you. It's gotten a lot of attention in the press and mostly I think very favorable and positive for the process that you all were able to undertake. I know there are skeptics or -- I've lost the word at the moment -- but contrarians, I guess, who argue that it's a terrible mistake to have abandoned this nuclear plant. But I think you-all have done the analysis that showed why it made sense to move on in a new direction. And so we just wish you the best and we'll work with you to make it work.

Thanks.

Okay. We have no more comments on that topic.

So it is now time for any additional Board member comments.

BOARD MEMBER DE LA TORRE: Thank you. I just wanted to report back. I represented CARB in Monterey, Nuevo León, Mexico, a couple weeks back. They -- Nuevo León has a new state government, new governor about six months in, and they have a terrible record on clean air there. They got rid of their smog check program about 10 years ago. And, I mean, just -- it's known as an industrial hub in Mexico, and they've done very little to cleaning their air.
Well, lo and behold, it's gotten so bad that they really feel they have a mandate to do something about it. And where -- and the first place they went to to see what's possible was California. The people in the administration, Secretary of -- the equivalent of the Secretary of EPA and others and the head of their air quality board, knew about the progress that's been made in California, were very impressed by what's happened in California, and they zeroed in on us as being the cause of that.

And so it just was -- it was a reminder that people are watching what we're doing, not just here in the United States but in other places. And to the extent that they're successful in -- in any of the number of regulatory efforts that they want to undertake during this gubernatorial term, that it benefits all of us. It benefits their air quality but it certainly benefits climate change, et cetera.

And so it was very powerful to be down there speaking in front of all kinds of different groups and just telling the CARB story. And the feedback that I got was nothing but positive, even from industry and other folks, who in the past have been antagonistic.

CHAIR NICHOLS: Is there a follow-up that will occur as a result of that?
BOARD MEMBER DE LA TORRE: It's begun. I've connected them with our international folks upstairs and within CARB, and they want to do -- you know, get some technical support, things that other jurisdictions have asked for in the past. They really are at zero. Their monitoring has been dismantled in the past because of budget cuts and other issues. I mean, they -- they're starting from scratch.

And so a gubernatorial term in Mexico is six years. At one point one of them said, you know, this is all great, we want -- and I said, well, you've got five and a half years to do it.

(Laughter.)

BOARD MEMBER DE LA TORRE: So -- he laughed.

It really is a big challenge. But they want to embed these things in such a way that -- they all have come to the realization, much like China, much like the federal government in Mexico, that they cannot sustain what they're doing with that air pollution. It's just hurting them too much. Employers are having a hard time because their employees are getting sick, et cetera, et cetera.

So it's seems like the political will is there. We'll see how successful they are in implementing, because they -- they can't do it all, so they're having to
prioritize what they are going to do. And I think it will
be some mix of vehicle stuff and industrial work
limitations, monitoring, et cetera. And we'll see. We'll
see how successful they are.

But it just was a very powerful reminder that
people are watching us.

CHAIR NICHOLS: Well, thank you for your doing
it. I know sometimes when we think about the
possibilities for international engagement and
international travel, it all sounds very glamorous. And I
think we -- those of us who've done it understand that
often you're going to the places where they're the most
polluted and where, you know, you're doing your best to
try to present a positive message and give them some
support and some hope, but it's not exactly lying on the
beach. So...

BOARD MEMBER DE LA TORRE: There's no beach
there.

(Laughter.)

BOARD MEMBER DE LA TORRE: There's like a hundred
degrees and 909 percent humidity.

(Laughter.)

BOARD MEMBER RIORDAN: Then all the pollution.

BOARD MEMBER DE LA TORRE: And then all the
pollution, which was horrible.
But I also want to acknowledge that the folks who brought it all together were the U.S. Consulate in Monterey, who wanted to be helpful to this new administration. So they were the ones who actually made the connection.

CHAIR NICHOLS: That's great.
Well, thank you.
I won't make any comments about what will happen when there's a large wall and no consulate.

VICE CHAIR BERG: It's not going to happen.
CHAIR NICHOLS: That would be inappropriate.

Okay. Good. Thank you.
Any other comments?
If not, we'll be adjourned. Thank you.
(Thereupon the Air Resources Board adjourned at 4:10 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 4th day of August, 2016.

JAMES F. PETERS, CSR
Certified Shorthand Reporter
License No. 10063