APPEARANCES

BOARD MEMBERS:
Ms. Mary Nichols, Chair
Ms. Sandra Berg, Vice Chair
Dr. John Balmes
Hector De La Torre
Mr. John Eisenhut
Senator Dean Florez
Assembly Member Eduardo Garcia
Supervisor John Gioia
Ms. Judy Mitchell
Mrs. Barbara Riordan
Supervisor Phil Serna
Professor Dan Sperling
Ms. Diane Takvorian

STAFF:
Mr. Richard Corey, Executive Officer
Ms. Edie Chang, Deputy Executive Officer
Mr. Steve Cliff, Deputy Executive Officer
Mr. Kurt Karperos, Deputy Executive Officer
Ms. Ellen Peter, Chief Counsel
Ms. Emily Wimberger, Chief Economist
Ms. Veronica Eady, Assistant Executive Officer
Ms. La Ronda Bowen, Ombudsman

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STAFF:
Mr. Pipin Brehler, Senior Attorney, Legal Office
Mr. Dominic Bulone, Legislative Analyst, Office of Legislative Affairs, Chair's Office (CO)
Ms. Carey Bylin, Air Pollution Specialist, Program Development Section, Industrial Strategies Division (ISD)
Mr. Ben Carrier, Attorney, Legal Office
Mr. Mike Carter, Assistant Division Chief, Mobile Sources Control Division (MSCD)
Ms. Catherine Dunwoody, Division Chief, Monitoring and Lab Division (MLD)
Mr. Richard Enion, Senior Attorney, Legal Office
Ms. Dorothy Fibiger, Air Resources Engineer, Testing and Certification Section, MLD
Ms. Annette Hebert, Division Chief, Emissions Compliance, Automotive Regulations and Science Division (ECARS)
Mr. Paul Henderick, Air Resources Engineer, Diesel On-Board Diagnostic Section, ECARS
Mr. Jack Kitowski, Division Chief, MSCD
Mr. Aaron Livingston, Assistant Chief Counsel, Legal Office
Mr. Mike McCarthy, Chief Technology Officer, ECARS
Mr. Mike Miguel, Branch Chief, Quality Management Branch, MLD
Ms. Leela Rao, Manager, On-Board Diagnostics Program Development Section, ECARS
Mr. Randy Reck, Attorney, Legal Office
Mr. Mike Regenfuss, Branch Chief, On-Board Diagnostics Branch, ECARS
APPEARANCES CONTINUED

STAFF:

Mr. Bill Robertson, Vehicle Program Specialist, MSCD
Ms. Rajinder Sahota, Assistant Division Chief, ISD
Mr. Abajh Singh, Air Pollution Specialist, Emissions and Data Quality Assurance Section, ISD
Mr. Mark Sippola, Manager, Program Development Section, ISD
Ms. Linda Smith, Branch Chief, Health and Exposure Assessment, Research Division (RD)
Mr. Floyd Vergara, Division Chief, ISD
Ms. Sydney Vergis, Interim Legislative Director, Office of Legal Affairs, CO
Mr. Jason Wong, Staff Air Pollution Specialist, Gasoline On-Board Diagnostics Section, ECARS
Ms. Zoe Zhang, Staff Air Pollution Specialist, Indoor Exposure Assessment Section, RD

ALSO PRESENT:

Mr. Kevin Abernathy, Dairy Cares & Milk Producers Council
Mr. Lovester Adams, Baptist Ministers Convention
Mr. Pete Aguyo, Nisei Farmers League
Ms. Fariya Ali, Pacific Gas and Electric
Mr. Nathan Alonzo, Fresno Chamber
Ms. Christina Beckstead, Madera County Farm Bureau
Ms. Jamie Banks, Quiet Communities
Ms. Susie Berlin, Northern California Power Agency, Golden State Power Cooperative, MSR Public Power
ALSO PRESENT:

Mr. Brian Biering, Bloom Energy
Mr. Bruce Blodgett, San Joaquin Farm Bureau
Ms. Kate Blumberg, International Council on Clean Transportation
Mr. Cody Boyles, Nisei Farmers League
Mr. Tony Braun, California Municipal Utilities Association
Mr. Tony Brunello, California Forest Carbon Coalition
Mr. Oliver Buie, Holman United Methodist
Ms. Julia Bussey, Chevron Corporation
Mr. Tim Carmichael, Sempra Energy
Mr. Ron Chavez, The Two Hundred, California Community Builders
Dr. Steven Colome, City of Ojai
Mr. John Costantino, Verified Emission Reductions Association
Mr. Danny Cullenward, Near Zero
Ms. Tanya DeRivi, Southern California Public Power Authority
Ms. Michelle Embury, E2 (Environmental Engineers)
Ms. Carolyn Fowler, Democratic Party Women's Caucus
Mr. Juan Garcia, PG Cuttings
Ms. Kathryn Garcia, Sierra Club California
Mr. Roger T. Gault, EMA
Mr. Michael Geller, MECA
APPEARANCES CONTINUED

ALSO PRESENT:
Ms. Maria Guriato, Latino Seaside Merchants Association
Mr. Ryan Hallenberg, Valley Industry and Commerce Association
Mr. Ronald Keith Hayes, Baptist Ministers Convention
Mr. Scott Henderson, Covanta
Mr. Matt Henigan, Deputy Secretary, California Government Operations
Mr. James Jones, Missionary Baptist Convention
Mr. Johnny Johnston, City of Ojai
Mr. Greg Knott, Outdoor Power Equipment Institute
Mr. Mark Krausse, Pacific Gas and Electric
Mr. Ted Kujawski, Stihl
Mr. John Larrea, California Food Producers
Mr. Prentiss Lewiss, Greater Starlight MBC
Mr. Timothy Litton, Northern California Carpenters Regional Council
Mr. Victor Lopez, Central Valley Latino Mayors & Elected Officials Coalition
Mr. Bill Magavern, Coalition for Clean Air
Mr. Bruce Magnani, Coalition for Sustainable Cement Manufacturing and the Environment
Mr. Jed Mandel, CMA Truck and Engine Manufacturers
Mr. Simon Martin, Procter and Gamble
Mr. Luke Massman-Johnson, American Green Zone Alliance
Mr. Thomas Maulhardt, Campbell's
ALSO PRESENT:

Mr. Brian McDonald, Marathon Petroleum Company
Ms. Patty Muddelmog, Ceres, BICEP Network
Mr. Jonathan Mosely, National Action Network
Mr. Jacob Moss, South Coast Air Quality Management District
Ms. Maddie Munson, Agricultural Energy Consumers Association
Ms. Andrea Navarrete, Latin Business Association
Mr. Jarron Nichols, Baptist Ministers Convention
Ms. Naomi Padron, California Manufacturers and Technology Association
Mr. Daniel Parra, Central Valley Latino Mayors & Elected Officials Coalition
Mr. Arjun Patney, American Carbon Registry
Mr. Luis Portillo, Inland Empire Economic Partnership
Mr. Mark Riechers, Microvast
Ms. Tiffany Roberts, Western States Petroleum Association
Mr. Roy Rodriguez, Central Valley Latino Mayors & Elected Officials Coalition
Ms. Katelyn Roedner Sutter, Environmental Defense Fund
Mr. Michael Saragosa, City of Placerville
Ms. Robin Shropshire, Panoche Energy Center
Mr. Will Scott, African American Farmers Association
Mr. David Siao, Roseville Electric
Ms. Leah Silverthorn, CalChamber
APPEARANCES CONTINUED

ALSO PRESENT:

Mr. Michael Skvarla, California Council for Environmental and Economic Balance
Mr. Steven Smith, Phillips 66
Ms. Anna Solorio, CHOC Housing
Ms. Tricia Stever Blattler, Tulare Farm Bureau
Ms. Shelly Sullivan, Climate Change Policy Coalition
Mr. Patrick Swarthout, Greater Coachella Valley Chamber
Ms. Diana Tang, City of Long Beach
Ms. Melissa Travgh, Central Valley Business Federation
Mr. Dennis Tristao, J.G. Boswell Company
Mr. Tom Tuchman, Usal Redwood Company
Mr. Tim Tutt, Sacramento Municipal Utility District
Mr. Cedric Twight, Sierra Pacific Industries
Ms. Emily Warms, New Forests
Mr. Erick Watkins, Pacific Coast Producers
Mr. Peter Weiner, Crockett Cogeneration, LP
Mr. Dave Weiskopf, NextGen
Mr. Roger Williams, Bluesource
Ms. Raemeisha Williams, National Action Network
Ms. Vivian Williams, National Action Network
Mr. Jack Wilson, Baptist Ministers Convention
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CHAIR NICHOLS: Hello. The mic is on. The red light is on.

(Laughter.)

CHAIR NICHOLS: That tells you that it's on.

Great. Welcome everybody to the November 15th 2018 public meeting of the California Air Resources Board. The meeting will come to order. And we will being with the Pledge of Allegiance to the flag.

Please rise.

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

CHAIR NICHOLS: And the Clerk will please call the roll.

BOARD CLERK DAVIS: Dr. Balmes?

BOARD MEMBER BALMES: Here.

BOARD CLERK DAVIS: Mr. De La Torre?

Mr. Eisenhut?

BOARD MEMBER EISENHUT: Here.

BOARD CLERK DAVIS: Senator Florez?

Assembly Member Garcia?

Supervisor Gioia?

BOARD MEMBER GIOIA: Here.

BOARD CLERK DAVIS: Senator Lara?

Ms. Mitchell?
BOARD MEMBER MITCHELL: Here.

BOARD CLERK DAVIS: Ms. -- Mrs. Riordan?

BOARD MEMBER RIORDAN: Here.

BOARD CLERK DAVIS: Supervisor Roberts?

Supervisor Serna?

BOARD MEMBER SERNA: Here.

BOARD CLERK DAVIS: Dr. Sherriffs?

Professor Sperling?

BOARD MEMBER SPERLING: Here.

BOARD CLERK DAVIS: Ms. Takvorian?

BOARD MEMBER TAKVORIAN: Here.

BOARD CLERK DAVIS: Vice Chair Berg?

VICE CHAIR BERG: Here.

BOARD CLERK DAVIS: Chair Nichols?

CHAIR NICHOLS: Here.

BOARD CLERK DAVIS: Madam Chair, we have a quorum.

CHAIR NICHOLS: Thank you.

I'm going to make the sort of routine announcements, and then I'm going to have a word to say before we get started. We always have to point out to people that there are emergency exits at the rear of the room. And in the event of a fire alarm, which sounds ironic but it's real, we are required to evacuate this room immediately and go down the stairs, and out of the
building until we hear an all-clear signal and then come back to the hearing room and resume the hearing.

Anyone who wishes to testify on any item on today's agenda should fill out a request to speak card which is available in the lobby outside the room. We appreciate it if you would turn it in before the item begins, if at all possible.

Also, we will be imposing a three minute time limit on speakers, unless for some reason the testimony is repetitive and long, and we end up deciding we need to shorten it. But normally we give three minutes for each speaker. We read everything that is submitted to us as well.

I also want to point out that we have interpretation services available this morning in Spanish for Item number 18-9-9, the Proposed Amendments to the Regulation for the Mandatory Reporting of Greenhouse Gas Emissions and for 18-9-10, Proposed Amendments to the California Cap-and-Trade Greenhouse Gas Emissions and Market-Based Compliance Mechanism Regulation. These two are going together.

Headsets are available outside the hearing room at the attendant sign-up table, and can be picked up at any time. And I will now pause for the translator to say this in Spanish.
Thereupon the interpreter translated in Spanish.)
CHAIR NICHOLS: Gracias. Thank you.
All right. Before we take up our regular agenda, I want to say a few words about the fires that are burning now in this state. The loss of life is shocking to all of us. And while we need to worry about the smoke and the air here today, we also need to keep in mind the people who have lost their lives in the Camp Fire and in the Southern California fires as well.
Sadly, it now seems that the abnormal has become the normal, as we see the compounding impacts of climate change. The loss of life and property is unprecedented. The Camp Fire is the deadliest in our state's history, and we don't know the full extent of the damage yet. And the fires aren't out.
I have been talking with staff for the last few days. But this morning, we got together just briefly, and I wanted to make sure that I would give you an update on what CARB is doing at this moment. This week and last, we've deployed nine supplemental particulate matter monitors to communities that are impacted directly by wildfire smoke in both Northern and Southern California.
Over the last week, we've seen that the lower Sacramento Valley and the adjacent foothills have been
experiencing extended periods of very unhealthy to hazardous air quality. This is beyond anything that we think of as normal. And many Northern California communities as far away as the Bay Area have experienced extended periods of unhealthy air due to smoke impacts from the Camp Fire.

Unfortunately, we don't anticipate much relief from this air quality problem until possibly Thanksgiving at the earliest. For us, including myself, who are farther away, the safest thing we can do is to stay indoors. We're fortunate that our headquarters building has a sophisticated ventilation system, the building that we're in right now. And the building engineering staff have closed down the dampers that draw in outdoor air to the maximum extent possible. The filters in the HVAC system are very efficient MERV 13 filters that are able to capture a good deal of the smoke particles. But as you can tell, there still is a smell of smoke in the air, and you can tell that there's smoke around.

The stairwells draw air more directly from the outside. So our advice to people in the building is not to linger in the stairwells or near the doors in the lobby. You can get coffee and eat lunch downstairs on our lunch breaks rather than going outside the building. And again, the major advice is to stay indoors as much as
Finally, in addition to the outdoor monitoring support that we are providing, CARB technical staff and our executive team have been tracking the indoor air quality here in our building. And we are also looking at what we can be doing to clarify and extend on the advice that we are often asked for. Our own Board Member physician John Balmes has been interviewed, I think he said, 11 times in the last couple of days, primarily by people wanting to know how bad is it, what should I do? And we are going to be taking advantage of his presence here today to give some more generic clarifying advice about the meaning of these various AQI levels, and what we mean when we say bad for sensitive people. Of course, it's been bad for sensitive people -- way beyond bad for sensitive people for many days now. But what is the best advice that we can give people who are worried or experiencing symptoms? But again, unfortunately, staying right where we are today is probably the safest thing we could be doing.

And if anybody wants to add anything, any Board members?

Yes, Mr. Serna, please. This is your territory here.

BOARD MEMBER SERNA: It is. Thank you, Chair
Nichols for mentioning all that you just did about this incredibly unfortunate circumstance we find ourselves in.

I just wanted to add to that, the public can visit CARB's webpage. The first thing you'll see is a link to current AQI conditions, as well as forecast AQI conditions. So please do use that, and let others know about that particular resource, so that you can make an informed decision about whether or not to expose yourself outside -- to the air quality outside or to remain indoors, or whether or not to take other precautions to guard against the health risks associated with the smoke and the fires.

CHAIR NICHOLS: Thank you.

Dr. Balmes.

BOARD MEMBER BALMES: Thank you, Chair Nichols. Just to give the basics here, in terms of the health effects of this wildland fire smoke. It's the fine particulate, the PM2.5, that's the major health risk. The smell is not from the particles themselves, but from the offgassing of semi-volatile materials from the particles.

When it's in the red zone in terms of the AQI, greater than 151. That's unhealthy for everyone, not just sensitive subgroups. So that means that nobody should be exercising outdoors, especially strenuous exercise. This is interesting for farm workers and construction workers,
whose livelihood depends on this. But because when you're exercising you increase ventilation, it increases the effective dose, and you -- if you're exercising strenuously, then you're doing it through your mouth and you bypass the filtering mechanism of the nose. So that's why people -- what -- that's why we recommend N95 masks.

N95 masks only are properly fit for adults. So I'm always asked about children, whether they should be wearing N95s. They don't properly fit kids and kids don't usually like to wear them. I mean, adults don't like to wear them, but they do provide some protection even if they don't fit properly, even if they don't -- even me with a beard, an N95 would give me some protection just not 95 percent.

And, you know, being indoors in a building that is well filtered like this one is sort of the best way to deal with it. Unfortunately, a lot of homes and buildings aren't that well ventilated. I've been freezing in the -- my house in the Berkeley Hills, because my wife has asthma that is definitely exacerbated by these kinds of conditions. And so she -- and our heating system brings in outdoor air, so I sympathize with others in this regard.

But the last thing I want to say is I have been interviewed multiple times over the last few days by
media. And they always want to know about the health
effects of this. And I always try to bring the
conversation back to the climate change issue, and the
need to do a better job with forest maintenance.

I mean, there's a legacy of fire suppression in
our country where fires were always put out quickly, so
that our western forests that really need to have fire
periodically, small lightning fires. The Native Americans
knew this. Now, we have all this fuel that's built up,
and that leads to catastrophic fires like we're
unfortunately having repeatedly in California.

Communities at the Wildland-Urban Interface need
to be better protected. And they need -- the way they
fight wildland fires is to create a buffer between the
fire and where it hasn't burned. They dig a buffer. And
so we need to have that around our at-risk communities.
And we need to have early warning systems. There are
cameras, sensors that can be around these communities.

I mean, basically, we have to move from the
beauty of living in the woods to maybe we should have a
buffer between the woods and where we live. And I mention
this because it's an emergency. This is the new normal,
and we need to be doing a better job at being ready for
wildland fires -- catastrophic wildland fires and try to
prevent them.
CHAIR NICHOLS: Thank you, John. The topic of the impact of our forest and other natural and working lands and the relationship with greenhouse gases is on our agenda in a different way later, a couple of different ways. And so this is a topic that we're going to be dealing with increasingly as time goes on.

I think I will now get us back on to our regular track then. Oh, I'm sorry. Excuse me, I didn't see you come in.

BOARD MEMBER FLOREZ: No problem.

CHAIR NICHOLS: Good morning.

BOARD MEMBER FLOREZ: No problem. Just a -- just a quick comment. I would like to say in taking all the comments into account, I got out of the car in order to come to the meeting, and I felt like I was in Bakersfield. And I shouldn't be able to feel that way.

But I would like to say ag burns are still part and parcel of our society today. Today is very much like any given day in the Delano or Arvin, or McFarand, or in some of the lower parts of the valley. And I do want to emphasize that we still need to turn the corner on prescribed ag burns for this winter, particularly in the Central Valley.

And I think although it's very tough to breathe -- and in some sense for any of you who haven't
been to that part of the area during those cold months, you know, this is very much part and parcel of everyday life.

So, you know, I really appreciate the path we've been taking with staff. I think we have a good path forward. But I also would like to say as the air does clear, at some point in time, and the fires subside, which they will, this will continue to be an everyday part of a good majority of people in California doing exactly what we're doing here today.

So, you know, continue down the path, and I appreciate staff's help. And hopefully, we can have these kind of -- a better environment moving forward.

CHAIR NICHOLS: Thank you.

Okay. We'll start with the consent item, which is the Ozone Attainment Plan for Western Nevada County. Did we receive any comments on this one?

BOARD CLERK DAVIS: (Shakes head.)

CHAIR NICHOLS: No reason to do anything other than approve it then, I believe. So the record is closed at this point. And do any Board members want to comment on this one?

If not, could I have a resolution and a second?

VICE CHAIR BERG: Madam Chair, I'll move 18-9-1.

BOARD MEMBER SERNA: Second.
CHAIR NICHOLS: Thank you. Moved, seconded.
All in favor, please say aye?
(Unanimous aye vote.)
CHAIR NICHOLS: Any opposed?
Any abstentions?
Okay. Great.
Now, we'll move on to an informational item on the Mobile Source Program, which is titled A Vision for Minimizing Real-World Emissions.
As California continues to push vehicle emissions closer and closer towards zero to meet our air quality needs, it's critical that the expected emissions reductions from our programs are actually occurring as cars are being driven in the real world. Today's informational item will discuss how California's existing mobile source programs address the real-world emissions problem, and provide an update on staff's efforts to better ensure that future changes to the programs better reflect how mobile sources are being used.
Mr. Corey, would you please introduce this item?
EXECUTIVE OFFICER COREY: Yes. Thanks, Chair.
As vehicles standards push towards zero, we need to ensure that vehicles are designed, built, and maintained not just to start out clean, but to stay as clean as possible throughout their life regardless of how
they're being used in the real world.

Vehicles are becoming increasingly complex and more capable, which create new opportunities to ensure emission control systems are operating at maximum levels of efficiency in the broadest spectrum of conditions.

Staff is working to identify where California's comprehensive suite of programs to regulate car and truck emissions can be improved to more accurately reflect real-world driving conditions. These efforts will help ensure that we maximize emission reductions from California's vehicle fleet, not just in test cells, but in use where the rubber meets the road.

I'll now ask Mike McCarthy of the ECARS Division and Bill Robertson of the Mobile Source Control Division to begin the staff presentation.

Mike and Bill.

(Thereupon an overhead presentation was presented as follows.)

ECARS CHIEF TECHNOLOGY OFFICER McCARTHY: Thank you, Mr. Corey. Good morning, Chair Nichols and members of the Board. Today, myself and Bill Robertson, one of our heavy-duty experts from the Mobile Source Control Division will provide a short overview of how we are planning to evolve our mobile source control programs to better ensure our current and future actions result in
minimizing real-world emissions from on-road cars and trucks.

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ECARS CHIEF TECHNOLOGY OFFICER McCARTHY: As you all know, CARB has its root in the regulation of emissions from mobile sources and recently celebrated our 50-year anniversary. From equipping cars with prototype emission controls to supporting academic research on how drivers react to alternative fuel vehicles, CARB has relied on strong technical foundations to adopt technology-forcing standards for cars and trucks.

Along the way, we've learned a lot about the different emission sources in California. On the left, the chart shows the contributions from different sectors to NOx emissions in the South Coast Basin, while the chart on the right shows the contributions to the state's greenhouse gas emissions.

Even with a long history of mobile source controls, mobile sources continue to be a dominant source of emissions in California. For NOx, mobile sources make up approximately 80 percent of all emissions, while in greenhouse gas emissions, mobile sources are directly responsible for more than one-third of the emissions. And if you include the emissions associated with the production of fuels used in mobile sources, nearly 50
percent of all GHG emissions are mobile related.

ECARS CHIEF TECHNOLOGY OFFICER McCARTHY: Our current programs have achieved significant reductions. The left shows how NOx emissions continue to come down, largely due to reductions from mobile sources leading to fewer days that exceed ozone ambient air quality standards.

On the right, while we have a much shorter history in greenhouse gas regulations, we have already dropped below 1990 levels four years earlier than our 2020 mandate, despite continued growth in vehicle miles traveled, or VMT, by an ever increasing number of people in the state and number of cars and trucks on the road.

ECARS CHIEF TECHNOLOGY OFFICER McCARTHY: It has taken a massive effort with lots of hard-fought battles along the way to achieve these reductions. And there are many individual elements that form the comprehensive set of requirements that we have today that touch nearly all aspects of a vehicle's life.

These elements include a rigorous certification review before vehicles are even built, scrutinizing aspects of the design and control strategies among other things.
Early in the vehicle's life, we have many programs ranging from manufacturer self-testing, to CARB testing, and other data reporting to verify vehicles are performing as expected.

These and other programs continue as vehicles reach the middle of their life, and even late in the vehicle's life where aspects like SmogCheck and programs to incentivize or require fleet turnover play a larger role.

And other CARB actions are always being carried out to characterize emissions and vehicle activity to enhance or develop subsequent requirements.

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ECARS CHIEF TECHNOLOGY OFFICER McCARTHY: Despite our concerted efforts to date, we still need to do more. In both the South Coast Basin and the San Joaquin Valley, ozone ambient air quality standards continue to be exceeded, necessitating further reductions in NOx, the primary ozone precursor.

While our currently adopted programs will lead to further reductions from today's levels, substantially more reductions will be needed to reach the levels necessary to meet the 2023 and 2031 targets, not mention the even more stringent 70 parts per billion ozone standard that only recently received U.S. EPA's court ordered attainment
designations for future implementation. For the San Joaquin area, NOx is also an important contributor to nonattainment for particulate matter or PM.

For greenhouse gas emissions, much deeper reductions are still needed to reach the 40 percent and 80 percent reduction targets by 2030 and 2050 respectively. And, of course, Governor Brown recently issued an Executive Order further targeting carbon neutrality by 2045.

Given the contributions from cars and trucks, mobile source reductions will be key to our success.

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MSCD VEHICLE PROGRAM SPECIALIST ROBERTSON: Not only do we need to do more to reach statewide targets, but also because particular vulnerabilities in our disadvantaged and low income communities to mobile sources.

The legislature has directed CARB to consider the effects of its programs at an increasingly granular community level. As shown on the map by the shaded areas, environmental justice communities are not a rarity and contain a considerable amount of California's population.

The significant impact -- emission impacts of mobile sources often directly overlay with these communities, for example, in their association with ozone,
diesel particulate matter, and air toxics levels along highway corridors and other goods movement activity.

While mobile source emissions, in general, are a control target, the urgency of decreasing them is especially important for the populations leased able to avoid them.

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MSCD VEHICLE PROGRAM SPECIALIST ROBERTSON: Plain and simple, we need to do better. We need to be more efficient in how we assure broad emissions control on the road. Our focus needs to expand from further improvement in areas of good control to also include addressing areas that have not been as well controlled.

As noted before, California's mobile source emissions decline has been hard won by the determined and combined efforts of iterations of regulation and innovative industry responses. However, CARB testing also shows that the expected reductions have not always been fully realized in the real world where the cars and trucks are actually used.

As an example, some systems have weak designs or frail control systems that degrade prematurely. This chart shows results of CARB on-road testing of recent model year heavy-duty trucks using portable emission measurement systems, where emissions from many engines
were found to be much higher than the expected levels. This type of testing has already led to a recall by Cummins to fix approximately 500,000 engines.

Secondly, some systems have not been calibrated and designed for optimal emissions control across all situations. This chart shows passenger car emissions from the initial start-up of the engine after the vehicle has been parked for varying amounts of time.

The tail-ends at the beginning and ends of the curves - the two areas that happen to be well covered by our current requirements - show actual emissions to be near expected levels. However, recent testing found the strategies used effectively to control start emissions were not being utilized at intermediate points, causing NOx emissions to be up to two and a half times higher than expected.

Of course, certain parties have engaged in outright illegal behavior to actively circumvent our requirements to the detriment of air quality and thereby the public health of our citizens.

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MSCD VEHICLE PROGRAM SPECIALIST ROBERTSON: So how do we do more?

You may recall from our Mobile Source Strategy, and the SIP planning efforts, that transitioning the fleet
to more electrification is the only viable path we see to meet both our ambient air quality and greenhouse gas targets.

On the left, an example for the light-duty sector is shown where the fleet is largely transformed to zero-emission vehicle technologies by 2050. The right side shows potential scenarios for the heavy trucks that relies largely on transitioning to even cleaner engines in the future.

Of note in both cases, however, is that a substantial portion of both fleets would still utilize combustion engines. For the light-duty fleet, this scenario results in approximately 60 percent of the 2050 fleet having combustion engines, while approximately 90 percent of the heaviest trucks would still be utilizing engines, including a large population of emission level -- current emission level trucks for at least two more decades.

Given the long-term role of engines, we need to continue to dedicate resources to make sure these cars and trucks perform as expected. To achieve our targets, the future combustion engine vehicles need to start out even cleaner, they need to stay clean even longer, and for any vehicle that doesn't, we need to find it and get it fixed even faster.
And how can we do a better job of ensuring we fully get the expected and needed emission reductions? By increasing our focus on real-world emission performance.

First, by broadening coverage of our requirements, we can target optimal emission control under all operation and usage. Our current programs have achieved substantial reductions under conditions that are representative of a lot of real-world operation. But to get even further reductions, we need to make sure we cover virtually all operating conditions.

Secondly, we need to increase transparency on car and truck emission performance, so we have a more efficient way to quickly identify higher than expected emission levels. One way to do this would be to move closer to monitoring actual on-road emission performance of all vehicles.

Put together, we believe these two principles will yield increased robustness of real-world emission performance to better ensure the needed reductions are occurring and to maximize the benefits for public health.
Concrete actions that apply the principles of broader coverage and increased transparency will occur in parallel on multiple times scales. Early actions and ongoing periodic reviews have already been used to refocus priorities within existing programs.

Intermediate timeline activities involve critically evaluating our existing standards and in-use programs against newer approaches and emerging technical feasibility with this mindset towards increasing the robustness of real-world performance.

Looking out further are the long-term potential benefits of weaving various kinds of fleet data into CARB's processes to achieve durable emission reductions across all conditions of how cars and trucks are actually used.

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ECARS CHIEF TECHNOLOGY OFFICER McCARTHY: As some examples for actions already taken in the direction of broadening coverage, staff have already refocused efforts within certification reviews with an eye towards making sure control strategies work optimally under as broad of conditions as possible.

Board members may recall that you've also already taken actions to strengthen the warranty provisions for heavy-duty engines, ensuring emission components are
designed to last longer. And we have increased testing of new and pre-production vehicles to specifically look for inappropriate behavior when operated on road.

To the goal of increasing transparency, we have already increased on-road testing efforts of in-use trucks to find noncompliant engines or otherwise unexpected behavior. And the Board has previously adopted provisions for light-duty vehicles to store data on their CO2 emission performance, which will provide a comprehensive look into the on-road performance of the newest technologies.

Lastly, we have already been expanding the use of alternate methods for measuring emissions from a larger portion of the fleet to increase awareness of how the fleet is actually performing.

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ECARS CHIEF TECHNOLOGY OFFICER McCarthy: Next up, the Board will see a number of items brought before them primarily over the next two years.

For light-duty vehicles, the two most significant items are scheduled for 2020, and include a proposed set of criteria pollutant, greenhouse gas, and zero-emission vehicle requirements for a second generation of our Advanced Clean Cars program, and an update to the on-board diagnostic requirements.
For heavy-duty, staff have prioritizes the items based on the severity of emissions issues, the technological readiness of solutions, and the time scales of other related efforts. This has led to early individual actions already taken, for example the more than tripling of the 100,000 mile emission warranty for the heaviest trucks, and the tightening of outdated opacity limits to match the current diesel particulate filter-equipped fleet.

CARB is also distributing about $1 billion of clean transportation funding annually to assist the transition to clean, sustainable transportation.

Later today, the Board will hear proposed updates to the heavy-duty onboard diagnostics program that includes elements to improve transparency of actual heavy-duty engine emission performance. While early next year, the Board will hear proposed certification procedures for zero-emission powertrains to support the introduction of heavy-duty ZEVs

The same priority assessment process also resulted in the bundling of actions into the heavy-duty omnibus rulemaking scheduled for late 2019 to simultaneously consider several changes that will both broaden coverage and increase transparency of emission performance.
The concerted actions of California and a variety of stakeholders including industry, NGOs, and other jurisdictions has resulted in EPA's announcement just this Tuesday that they, too, will begin work towards a low-emission heavy-duty standard for release in 2020.

These regulatory development efforts for new vehicle and engine standards are also happening against a backdrop of fleet turnover efforts through incentives, production mandates, and fleet rules. The heavy-duty fleet rules have already resulted in DPF installation for the heaviest trucks and will see complete fleet turnover to 2010 standard NOx and PM controls by 2023.

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MSCD VEHICLE PROGRAM SPECIALIST ROBERTSON: But continued progress requires more than just a change in regulations. Continuous investment in skilled engineers, chemists, and technicians while providing them the tools and facilities to perform their jobs is the bedrock of how CARB does business.

Through generous support from the Governor, Legislature, and a coalition of other supportive stakeholders, CARB is in the midst of redefining our ability to carry out our mobile source programs via the design, construction, and outfitting of the new Southern California Headquarters Laboratory.
The facility currently under construction consolidates our staff into a unified collaborative workspace surrounded by the laboratory resources retooling CARB's ability to measure and understand engine and vehicle emissions for the next 50 years.

In recognition of rapidly evolving engine and vehicle technology, transportation systems level interactions, and shifting vehicle usage patterns, the new laboratory is taking a decidedly real-world in-use focus. This includes significant on-road testing support facilities for PEMS and OBD field testing, increasing heavy-duty capabilities commensurate with the sector's impact, and better replicating field conditions in the laboratories with all-wheel drive compatible test equipment, and environmental chambers.

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MSCD VEHICLE PROGRAM SPECIALIST ROBERTSON:

Another step that we are taking is called the REAL concept for Real Emissions Assessment Logging. In the simplest form, it requires the vehicles themselves to store aggregated data in the on-board computer about its emissions performance.

To be clear, this data would not store any information about where a vehicle is being operated or how fast it is being driven. Instead, this common sense
logging of available data would store a limited set of
aggregated data about average emission levels to provide a
readily available data set for assessing vehicle
performance.

In the next item today, you will hear from the
OBD team about how the first steps of this concept are
being proposed for implementation using the existing
sensor and data structure currently on today's heavy-duty
vehicles to better understand both NOx and CO2
performance.

This concept will provide comprehensive and
efficient feedback to enable faster identification of
design and manufacturing defects, and other areas of
operation with higher than expected emission levels that
warrant further investigation.

Staff also foresee a future where continued
improvement of the sensors not only provides accurate
inventory data, but could also become the basis for
standards directly linked to real-world emissions
accountability.

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MSCD VEHICLE PROGRAM SPECIALIST ROBERTSON:
CARB's vision for controlling mobile source
emissions in the long term will involve introduction of
inherently clean technologies paired with focused efforts
on the remaining internal combustion engines. The focused engine efforts will be guided by information aggregated in increasingly efficient ways, such as the REAL concept, and used to broaden coverage to ensure optimal emission control under virtually all conditions.

Along the way, CARB will continue developing its initiatives to understand and inform systems-level changes to the transportation network brought about by sharing connectivity, automation, and electrification that are reshaping the role of cars and trucks in society.

Ultimately, while we often lead with the light-duty sector, we will need to focus on transferring technology to other mobile source sectors. For example, expansion of the zero-emissions technology currently diversifying across the light-duty fleet will need similar continued encouragement in the heavy-duty on-road sector, then into the even more diverse off-road sectors.

Later today, you will hear an item about the impacts of small off-road engines, and the potential for transforming the lawn care industry with zero-emissions equipment.

CARB is funding further technology transfer demonstrations in various goods movement and cargo handling equipment projects from yard trucks and heavy forklifts to shipping container top handlers and drayage
trucks. More work remains to be done to realize the
emissions reduction potential in the construction and
agricultural off-road sectors.

This is an exciting and dynamic period for mobile
source emissions and their control. We're seeing rapid
development of new internal combustion engine technologies
in parallel with zero emission alternatives and
combinations thereof. The technology now exists to
efficiently increase transparency of real-world emission
performance. And CARB is taking action to utilize such
data to redefine what emission compliance means.

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MSCD VEHICLE PROGRAM SPECIALIST ROBERTSON: Thank
you for your time, and we welcome any comments or
questions from the Board.

CHAIR NICHOLS: Okay. Thank you for that
presentation. It is a high level overview obviously of a
situation which involves multiple pieces and actions that
are either underway or soon to be underway. I thought it
was a good idea for the Board to get that larger sense of
where this is all headed, because we will get pushback on
various pieces of it, especially from regulated industry,
who usually have an argument that you really should be
doing something else about the problem. Not that it's not
a problem, but you should be focusing somewhere else at
any given time. And I think this shows that we really have a very comprehensive approach to dealing with this complicated problem.

I am glad you mentioned the potential and PRM that's coming at the federal level, because we did get good news this week that the administration that we hardly ever have anything nice to say about --

(Laughter.)

CHAIR NICHOLS: -- in Washington actually appears to have made a decision to move ahead on something. And we are already a part of the discussions at the technical level. And obviously, we will be very closely involved in pushing hard to make sure that whatever they come up with is good, as good as it can be, as it should be at the national level, but that doesn't, in any way, take off the pressure to deal with all of these vehicles that we have on the road now that are just not meeting expectations when it comes to what they're -- what they are actually emitting.

So this is a chance if any of the Board members have any questions or comments. Dr. Sperling, you might want to say a word about this topic perhaps?

(Laughter.)

CHAIR NICHOLS: I can tell you were thinking of it.
(Laughter.)

BOARD MEMBER SPERLING: Well, sticking at the high level --

(Laughter.)

BOARD MEMBER SPERLING: -- it really -- I mean, it's extraordinary how much progress we've made. And then yet I look at this graph about how much emissions are still coming from light-duty vehicle -- not from -- I mean - excuse me - from all mobile sources. And it's kind of stunning how much emissions there -- I mean, I give these lectures in class, you know, we've got 98, 99 percent reduction in emissions from new vehicles. And, you know, as this points out, that's great progress, but the in-use emissions, especially heavy-duty, is so problematic.

And then I look at this other category of other mobile sources, and I guess I hadn't fully appreciated what a big chunk that is, and it's, of course, much less controlled.

So it's a very impressive story. And it's exciting. And I know there's some new ideas here about how to move forward. And so, you know, one can only say, you know, congratulations to all of us, but yet, a long ways still to go. And it does highlight again the electrification -- you know, strategy, how important that is. And it's been encouraging to see on a heavy-duty, as
Chair Nichols said in a speech last night, you know, it's -- a few years ago, we wouldn't have even conceived of use -- of electrification of trucks. And now, it's considered a very real, plausible, and even feasible option.

So lots to do, but, you know, won't be easy. So thank you, staff, for great work, and good luck for all of us going forward.

(Laughter.)

CHAIR NICHOLS: Yeah. I just want to add one other thought to make this even -- and even bigger and more complicated issue. I know that staff in various places is also looking at the future of goods movement in California, and changes that we think we see on the horizon to the way people get things, to put it as broadly as possible, you know, not only ordering, and the delivery, and the kind of things that people are buying, and all of the changes that that could imply for the way cities are operated, and the way roads are operated, and I -- I would like to at least keep that in parallel, and in communication with this other effort as well. We, obviously, are the experts without a doubt on the technology side of the vehicles, and of the fuels, but that third leg of the stool, as we always call it, needs to be kept in focus as well.
I know that at the senior level our staff is well aware of this issue. But I just want to remind everybody that that needs to be kept there too.

BOARD MEMBER SPERLING: And I can't help but recall back in the seventies there was this comic strip Pogo, and it -- the title was a book and the story was we have seen the enemy and it is us.

(Laughter.)

BOARD MEMBER SPERLING: Because with freight, just what Chair Nichols was saying, we are the problem. We're the ones that want those two-hour deliveries. And that's what's creating havoc with the freight system, and resulting in big increases in truck VMT and all of those warehouses.

So I'm not sure what the solution is to that one, but -- but that is -- I mean, it highlights again we need to pay attention. Now that we're in the business of climate change, we need to approach this in a much broader way than we have in the past.

CHAIR NICHOLS: Yeah. Okay. Thank you all for an excellent presentation.

Sorry. Excuse me. Go ahead. I think I -- our system of lights may not be working as it should.

BOARD MEMBER TAKVORIAN: Can I speak?

CHAIR NICHOLS: Okay.
BOARD MEMBER TAKVORIAN: Thank you. No, that doesn't work yet.
CHAIR NICHOLS: Anyway, wave your hand and speak up.
BOARD MEMBER TAKVORIAN: I will.
(Laughter.)
BOARD MEMBER TAKVORIAN: I'll just yell at you.
Sorry.
Thank you for raising the larger issue of goods movement and consumption, because I think this report is really important, and I appreciate that we're moving forward in this way. I heard a quote from Alicia Garza, who's the founder of Black Lives Matter the other day at a conference. And she said something that I think we could all keep in mind, which is we should have everything we need, but not everything we want. So I think that could be a good watch-word for all of us on the consumption side.

I also have to point out that I think that this also points to VMT matters. And as we are looking at how the MPOs are hitting their targets, or not hitting those targets, we have to look at the fact that electric vehicles and -- and -- car chair -- car share is not going to be the answer. That this report really points to the fact that we need to reduce the use of vehicles overall,
and that we have these other programs so that this is a --
this is a great set of programs that can go together with
this being a critical piece of it. But I'm hoping that we
can always remember that as well, and focus on that.

    So thanks.

CHAIR NICHOLS: Thank you.

Anybody else?

Yes, Ms. Mitchell.

BOARD MEMBER MITCHELL: I'm looking at the chart
that we have on slide two, and Dr. Sperling's comment
about other mobile sources being 30 percent. But out of
those, some of them we may not have control over, like
locomotives are difficult, and things under federal
control. Can you give me kind of a breakdown of what's in
that sector, the ones we don't have control over?

    ECARS CHIEF TECHNOLOGY OFFICER McCARTHY: No,
you're correct, there's plains, trains, those kind of
things in there. And many of those we have much less
direct control over. So to get the types of reductions we
need, especially from those sectors, is going to be heavy
reliance on our federal partners.

    And, you know, when we do our planning, we
realize we're probably not going to get equivalent
reductions in that sector, because they're not going to be
willing to push as hard as we are. So that is part of our
planning process, and it does make it more difficult when there is a piece of the pie that we can't quite control.

BOARD MEMBER MITCHELL: So it may be important to do some --

MSCD VEHICLE PROGRAM SPECIALIST ROBERTSON: We have --

BOARD MEMBER MITCHELL: -- negotiating that is behind the scenes, you know, with -- maybe not with the federal government, but with ships that are coming into port.

(Laughter.)

MSCD VEHICLE PROGRAM SPECIALIST ROBERTSON: You know, we are active in, you know, trying to make sure that people are aware of the technologies that are available. We're trying to make sure that we have incentives in place to deploy them as rapidly as possible in California, even if they're not required from the federal level.

And we've had a lot of success on both voluntary improvements, and -- as well as the -- seeing these technologies roll-out through an incentive-based mechanism.

BOARD MEMBER MITCHELL: Great. Thank you for your work on that.

CHAIR NICHOLS: Okay. I think we should move on to the next item then and look forward to hearing more in
the months ahead.

The next item on our agenda is Proposed Revisions to the On-Board Diagnostic System Requirements, Including the Introduction of Real Emissions Assessment Logging for Heavy-Duty Engines, Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles and Engines.

Under the progressively cleaner Low-Emission Vehicle I, II, and III programs, otherwise known as LEV I, II, and III, California's light- and medium-duty vehicles are required to meet very stringent emissions standards. The emission standards for heavy-duty engines have also become significantly more stringent. Our OBD program is important, because it is one way of ensuring that the vehicles and engines meet those standards in-use and remain clean for their entire life.

When emissions problems are detected, drivers are alerted by a warning light and repair technicians can quickly access diagnostic information to identify the nature of the problem, verify that the problem has been correctly fixed -- and verify that the problem has been fixed. The Board regularly receives updates on the progress of these OBD regulations, including the one that we will here today.

So with that, Mr. Corey, would you introduce this?
EXECUTIVE OFFICER COREY: Yes. Thanks, Chair.

And as directed by the Board, staff has been evaluating manufacturers' progress in designing and implementing heavy-duty OBD systems. Since the heavy-duty OBD regulation was last amended with significant revisions in 2012, staff has identified several changes that need to be made to improve the effectiveness of the regulation. The modifications include changes related to the monitoring requirements for gasoline and diesel vehicles, and changes related to additional data information from the vehicles.

And specifically, as we just heard in the prior presentation to the Board, staff will be proposing the introduction of Real Emission Assessment Logging, or REAL, for NOx and greenhouse gas emissions tracking. Additionally, the heavy-duty OBD enforcement provisions would also be updated concurrently with some of the revisions being proposed today.

With that, I'll ask Paul Henderick to begin the staff presentation.

Paul.

(Thereupon an overhead presentation was presented as follows.)

AIR RESOURCES ENGINEER HENDERICK: Thank you, Mr. Corey. Good morning, Chair Nichols and members of the
Board. Today, I will present a proposal to amend CARB's on-board diagnostic regulations, which includes the introduction of a program called Real Emissions Assessment Logging, or REAL.

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AIR RESOURCES ENGINEER HENDERICK: I will start with the context and background of our proposal followed by an overview of the proposed amendments. Then I will talk about the costs and benefits of the proposal, and briefly discuss the remaining concerns voiced by industry. Lastly, I will present the staff recommendation.

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AIR RESOURCES ENGINEER HENDERICK: Looking at the big picture, as laid out in the previous item, CARB staff will be bringing a number of different heavy-duty measures to the Board over the next year and a half. These diverse measures include adoption of new lower emission standards, changes to the in-use compliance program, and programs to incentivize the adoption of zero-emission vehicles.

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AIR RESOURCES ENGINEER HENDERICK: One element of the big picture, durable and working emissions controls, is intended to ensure that clean technologies actually achieve emission reductions in the real world. It includes the items shown here.
The fleet smoke inspection rules and step one of the heavy-duty warranty item were adopted by the Board earlier this year. We are here today with the heavy-duty OBD proposal and the introduction of REAL.

Coming later in 2019 and 2020 are the second stage of the heavy-duty warranty rules, as well as a proposal to introduce a heavy-duty inspection and maintenance program, which is similar to the light-duty Smog Check Program.

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AIR RESOURCES ENGINEER HENDERICK: So why are we here today?

OBD is very clearly a technology forcing regulation. Staff closely monitors developments in technologies and manufacturers' progress towards meeting the requirements, and reports back to the Board periodically if any changes are warranted. Our last comprehensive update to the heavy-duty OBD regulations was in 2012, so we are due for another update.

Our proposal addresses a set of diverse issues. First, it takes big steps towards addressing industry concerns over the cost and difficulty of testing in-use engines.

Second, it addresses areas of the regulation that needs to be clarified.
Third, it addresses issues that were discovered by CARB staff during the certification process, and the testing of in-use vehicles. Last, as discussed in the previous presentation, our proposal addresses the need to begin advancing the mobile source program in a new direction.

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AIR RESOURCES ENGINEER HENDERICK: So let's take a step back briefly and cover just what OBD is. First off, OBD was established by CARB for light- and medium-duty vehicles starting in 1994. And the implementation of heavy-duty OBD started in 2010. OBD itself is a system in the engine's on-board computer that monitors the performance of emission-related components and identifies malfunctions.

When the OBD system detects a problem with one of these components, it notifies the vehicle owner by illuminating a check engine light on the dashboard that we refer to as the malfunction indicator light, or MIL. Anyone with a standard scan tool can get specific information about the malfunction by connecting the tool to the vehicle. CARB regulations require the OBD system to continue to perform all of these functions for the entire life of the vehicle.

OBD plays a key supporting role in both
light-duty inspection and maintenance programs, and the
identification of repairs that are covered by warranty.
At the public hearing in June of this year, the Board
extended the explicit linkage of OBD to the emissions
warranty for heavy-duty vehicle, and intends to
incorporate OBD as part of a future heavy-duty inspection
and maintenance program.

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AIR RESOURCES ENGINEER HENDERICK: I'll now shift
gears and cover the amendments to the OBD regulations that
we are proposing today. At a high level, the proposed
changes fit into four categories: changes to the
monitoring requirements, the testing requirements, the
data that the engine's computer is required to report, and
the compliance and enforcement provisions.
I will first discuss the proposed amendments to
the monitoring requirements.

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AIR RESOURCES ENGINEER HENDERICK: So what
exactly does an OBD monitor do? An OBD monitor makes sure
that an emissions-related component is working properly
while the vehicle is being used in the real world. It
consists of signals that enter the on-board computer,
which are then evaluated against specific malfunction
criteria under specific conditions.
Because of the need to detect and repair malfunctions as soon as possible, staff is proposing to require that monitors look for malfunctions more frequently. For most monitors, this means running on at least three out of every ten trips that a truck is driven.

Staff is also proposing amendments that would improve the monitoring of the hoses that carry gases from the engine's crankcase.

In addition to these amendments, which increase the stringency of the regulation, staff is also proposing to relax a few requirements to address manufacturers' concerns about the feasibility of certain monitors.

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AIR RESOURCES ENGINEER HENDERICK: Next, I will discuss the proposed amendments which relate to OBD system testing requirements.

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AIR RESOURCES ENGINEER HENDERICK: Before receiving OBD certification, manufacturers are required to conduct OBD demonstration testing in which they test all the major monitors on an engine, which has been aged to full useful life.

After being certified, manufacturers must then test production vehicles to make sure that finished commercial products, and not just lab engines, meet OBD
requirements. Several of staff's proposed changes apply to OBD demonstration testing.

These include enhancements to the engine aging procedure that will make the test engine better represent the performance and behavior of a full useful life engine. Staff is also proposing that the manufacturer collect and report additional data during this demonstration testing to get a better understanding of how monitors and the engine behave in the test cell environment. Having such data would serve as a valuable point of reference for analyzing real world test data gathered from in-use compliance programs.

Lastly, staff is proposing changes that apply to production vehicle testing that occurs after certification, including testing a few major monitors on the road to ensure that they work properly when the trucks are put into commercial service.

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AIR RESOURCES ENGINEER HENDERICK: Ensuring good performance in the real world is a major theme for us, and it is at the heart of the proposed changes to the data requirements, which I will now discuss.

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AIR RESOURCES ENGINEER HENDERICK: The proposed changes to the data requirements of the regulation are
tied to the introduction of a new CARB initiative called
Real Emissions Assessment Logging, or REAL.

REAL is motivated by nothing other than a
fundamental goal of CARB, which is to control real-world emissions and not just test cell emissions. In-use data suggests that with diesels in particular, we are falling short of our expectations when we set emission standards.

Two very different examples have been revealed in the past few years. First, as we all know, several model years of Volkswagen diesel cars were not performing in-use consistent with how they were certified in the laboratory.

Second, staff discovered that 2010 through 2015 model year Cummins engines had an in-use durability issue associated with the SCR catalyst. These issues highlight the need to monitor actual real-world emission performance and to identify problems sooner than we are doing today.

We could conduct more of the usual in-use test programs, but they are slow, expensive, and yield small sample sizes. A more powerful alternative would be for each truck to use the sensors it already has to estimate and track its own emissions. Hence, the concept of REAL was born. If such a tool were applied to every new truck, we would have access to far greater amounts of data on the real-world emissions of these vehicles.

Therefore, as part of the introduction of REAL,
staff is proposing that heavy-duty engines track and report data characterizing their own NOx and GHG emissions in the real world. Details of this proposal will be discussed in the following slides.

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AIR RESOURCES ENGINEER HENDERICK: Let's first discuss the NOx data tracking proposal. The idea is to use existing technology and hardware, like the NOx sensors already on trucks, to estimate and track NOx emissions in the real world. These data could be used as a quick screening tool for flagging potential high emitters in the field.

The data could also be used to improve our emissions inventory and serve as a new tool in the evolution of future regulations.

The proposal would require NOx data tracking on new medium-duty and heavy-duty diesel engines. Engines would be required to log both NOx emissions and engine activity data, while being driven in-use.

Recent and lifetime data would need to be stored separately. Because the data would be stored in aggregate without any location information, it could not be used to identify the movement or driving behavior of a vehicle operator.

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AIR RESOURCES ENGINEER HENDERICK: CARB staff is currently working with industry to develop standard specifications for these data, which will be contained in future versions of SAE J1979 and J1939 standards.

Implementation of these standards is straightforward and relies on existing technology on the engines. In discussions with industry, however, staff learned that current engine control modules might have insufficient space to store all of the proposed tracking parameters. Staff, therefore, recognizes that lead time is required for manufacturers to update their control modules prior to implementation of this proposal.

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AIR RESOURCES ENGINEER HENDERICK: Next, I will discuss the greenhouse gas data tracking concept. Similar to the NOx tracking proposal, GHG tracking would rely on technology and hardware that is already on the engine to estimate and track CO2 emissions.

The GHG related data that CARB would gain access to, as a result of this proposal, is critical for determining the actual benefits of new technologies used for compliance with the Phase 2 GHG rule, and provide valuable data for future rule development.

This proposal does not add any GHG OBD malfunction criteria at this point, so GHG-specific
parameters will not be used to illuminate the MIL.

Staff's proposal would apply to all new heavy-duty on-road engines. Similar to the 2015 OBD II update for light- and medium-duty vehicles, this proposal would require the logging of both GHG technology activity and CO2 emission data as trucks operate in the real world.

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AIR RESOURCES ENGINEER HENDERICK: Next, I will discuss the proposed amendments to compliance and enforcement requirements.

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AIR RESOURCES ENGINEER HENDERICK: First up are the proposed changes to the deficiency provisions. Sometimes manufacturers put in a good faith effort to comply with the OBD regulation, but for various reasons can fall short.

In such cases, the OBD regulations allow manufacturers to certify their OBD systems with deficiencies. Fines are applied to these deficiencies to prevent misuse of the provisions and to ensure equity among manufacturers.

However, CARB staff learned that some manufacturers have been using deficiencies as a product planning tool instead of investing the engineering resources needed to produce a compliant product. There is
also concern that some manufacturers may be using
deficiencies to reduce in-use liability and self-testing
burdens. To deter this behavior, staff is proposing to
increase the deficiency fines.

As can be seen from the table, no fines were
applied between 2010 and 2012, which were the first years
of heavy-duty OBD. Starting in 2013, fines of $50 were
applied to deficiencies of emission threshold and major
monitors, while all other deficiencies had fines of $25
each, with the total fine cap being $500 per engine.

Since heavy-duty engine production volumes tend
to be small, the fines that manufacturers must pay for
noncompliant OBD systems ended up being too low to deter
noncompliance.

Therefore, staff is proposing that starting with
the 2021 model year, deficiency fines for emission
threshold monitors would range from is $100 to $450,
depending on how much emissions exceed the required
detection thresholds. Other major monitors would have
deficiency fines of $100 each, and all remaining
deficiencies would have fines of $50 each. The total fine
cap per engine would increase from $750 in 2021 up to
$1,500 for 2023 and later model year engines.

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AIR RESOURCES ENGINEER HENDERICK: The next
proposed changes I will discuss are in response to manufacturers' concerns about the workload and costs associated with manufacturer self-testing requirements.

Due to manufacturers' difficulty in finding engines that meet the selection criteria in the regulation, staff is proposing amendments that would broaden some of the criteria, and make it easier to find engines to test. These include things like expanding the required mileage on the vehicle, and having some flexibility on the power rating of the engine.

Additionally, staff is proposing to reduce the testing burden by cutting the number of monitors that need to be tested in half from about 30 monitors down to 15 monitors. This change would save manufacturers a large amount of time and money.

The last point on this slide relates to investigations. Staff is proposing an amendment to make it clear that CARB staff can require manufacturers to provide full details on engine and after-treatment controls, including hardware and software to assist staff during in-depth investigations of OBD systems.

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AIR RESOURCES ENGINEER HENDERICK: I will now move on to the costs of the proposal. Staff's proposed changes are expected to result in an incremental cost to
the consumer of about $43 per engine. This cost estimate is based on published reports related data, and input from manufacturers, suppliers, and testing labs.

As mentioned in the previous slides, deficiencies and increased manufacturer self-testing due to noncompliance would result in additional costs for manufacturers. More details on these costs will be discussed later in the presentation.

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AIR RESOURCES ENGINEER HENDERICK: I would now like to talk about the benefits of the heavy-duty OBD program. OBD is a powerful on all on-road heavy-duty vehicles. It ensures that the benefits of the emission standards program are achieved in-us throughout the entire life of the vehicle.

OBD is used as a basis for warranty claims, facilitates effective repairs by identifying the malfunction component, and motivates industry to increase the durability of these components. OBD will also likely be the foundation for a future heavy-duty I&M program similar to how OBD is used today in California's light-duty Smog Check Program. Once the Real Emissions Assessment Logging element is added to the picture, it will further ensure that these benefits are realized and maintained.
Today's proposal does not generate new emissions benefits in the traditional sense, but instead serves to ensure that the benefits associated with the original regulation are preserved.

Looking at the cumulative heavy-duty OBD program costs versus the original emission benefit estimates yields an overall cost effectiveness of $28 per pound of PM and $0.20 per pound of NOx. These numbers compare favorably to other recently approved on-road heavy-duty rulemakings.

The Smoke Inspection Program, for example, calculated a PM cost effectiveness of $93 per pound. The Heavy-Duty Warranty Program had a PM cost effectiveness of between $18 and $49 per pound, and a NOx cost effectiveness of $3 to $8 per pound.

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AIR RESOURCES ENGINEER HENDERICK: Over the course of multiple meetings with industry, manufacturers have expressed concerns with our original proposal, primarily on the timing of the introduction of the REAL Program, and the overall cost of the OBD program. They believe that the implementation of REAL should be delayed because it is better suited to start with engines that will meet CARB's future low NOx proposal.

Staff disagrees with this, because we consider
REAL to be a necessary tool for both current and future standards. Engines built before the new emission standards are effective will be on the road for many years, so it is important that REAL data are tracked on these engines to ensure they are running clean in-use.

As I described earlier, there are some very significant diesel emission issues that CARB staff has found in the field, and we can't afford delays in fixing these types of problems when they arise. Using today's hardware and technology, we can implement REAL to help us quickly find emission problems in the near term. Doing so will also lay the foundation for the evolution of REAL on engines that meet the lower emission standards of the future.

The second key concern voiced by manufacturers is the -- is that the overall cost of the OBD Program is too high. While staff acknowledges that the cost of the program is indeed high, we consider it necessary to ensure that California gets high quality OBD systems that are effective in keeping heavy-duty engines clean in-use, and able to properly support I&M and warranty programs.

Of course, the cost of the OBD Program increases significantly for non-compliant systems. But these costs are avoidable by designing compliant systems.

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AIR RESOURCES ENGINEER HENDERICK: To help understand the overall costs of the OBD Program, staff did cost analyses each time the program was updated. The first row of this table shows the incremental cost to the consumer for each program update. The current proposal has an estimated incremental cost of $42 per engine. When this cost is added to the other incremental costs and adjusted for inflation, the total incremental cost comes to $242 per engine.

The second row of the table shows the incremental cost to consumers when scaled up to the production volume of the average manufacturer. If all costs are passed on to consumers, the total cost for an average OEM's production volume is projected to be $14.3 million per year in 2018 dollars. Scaled to the annual production volume of the entire heavy-duty engine industry, the total incremental cost to consumers is estimated to be $121 million.

While these costs are significant, staff believes that the benefits from the heavy-duty OBD Program are well worth the costs. And as discussed previously, the costs are comparable to those of other adopted measures. It should be pointed out that these costs assume full compliance with the regulation.

On the following slide, I will give examples of
what the costs of noncompliance can look like.

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AIR RESOURCES ENGINEER HENDERICK: This slide illustrates that noncompliance can be very expensive under the proposed fine structure. It uses actual data from two engines made by different manufacturers, OEM A and OEM B. The first row is the total incremental cost for the OEM to comply with the proposed amendments. Since these OEMs have similar annual sales numbers in California and offer the same number of engine families, they have the same $32 incremental cost per engine. The second row shows the costs of noncompliance for the two -- for the two OEMs.

OEM A has no emissions threshold deficiencies, but does have nine other deficiencies giving a total cost of $450 per engine. In contrast, OEM B has five emissions threshold deficiencies and 13 other deficiencies for a total deficiency cost of $1,575, but our proposal caps this at $1,500.

The last row sums up all of the costs to the OEM. Because OEM A has fewer noncompliance issues, it's cost per engine sold is more than $1,000 less than the cost to OEM B. This demonstrates that doing the work up front to have compliant systems can have a substantial -- can save a substantial amount of money in the long run.

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AIR RESOURCES ENGINEER HENDERICK: I will now discuss the changes that staff would like to make to the proposal based on an evaluation of comments from industry.

The first change is to delay the effective date of the amendments to the 2024 model year. This delay does not include the REAL proposal, manufacturer self-testing relaxations, and other increased flexibilities.

The second change is to provide manufacturers with two compliance options for introducing REAL. Option 1 is a reduction in the number of REAL parameters in the 22 -- 2022 and 2023 model careers. Specifically, staff is proposing that only lifetime data, and not the recent history data be stored in the on-board computer during these introductory years.

Option 2 provides manufacturers with two years of reduced OBD demonstration testing in exchange for full implementation of REAL in 2022.

Staff's third proposed change is to delay implementation of the increased deficiency fines to the 2024 model year, so that manufacturers have more time to come into full compliance before facing the higher fines. Staff is also proposing to slightly reduce the total fine cap from $1,500 down to $1,250 per engine.

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AIR RESOURCES ENGINEER HENDERICK: In addition to
the proposed 15-day changes, staff is committing to come back to the Board in 2021 with a technical review of the heavy-duty OBD Program in light of the other on-highway program developments that are projected to take place between now and 2020. At that time, staff is also committing to conduct an economic analysis of the ongoing costs and benefits of the OBD Program.

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AIR RESOURCES ENGINEER HENDERICK: In concluding this presentation, staff recommends that the Board adopt the proposed amendments with 15 day changes. The 15-day changes will include clarifications and updates to references that are incorporated in the regulations, as well as amendments stemming from ongoing discussions with industry, as I mentioned earlier.

Staff also recommends that the Board approve the written response to the environmental comments that we received. This concludes the staff presentation, and I thank you for your attention.

CHAIR NICHOLS: Thank you. Just to be clear then, if the Board acts as the staff is requesting, and the 15-day changes go forward, and you don't receive any information that causes you to make substantial changes, the Executive Officer would go ahead and adopt without bringing it back to the Board, is that correct?
EXECUTIVE OFFICER COREY: That's correct.

CHAIR NICHOLS: Okay. I just -- I think that's a fine process given the very highly technical nature of this. I just want to make sure that we and everybody else understands that we're not following the process of going through dual hearings on this same set of rules. I think that -- I think that makes sense.

Okay. We have four witness who have signed up. So let's go ahead and hear from them first beginning with Mr. Jed Mandel, the CMA Truck and Manufacturers organization.

Good morning.

MR. MANDEL: Good morning, Chair Nichols. I'm jed -- it would be nice if the microphone were on.

CHAIR NICHOLS: I have this problem too.

MR. MANDEL: Technology challenged.

I am technology challenged.

(Laughter.)

CHAIR NICHOLS: How about those engines?

(Laughter.)

MR. MANDEL: The engines are great.

(Laughter.)

MR. MANDEL: I'm president of the Truck and Engine Manufacturer's Association. I just want to take one moment to express my industry's sympathy and concern
for the tragic fires that have happened in California. It is really a tragedy, the human life and obviously the environmental damage.

EMA and its members recognize that areas in California are in ozone non-attainment, and that additional NOx reductions are, in fact, needed. We are committed to pursuing both additional NOx reductions from heavy-duty on-highway vehicles, and overall improvements in the regulatory program, both in California, and nationwide. Advancements in emission sensors, real-time data processing, and telematic capabilities, and potential geofencing strategies afford an opportunity to reimagine the regulatory paradigm to ensure improved emission compliance, and additional real-world NOx reductions.

We envision next tier emission control regulations that move from a prescriptive based approach to a robust and comprehensive performance based approach. But it will take time and effort to fully develop and implement that type of paradigm shift. And we need to do so on a nationwide basis, not only because trucks operate in interstate commerce, but also because 60 percent of the state's commercial vehicle VMT comes from out-of-state trucks.

And, of course, I'd be remiss if I didn't note at this point the announcement that EPA just made of their...
commitment to do national program that we have been advocating for more than two years. So a little bit man bites dog that this industry has actually asked EPA to regulate us further.

The complexity and expense of the proposed heavy-duty OBD amendments -- amendment measures will consume a significant percentage of manufacturer's engineering resources and expertise that otherwise could be directed toward developing and optimizing a new performance-based paradigm.

Further, as noticed by your staff, the overall cost of OBD program are extraordinarily expensive. And as we note, the newest OBD requirements add yet additional costs and provide no meaningful emissions benefits. For all of the above reasons we've been working with your staff the last few days to find a way to move forward to achieving what I think is our mutual goal, the development of a new paradigm-shifting performance-based compliance program providing real-world NOx reductions.

To help accommodate that goal, the staff is proposing to defer a bulk of the recommendations to a later time frame. I'm not going to summarize what they are. They were on the last slide. We think that proposal is a creative and workable solution to addressing the very significant concerns we have raised. It both avoids the
need for unnecessary acrimony and gives us time to work on
the future program. We urge the Board to accept the
staff's revised proposal, which we strongly support. I'm
happy to answer any questions.

CHAIR NICHOLS: Thank you very much.

We'll keep you here in case we need some
questions answered.

Thank you.

MR. MANDEL: Thank you very much.

CHAIR NICHOLS: Kate Blumberg.

Good morning.

MS. BLUMBERG: Good morning. Thank you, Chairman
Nichols and the Board for having us. I'm sure it comes as
no surprise to the Board that the International Council on
Clean Transportation supports greater availability and
transparency of real-world emissions performance from
heavy-duty trucks.

We submitted comments in support of Real
Emissions Assessment Logging, and also want to support
CARB's OBD proposal in general. It's been an integral
part of California and nationwide efforts to reduce
vehicle emissions, and it's really been the model for
heavy-duty OBD programs worldwide.

Indeed, we expect China and Europe to look to
this proposal and that it will impact Euro 7 proposals, as
well as China's remote OBD and Europe's real world fuel consumption programs.

OBD has really proven itself in the light-duty arena by increasing durability and effectiveness of emission controls, warranty and smog check programs. It detects malfunctions, and assists in diagnosis. And it's a critical part of emission controls operations.

As sensor technology has improved and reduced in cost, we strongly support taking advantage of these systems to provide better data transparency and increased effectiveness of heavy-duty in-use monitoring program in California and at the national level.

Unfortunately, the data currently available from real-world emission testing for heavy-duty diesels in the U.S. shows that NOx emissions are consistently above certification levels for a large number of vehicles under driving conditions under urban and suburban driving, an area where Europe is actually doing better and this is the reason we need this information.

This proposal will add transparency, and make available key parameters that would help in understanding and solving these high emissions. And PEMS testing is very expensive. While these sensors are already on the vehicles, it's mostly just about storing and making the data available.
There is also a lack of publicly available real-world fuel consumption data for heavy-duties -- heavy-duty vehicles, even though EPA and CARB both have greenhouse gas inefficiency standards. Having access to that real-world fuel consumption data will help track the effectiveness of these programs and identify areas of improvement helping researchers, governments, even industry and consumers.

We really support implementing the REAL Program and the proposed OBD amendments as soon as possible. We appreciate that OBD can be a demanding program to implement, especially for manufacturers, but we really see that the great benefits are worth the efforts.

Thank you so much.

CHAIR NICHOLS: Thank you for your help in all of this.

Michael Geller and then Bill Magavern.

MR. GELLER: Good morning, Chair Nichols and members of the Board. My name is Michael Geller. I'm the Deputy Director for the Manufacturers of Emission Controls Association. MECA represents manufacturers of technologies that reduce both criteria and greenhouse gases from all mobile sources, including the sensors used in OBD systems on both light- and heavy-duty vehicles.

These sensors may be used for the measurements of
PM and NOx levels in the exhaust to basically facilitate closed-loop control of the combustion process and also monitoring catalyst and filter elements.

MECA supports ARB's proposed introduction of Real Assessment -- Emissions Assessment Logging, or REAL, to characterize real-world NOx and CO2 performance. Because the collection and storage of real-world NOx and CO2 data on board vehicles is a new requirement, MECA does support ARB's proposed 15-day changes to provide some flexibility for REAL to be phased in.

This phased in approach has been successful for other mobile source regulations and allows industries, consumers, as well as the regulatory bodies some ability to learn from experience early on from technology early adopters.

Most current vehicles are already equipped with sensors that measure NOx and fuel use. The addition of a requirement that these data be stored, along with other currently measured parameters, results in a cost effective method to collect and report in-use operational data. And that can enable quicker inspection, and maintenance, and repair.

In addition, as REAL is implemented and ARB staff gain experience with the data, there may be an opportunity to reduce further -- future certification and compliance
MECA encourages ARB to continue to explore the potential concepts for future I&M programs that are comprehensive and could use some of this enhanced REAL data. MECA supports the use of OBD and potentially telematics when they become available to screen vehicles for these purposes.

A future heavy-duty I&M program may utilize OBD system data, including some REAL data, and some of the malfunction code information to basically analyze vehicle operation and diagnose current and potential issues.

For light-duty vehicles, MECA anticipates that the use of onboard CO2 data could be used to help verify off-cycle emission credits, technology credits. After assigning conditional preapproved credit, there could be a way to basically determine if a technology, after it's introduced to market by an OEM how the CO2 data could be used to demonstrate real-world off-cycle credit values. And that's based on using an average over the REAL fleet of hundreds or thousands of vehicles.

In conclusion, MECA does support ARB staff's efforts to improve OBD regulatory requirements, including future addition of a framework to enable continuous monitoring on board vehicles. Our industry continues to respond to the need for on-board diagnostics that can
facilitate inspection and maintenance, as well as continuous monitoring by innovating and commercializing the technologies that will happen our customers meet OBD requirements.

Now, we're committed to continuing to work with you on this, as well as the Heavy-duty low NOx program that we are -- Rasto was at -- Rasto Brezny was at in Washington D.C. earlier this week, which is why I'm here before you today.

So thank you very much.

CHAIR NICHOLS: Thank you.

Good morning.

MR. MAGAVERN: Good morning. Bill Magavern with the Coalition for Clean Air in support of the proposal that is before you. Looking at the big picture, we strongly endorse the dual directions that this agency has been taking for several years now, and that staff outlines in the previous item, first, to push for inherently cleaner engine technologies for new vehicles; and second, for those vehicles that are already in use to try to make sure that we're getting the emission reductions that are promised and projected when those engines are certified.

This particular proposal that you have this morning we think has several benefits, more frequent and comprehensive monitoring, making the certification more
representative of real-world aging, and improvements in verification.

    The Real Emissions Assessment Logging, or REAL -- and I would note that between FARMER and REAL, your staff are really upping their game when it comes to acronyms.

    (Laughter.)

    MR. MAGAVERN: -- also the higher fines are necessary to deter noncompliance. So we urge you to approve this proposal without delay. And looking ahead, staff have teed up some future actions. And I wanted to particularly call attention to two that we look forward to working on. One is the low NOx standard for new trucks. And then for existing heavy-duty vehicles, it's essential that we get into place a comprehensive inspection and maintenance program.

    I think that most Californians would be shocked to find out that while their cars need to go through a smog check process, the diesel big rigs that they see on the roads are not subject to such a comprehensive inspection and maintenance system.

    So we need to get that into place soon, and we look forward to working with you and the industry on both of those.

    Thank you.

    CHAIR NICHOLS: Thank you.
I'll join in your commendation on the acronyms. And I want to raise you on this, because I think that we need to implement a program, which does an automatic search of all text for the words "real world" and eliminates most of them --

(Laughter.)

CHAIR NICHOLS: -- because what unreal-world are we living in?

(Laughter.)

CHAIR NICHOLS: Maybe it is unreal. But we seem to have suddenly discovered that there's a difference between what happens in the lab and what happens in the quote "real world". So I feel like maybe once per report would be enough, and then we could just kind of -- think of the paper we would save, the trees, the -- anyway.

(Laughter.)

CHAIR NICHOLS: Other than that, I have no other comments to make on the presentation. I think it was fine. And I'm going to close the record unless the staff has any additional points they need to make.

Yes, Mr. Eisenhut.

BOARD MEMBER EISENHUT: There we go. If this is a worthy proposal, and I believe it is, my question of staff for longer term than this proposal is why on-road only? Why not include off-road?
We have, as industry and state, a significant investment in off-road vehicles. And we have made that investment based on the capacity, rather than the delivered reductions. And I get very much that off-road vehicles or off-road equipment has a different use pattern, a different maintenance pattern, and doesn't cross state lines.

But if this technology is available for feedback on on-road vehicles, I would request, at least for future conversations, a report on why not -- why we wouldn't include off-road vehicles.

ECARS DIVISION CHIEF HEBERT: Okay. Just to address your comments. What tends to happen is new technology rollouts like this will usually start in the light-duty categories and then expand to heavy-duty, like OBD has. It's gone from light-duty to heavy-duty. The On-Board Diagnostic Program, for instance, does not exist on off road yet. And therefore, it wouldn't have the basis in off-road to take advantage of the sensor technology that we're talking about that's used for on-board diagnostics to transpose to REAL.

However, as we all pointed out, the other category's area, it is something that we will be looking closely at if we need to bring something like OBD or REAL to the off-road arena as well. We might, you know, be
able to leapfrog straight to REAL, depending on how this
REAL Program matures. But it does need to mature a little
bit in the on-road category first.

And in case, you're not aware, starting in 2019,
light-duty vehicles will already have a version of REAL
for greenhouse gas emissions on the new vehicles starting
in 2019. So that was the initial implementation of REAL
that was adopted a few years ago.

BOARD MEMBER EISENHUT: Thank you.

CHAIR NICHOLS: Any other questions or comments
from the Board members?

Yes, Dr. Sperling.

BOARD MEMBER SPERLING: I do want to comment how
impressed I am with this whole strategy. I mean, this is
-- I don't if everyone appreciates it, but this really is
highly innovative, even revolutionary, this path that the
staff and the industry has started on. You know, we're
talking about -- you know, the -- Mr. Mandel had a quote,
and I think I'd like to read it again that he said the
advancements in sensors and other capabilities, and with
geofencing strategies afford an opportunity to reimagine
the regulatory paradigm to assure improved in-use
compliance and real-world NOx emissions. He did say that.

(Laughter.)

BOARD MEMBER SPERLING: This is really important,
because, you know, as regulators, there's a temptation to just keep adopting ever more prescriptive requirements. And I think what the staff is doing here working with industry is starting to think about how do we do it in a more effective way. And I think that is the path we're on here. And, you know, I want to commend the staff and the industry for embarking on this. And it's going to be -- you know, it's not clear exactly how it's going to play out, but the in-state vision here, at least that Mr. Mandel laid out and in my discussions with the staff, there's agreement that eventually we're ending up with more of a telematics-based system where the responsibility is put on the industry to -- where they've been -- they collect the emissions and they keep track of it and report back for in-use on whether they're in compliance.

An given what we've seen how in-use emissions are so high, we've got to do better somehow. And so it seems like it makes a lot of sense the REAL Program is a step in that direction. But I'm particularly excited about it, because when you move towards that telematics-based approach, it opens up the possibility for two big changes that we've always wanted to do and never been able to do.

And that is, one, we can really focus on really high-polluted -- you know, high-exposure, high-polluted areas, EJ communities, because now we can do essentially
reverse defeat devices in which the emissions are even lower in those areas. And I know there's a lot of debate about exactly how to do that, and how easy it is and what those trade-offs will be, but it creates that potential, which does not exist now.

And the other thing it does is it creates the potential eventually for us to understand what the real emissions are and be able to adopt — okay, I'm going to use the P word here — pricing strategies for emissions, which is really if it can be done is highly effective.

Now, CARB -- I should probably highlight, CARB would not be the one doing the pricing part of it. But that is the path the state is on with -- and probably, you know, much of the world, towards moving away from a gasoline tax and keeping track of actual CO — in this case CO2 and fuel consumption, real world. So -- and then being able to eventually tax it.

So this creates the potential to do that as well. So this is potentially really a radical -- even a radical change in how we do it, and creating the conditions for really creating a far more sustainable transportation systems, and using other mechanisms to accomplish that.

So I just want to add my very enthusiastic support for the direction we're going in here.

CHAIR NICHOLS: Thank you. I'm going to take
that as a motion.

(Laughter.)

BOARD MEMBER SPERLING: You got it.

CHAIR NICHOLS: To be followed by a second.

BOARD MEMBER RIORDAN: And I'll second it, Madam Chair. I'll second that.

CHAIR NICHOLS: All right. I don't -- I think it's clear what we're doing here. There will be a 15-day period, and then the staff will move forward unless they feel there's something fundamental that needs to be changed.

So we have a motion and a second.

All in favor, please say aye?

(Unanimous aye vote.)

CHAIR NICHOLS: Opposed?

Any opposition?

Very good. Thank you and congratulations. This is a very good move.

We are next moving to two items that are going to heard together regarding cap and trade. And I'm going to suggest that we take a very brief, really brief like five minutes break, so people can stretch and get ready, and we'll start the next item at exactly 10 of 11:00.

(Off record: 10:44 a.m.)

(Thereupon a recess was taken.)
(On record: 10:50 a.m.)

CHAIR NICHOLS: All right. A deal is a deal.

We will get back to work here. Before we begin, I should have said something at the start of the break but -- I have the mic on.

Hello?

Can you turn it up? Okay. Thank you.

At the next break, or if you happen to have an opportunity to get up and move around during the course of the day, I want to call everybody's attention to a showcase that's going on in the lobby and outside showing the products of a number of manufacturers of electric lawn and garden equipment. This is going to be part of the discussion later this afternoon when we hear an update on progress with these small off-road engines. But we've got some actual products here, and we'd like people to take a look at them. There's also some larger equipment down in the courtyard that you can go by and ooh and aah over, think about what you might be wanting for Christmas.

Anyway, so that is the display. It's called the Zero-Emission Equipment Showcase.

Okay. So the next staff presentation today combines two items, Proposed Amendments to the Cap-and-Trade Regulation and Proposed Amendments to the Regulation for Mandatory Reporting of Greenhouse Gas...
Emissions, which, of course, is fundamental to our whole program for addressing the issue of global warming.

The Cap-and-Trade Program is a key part of a comprehensive set of programs outlined in the Climate Change Scoping Plan to help California reach our 2020 and 2030 targets. The program is an economy-wide measure that places a price on emissions and thereby incentivizes actions that lead to emissions reductions.

The Board first considered the Cap-and-Trade Regulation in 2010. Since then, the regulation has been updated several times as we move forward with implementation and identify issues. And Board direction has also moved this forward.

Today's amendments are proposed in response to legislation that was authored by our fellow Board Member Honorable Assembly Member Eduardo Garcia - and I am very pleased to recognize him as well as Senator Lara, who is taking a well-deserved rest after his statewide election campaign - to recognize the strong support that we have had for AB 398, which was passed by a two-thirds vote of the legislature last summer. We now enjoy a strong legal basis for the program.

While implementing this program, staff has continued to meet with stakeholders on a regular basis to ensure efficient implementation while sharing lessons
learned with other jurisdictions and demonstrating that economic growth and climate action are not only not mutually exclusive but actually mutually supportive.

Supporting the Cap-and-Trade Program and our GHG emissions inventory and several other programs is the mandatory reporting of greenhouse gases, which covers the State's largest emitters. Verified emissions data is fundamental to any kind of an effective regulation. And that is what our programs are based on.

So, Mr. Corey, if you would like to go ahead and introduce the report.

EXECUTIVE OFFICER COREY: Yes. Thanks, Chair.

So staff is proposing that the Board consider amendments to the Cap-and-Trade Regulation and the regulation for the mandatory reporting of greenhouse gases -- greenhouse gas emissions. With the adoption of the 2017 Scoping Plan update last December and the signing AB 398, as you noted, staff is proposing amendments to the Cap-and-Trade Regulation to conform to legislative direction in AB 398 as well as Board direction.

Timely adoption of these amendments will ensure businesses have the regulatory certainty to plan for the transition to the next decade when the rate of reductions needed to achieve the 2030 target doubles.

Staff is engaged in a robust public process in
the development of these amendments that includes four
publicly noticed workshops and meetings with stakeholders
to discuss specific topics related to the proposed
cap-and-trade amendments.

These forums provided the opportunities for
stakeholders and staff to discuss initial regulatory
concepts and potential alternatives. And the proposed
amendments incorporate many aspects of these discussions.

Key elements of the modifications bolster cost
containment, support an increase in cost benefits -- or
rather co-benefits from offsets in the state, ensure
continued efforts to minimize leakage, and ensure
accounting of emissions associated with imported
electricity and associated compliance obligations.

Also, in response to recent action by the
Government of Ontario to revoke its Cap-and-Trade Program
as of July of this year. The proposed amendments also
propose to de-link from Ontario's program.

I'll now ask Carey Bylin of the Industrial
Strategies Division to begin the staff presentation.

Carey.

(Thereupon an overhead presentation was
Presented as follows.)

AIR POLLUTION SPECIALIST BYLIN: Thank you, Mr.
Corey, and good morning.
Today, I'll start with the Cap-and-Trade Regulation providing background, context, and an overview of amendments and analyses. I will then present proposed changes to the mandatory GHG reporting regulation to support changes to the Cap-and-Trade Program. I will close with a discussion of next steps.

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AIR POLLUTION SPECIALIST BYLIN: Our climate targets are guided by a few key statutes and executive orders. In 2006, AB 32 set our initial goal for 2020 statewide GHG emissions to return to 1990 levels. In 2016, SB 32 established a target that calls for a 40 percent reduction in GHGs below 1990 levels by 2030.

Last December, we adopted the 2017 Scoping Plan update which lays out the strategy - a suite of complementary measures that will help us achieve the 2030 reductions, and that includes the Cap-and-Trade Program.

Governor Schwarzenegger's Executive Order set a goal of an 80 percent reduction below 1990 levels by 2050. Likewise, Governor Brown's most recent Executive Order calling for carbon neutrality by 2045, and the most recent IPCC report require us to find ways to drive emissions reductions sooner while balancing any remaining emissions against sequestration.

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AIR POLLUTION SPECIALIST BYLIN: From the beginning and per AB 32, the Cap-and-Trade Program is designed to, "Achieve the maximum technologically feasible and cost-effective GHG emissions reductions". It sets declining annual emissions caps and creates a mechanism to drive a steadily increasing carbon price to motivate the lowest cost reductions in the near term, and create a long-term price signal to encourage investments in low emitting and energy efficient technologies.

As mentioned, the program is a key part of the overall strategy to achieve the State's GHG reduction targets and the 2017 Scoping Plan Update found that a suite of policies that includes a Cap-and-Trade Program is the most cost-effective path to achieve the 2030 target, four times less costly than the alternative approaches that were evaluated.

The program is intended to work in conjunction with other established measures. The program covers about 80 percent of the State's emissions. And AB 398 designates the Cap-and-Trade Regulation as the rule for petroleum refineries and oil and gas production facilities to achieve their GHG reductions.

To date, quarterly auctions have generated over $8 billion for California climate investments, which is reinvested in California to reduce GHG emissions,
strengthen the economy, and improve public health and the environment, particularly in disadvantaged communities.

For projects implemented to date, 51 percent of the investments benefit disadvantaged communities, and 31 percent are located within disadvantaged communities.

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AIR POLLUTION SPECIALIST BYLIN: The next slide gives a sense of the role of the Cap-and-Trade Program in achieving our 2030 target. The policy itself must deliver significant reductions to ensure we achieve the target. Also, the program is beyond just charging a cost per ton of carbon emissions. It must send the right price signals for companies to take actions today in how they develop and use energy, or plan for higher compliance costs if they delay those actions.

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AIR POLLUTION SPECIALIST BYLIN: Prior to starting the formal rulemaking process for these amendments, staff conducted an informal public process, and held four workshops from October 2017 to June 2018. In conjunction with these workshops, CARB released discussion drafts of possible changes to regulatory language, technical discussion documents, and a summary of stakeholder comments received.

This process enabled staff to share preliminary
ideas with stakeholders and solicit constructive specific feedback on our proposals to inform our formal rulemaking package, which we released September 4th.

Staff is proposing to release one 15-day proposal, which I will discuss later. Following a second and final Board hearing, we plan for both regulations to take effect April 1st of 2019.

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AIR POLLUTION SPECIALIST BYLIN: This rulemaking package is primarily in response to AB 398 and Board Resolution 17-21, which the Board adopted in July of last year. To accommodate AB 398, the proposed amendments at a price ceiling and two allowance price containment reserve tiers, reduce offset usage limits post-2020, implement direct environmental benefits in the state's -- in the State provision for offsets, and set post-2020 industry assistance factors for allowance allocation.

Staff also evaluated whether post-2020 caps should be adjusted to account for currently unused allowances as directed by AB 398.

Board Resolution 17-21 directs staff to take specific action on post-2020 cap adjustment factors for certain sectors and assistance factors for the third compliance period.

Staff is also proposing amendments to respond to
changes to Ontario's Cap-and-Trade Program and to clarify and streamline program participation and implementation. I will discuss several of these items in detail in the following slides.

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AIR POLLUTION SPECIALIST BYLIN: As mentioned on the previous slide, in response to AB 398, staff evaluated the concerns related to overallocation and the post-2020 caps. Staff analyzed this issue, presented initial thinking at two public workshops, and released supporting material that documents a comprehensive assessment of post-2020 caps using public data and the most recent scoping plan modeling forecasts.

Staff also looked at and took into account several third-party analyses of this issue. To focus our review, staff prepared appendix D of the regulatory package by assessing five key questions to inform decision making on this topic.

Question one, does the design of the Cap-and-Trade Program support a steadily increasing carbon price signal to prompt the needed actions to reduce GHG emissions?

Yes. Historical data demonstrates the carbon price has steadily increased over time. Our steadily increasing floor price reinforces this outcome.
Question two, are the pre- and post-2020 caps set appropriately, given the Cap-and-Trade Program's role in achieving the statewide GHG reduction targets when taking into account complementary policies?

Yes. We consider the potential unused allowances from before 2021 -- excuse me. When we consider the potential unused allowances from before 2021 in conjunction with the post-2020 caps, we found the amount of allowances are lower than the projected emissions.

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AIR POLLUTION SPECIALIST BYLIN: Question 3, does California need to make adjustments to its Cap-and-Trade Program to address potential overallocation similar to actions taken in the European Union Emissions Trading System and the Regional Greenhouse Gas Initiative?

No, we do not need to make similar adjustments. The reference programs had to correct for low allowance prices that the program administrators believed were too low to send a sufficient carbon price signal.

In contrast, data shows the allowance price in the California program has steadily increased over time and we are reducing our statewide emissions year-over-year.

Question four, is there any evidence that future allowance prices would not continue to steadily increase
to prompt the needed actions to reduce GHG emissions?

No, our staff and third-party analyses do not indicate allowance prices would collapse or stagnate. Instead, many of the third-party analyses show that the prices would increase close to the floor price for the next several years, and then start to lift above the floor.

Question five, what would happen if caps from 2021 through 2030 were reduced in response to concerns about unused allowances from 2013 through 2020.

Reduced caps would increase allowance prices today and in the future. In summary, staff expects the program with its current features, including the current allowance budgets and steadily increasing carbon price signal, will result in actions to reduce GHG emissions to help achieve the 2030 target.

As a result of this analysis, staff is not recommending any revisions in this rulemaking package that would alter allowance budgets or banking rules.

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AIR POLLUTION SPECIALIST BYLIN: We now turn to the details of our proposed amendments starting with new cost-containment features. This figure will show projected allowance prices through 2030 in 2018 dollars. We start with the auction reserve price commonly known as
the auction floor price, which escalates over time.

It is shown in the dark line extending from 2018 to 2030. Next, are the current three tiers that make up the allowance price containment reserve from 2018 to 2020.

In the current regulation, the post-2020 reserve is changed to a single tier. That is shown in the dotted line from 2021 to 2030, and I will refer to that as the current regulation. AB 39 directed CARB to make specific revisions to the current regulation.

Next, we will slow the new post-2020 reserve as proposed in the amendments. Reserve tier 1, reserve tier 2, and the price ceiling. The price ceiling, as mandated by AB 398, provides a limit on allowance prices. Staff does not consider the price ceiling a goal, but rather a release valve for unlikely price levels.

In building the new reserve tiers and price ceiling, we sought to enhance cost containment of the program relative to the current regulation. As you can see in 2021, the proposed price ceiling and new reserve tiers are lower relative to the current regulation. The new reserve tiers would remain below the current regulation price through the 2020s.

The price ceiling would be below the current regulation price through 2026 and increases slightly above the current regulation value from 2027 through 2030. To
ensure there is no divergence between the floor and the new reserve tiers and price ceiling, all three escalate at five percent plus inflation, similar to the floor price.

Relative to the current regulation, the proposed reserve allowances initiate price containment at lower values and are spread over a wider range of prices. This results in stronger dampening of potential allowance price increases and provides additional time for covered entities to reassess and implement newly cost effective GHG reductions.

In the very unlikely event that allowance prices or costs of emission reductions under the program are much higher than anticipated, price ceiling allowances and additional reductions are guaranteed to be available at a known price.

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AIR POLLUTION SPECIALIST BYLIN: It is also worth noting that in bolstering the cost containment features of the program, the proposed amendments provide access to more allowances at lower prices in the period 2021 to 2030. I'll illustrate this with an example using the year 2021.

Under the current regulation on the left, in 2021 the projected single reserve tier price would be about $75, and no price-containing reserve allowances would be
available at lower prices.

The total number of allowances projected to be in the single tier reserve in 2021 is 213.2 million. Under the proposed amendments on the right, more allowances are available at lower prices beginning in 2021. We propose to meet -- to make 66.8 million tier one allowances available at the $39, 89.5 million tier 2 allowances would be available at about $50, and 79.6 million price ceiling allowances would be available at about $61.

In addition, if price ceiling allowances are exhausted, the proposal includes the sale of price ceiling units. And proceeds from the sale of price ceiling units would fund ton-for-ton GHG reductions outside the program pursuant to AB 398.

The total amount of allowances in the new post-2020 reserve tiers and price ceiling is estimated to be 235.9 million, which includes the 120 million allowances carried over from the existing reserve.

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AIR POLLUTION SPECIALIST BYLIN: AB 398 specifies criteria that CARB must consider in setting the price ceiling, and staff sought to balance these elements while developing this proposal. In looking at these legislative criteria, it is helpful to look at the program through a come comprehensive lens as the cost containment features
all work together.

So in assessing the price ceiling, we wanted to understand and acknowledge how other design features in the program also interact with and respond to the criteria in AB 398.

The first criterion is the need to avoid adverse impacts on resident households, businesses, and the state's economy. This outcome continues to be a critical design objective for the Cap-and-Trade Program. In 2017 -- the 2017 Scoping Plan Update found that a suite of policies that included a Cap-and-Trade Program is the least costly path to achieve the 2030 target by a factor of four compared to alternatives, with the lowest estimated impact to the economy, jobs, and households.

AB 398 requires that CARB consider the full social cost associated with emitting a metric ton of GHGs. In evaluating the level at which to set the price ceiling, staff looked extensively at sources that estimate social cost of carbon, in particular the 2017 Scoping Plan Update, and the comprehensive efforts of the Interagency Working Group on the Social Cost of GHGs, or IWG -- convened in 2009 by the Council of Economic Advisors and the Office of Management and Budget.

Staff's proposed 2021 price ceiling of $61 in real 2018 dollars captures the social cost of carbon as
established by the IWG and the Scoping Plan.

It is important to note that the social cost of carbon research acknowledges that value is likely underestimated, and work continues to refine estimates to reflect full social costs, which are estimated to be higher.

The cost per metric ton of GHG emissions reductions to achieve the statewide emissions target is another AB 398 required factor, and the proposed price ceiling level includes consideration of the costs of existing and known technologies to reduce emissions.

AB 398 also requires consideration of the 2020 tier prices of the allowance price containment reserve and the auction reserve price. The proposed amendments maintain continuity with the program's current cost-containment design features. The proposed price ceiling retains the five percent annual escalation of the current 2013 through 2020 reserve, and the auction reserve price.

And it roughly maintains the cost range that would have been provided by the current regulation only to slightly exceed the current regulation beginning in 2027.

This price range between the floor and ceiling allows for price discovery across a consistent range for all periods of the program, while ensuring the lowest cost
reductions are targeted first.

Reserving this price range also provides sufficient space for the two new post-2020 reserve tiers to operate at a meaningful fixed distance between the two points. And finally, staff considered the potential for environmental and economic leakage. Minimizing leakage continues to be a critical design objective for the Cap-and-Trade Program. Coupled with the increase in assistance factors for allocation to 100 percent, the program is the most cost-effective option from the 2017 Scoping Plan and the best option to minimize leakage of emissions, jobs, and economic activity.

In short, staff had to consider and balance across these criteria and ensure the program continues to play a meaningful role to incentivize actions and technology to reduce emissions and transform how we develop and use energy.

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AIR POLLUTION SPECIALIST BYLIN: Staff proposes amendments to comply with AB 398 direction to reduce the offset usage limit. The quantitative offset usage limit in the current ram is eight percent. Under this proposal, calendar year emissions for 2021 to 2025 will have an offset credit usage limit of four percent.

And calendar year emissions for 2026 to 2030 will
have an offset usage limit of six percent. Per AB 398, for compliance, no more than one half of an entity's quantitative offset usage limit may be sourced from projects that do not provide direct environmental benefits in the state or DEBS.

The legislative definition of DEBS is, "The reduction or avoidance of emissions of any air pollutant in the State, or reduction or avoidance of any pollutant that could have adverse impacts on waters of the state". CARB proposes to use the legislative definition to assess if offset projects provide DEBS.

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AIR POLLUTION SPECIALIST BYLIN: In terms of implementing the DEBS requirement, staff is proposing a performance standard for projects located in state or sourced with gases from in-state. This approach is consistent with the approach to implement additionality for offset projects. The criteria are established by project type. And if projects conform to all protocol requirements, they are determined to meet all offset related criteria.

The staff report details how projects undertaken within the state meet the DEBS criteria. Staff proposes a case-by-case review for projects located out-of-state or sourced with gases from out-of-state. These project
developers will need to demonstrate how the project meets the DEBS requirements, and CARB staff will review the submitted information and make a determination for each offset project.

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AIR POLLUTION SPECIALIST BYLIN: With respect to linkage with Ontario, on June 15, the Government of Ontario issued a press release indicating that Ontario would repeal its Cap-and-Trade Program. In response, California and Quebec immediately took steps to protect the environmental stringency of the linked market and suspended transfers of compliance instruments between Ontario entities and California or Quebec entities.

On July 3rd, the Ontario Government published a regulation revoking Ontario's Cap-and-Trade Regulation and prohibiting Ontario's cap-and-trade participants from purchasing, selling, trading or otherwise dealing with allowances and offset credits.

Based on these actions, staff proposes amendments to de-link with Ontario's program.

The proposed amendments clarify how the Executive Officer may exercise existing authority to protect the environmental stringency of the California program, ensuring that a careful approach is followed during what is expected to be very limited circumstances in which the
Executive Officer would need to take specified actions. The experience with Ontario did provide important lessons. In particular, it highlighted the resiliency of the design of our Cap-and-Trade Program.

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AIR POLLUTION SPECIALIST BYLIN: I want to next discuss allocation. Calculation methodologies for allowance allocation contain four elements: fuel or product data, an assistance factor reflecting leakage risk, benchmarks, and a cap adjustment factor.

Industry assistance factors in the current regulation scale free allowance allocation with the level of leakage risk for each industrial sector. The proposed amendments follow AB 398 direction to set assistance factors at 100 percent for the post-2020 period, increasing protection against leakage.

Board Resolution 17-21 directed staff to evaluate setting assistance factors in the third compliance period if 2018 to 2020, at 100 percent as well. The current regulations 2018 to 2020 assistance factors are 100 percent for high leakage risk sectors, 75 percent for medium, and 50 percent for low.

With the AB 398 post-2020 revision, the assistance factors for the years leading up to and following the third compliance period are 100 percent for
all leakage risk categories. The graph depicts estimated compliance costs for low- and medium-risk sectors assuming 2018 to 2020 assistance factors in the current regulation, shown as light blue bars, and assuming 100 percent assistance factors for the same period shown in the dark blue bars.

As shown, maintaining current assistance factors results in a spike in compliance costs under the current regulation, and modifying the 2018 to 2020 assistance factors to 100 percent results in a smoother cost trajectory. Staff notes that smoothing this -- the transition into the post-2020 program is critical as the rate of reductions needed is doubled relative to today.

In addition to the revisions to assistance factors, the proposed amendments extend the alternative, more slowly declining, cap adjustment factor for certain sectors through 2030.

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AIR POLLUTION SPECIALIST BYLIN: These proposed amendments are expected to both increase and decrease compliance costs and, in turn, costs to consumers.

Increased compliance costs will result from the reduction in the offset usage limits, and the new criteria that limits the use of offsets that do not meet the definition of direct environmental benefits in the state.
There are also several elements of the proposal that decrease compliance costs, including the two new reserve tiers, which make available an additional 156 million allowances at prices below the current regulation, a price ceiling that balances across AB 398 criteria, continued use of limited banking to allow for hedging, no removal of unused allowances or reductions to the post-2020 caps, and increasing assistance factors to 100 percent from 2018 through 2030.

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AIR POLLUTION SPECIALIST BYLIN: Staff also proposes amendments to clarify, enhance, and streamline the permissible uses of allowances value allocated to electrical distribution utilities, or EDUs, and natural gas suppliers.

The State allocates allowances to these entities for the purpose of benefiting their ratepayers consistent with the goals of AB 32. The proposed amendments continue to allow a range of uses of allocated allowance proceeds, including renewable energy, energy efficiency and fuel switching, and other GHG-reducing activities.

Both EDUs and natural gas suppliers can continue to use allowance value for non-volumetric return of proceeds to ratepayers. The proposed amendments clarify particular activities that are not allowed, including
compliance activities, lobbying, and benefiting employers or shareholders.

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AIR POLLUTION SPECIALIST BYLIN: This slide shows other proposed revisions. For the compliance offset program, the proposed amendments revise and clarify provisions related to successor liability; use of alternative methods to obtain measurement and monitoring data; and regulatory compliance and invalidation.

The proposed amendments also revise certain allowance allocation provisions to ensure appropriate levels of allocation for transition assistance, such as for waste to energy and leakage prevention, including for newly covered sectors.

Provisions related to the Energy Imbalance Market are also being revised. This change will be covered in more detail during the discussion of the mandatory reporting regulation changes. To improve program administration, the amendments clarify and update registration and auction requirements, process, and procedures.

Staff proposes to extend the application deadline for the limited exemption for emissions from the production of qualified thermal output, known as the "but for" CHP exemption -- from 2014 to 2020 to provide an
additional application opportunity for entities that potentially qualify for this exemption.

These and other revisions clarify and streamline the program and enhance CARB's ability to implement and oversee the regulation.

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AIR POLLUTION SPECIALIST BYLIN: Staff modeled the macroeconomic impacts of the proposed amendments relative to the current regulation listed as the reference scenario on this slide. As modeled, the proposed amendments are anticipated to have a negligible impact on the economy, employment, and personal income through 2030, even in the unlikely event that allowance prices reach the price ceiling.

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AIR POLLUTION SPECIALIST BYLIN: Staff completed a draft Environmental Analysis, or EA, for the proposed cap-and-trade amendments. The draft EA was released for a 45-day comment period on September 7th. The public comment period closed on October 22nd, and staff will be preparing written responses to all of the draft EA comments received.

Staff will present the final EA and written response to comments on the draft EA to the Board at the second Board hearing.
AIR POLLUTION SPECIALIST BYLIN:  Now, I will turn to the proposed amendments to the mandatory reporting regulation or MRR. Annually over 800 entities report data under MRR. And the data collected supports multiple climate change programs at CARB, including the Cap-and-Trade Program and the statewide GHG inventory.

Staff is proposing targeted updates that clarify and streamline reporting requirements and implementation, based on experience with the program and stakeholder input, to ensure that report data are accurate, complete, and fully support CARB's climate programs.

The proposal includes minor dairy product data clarifications to align with current industry practices and updates to source-testing requirements for nitric acid producer not covered in the Cap-and-Trade Program.

The proposed changes clarify the cessation requirements for reporting and verification of certain entities, and support the alignment of CARB's GHG accounting and CAISO's Energy Imbalance Market.

AIR POLLUTION SPECIALIST BYLIN:  Under AB 32, CARB must account for GHG emissions from electricity that is generated in-state or imported to California to serve California load. The current design of the Energy
Imbalance Market, or EIM, does not account for all GHG emission from imported electricity under EIM, and results in emissions leakage.

In 2017, the Board approved a temporary solution for the MRR and Cap-and-Trade Programs to account for this emissions leakage. Under the current regulations, CARB calculates the annual EIM outstanding emissions and retires an equivalent number of unsold allowances from the state's pool of allowances to account for compliance obligation associated with the emissions leakage.

In early 2018, CAISO released a proposal that would limit the amount of electricity deemed to support EIM imports. While staff supports CAISO's updated proposal, because it will reduce the amount of emissions leakage in the system, it would not address all of the EIM GHG accounting concerns.

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AIR POLLUTION SPECIALIST BYLIN: Staff is now proposing to implement an approach to replace the current regulatory solution and require entities in the electricity sector, purchasing from the EIM market, to be responsible for EIM emissions leakage. In the 45-day package, staff proposed to place a reporting and compliance obligation on entities importing in the EIM that would have resulted in bringing new entities into the
MRR and Cap-and-Trade Programs.

Since the release of the 45-day package, staff has been working with CAISO and stakeholders to refine the approach in a 15-day proposal. The 15-day proposal would include provisions to retire allowances that would otherwise go to the electricity sector to account for the emissions leakage, and narrows the scope of the entities to those already participating in the MRR and Cap-and-Trade Programs.

Staff's proposal only addresses EIM transactions and not the day-ahead market or regionalization.

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AIR POLLUTION SPECIALIST BYLIN: Staff will be proposing limited updates to be included in a 15-day package. In addition to the mentioned revisions to the EIM proposal, possible revisions include slightly revising and clarifying provisions for use of allowance value, updating the leakage risk classification for new sectors eligible for allowance allocation, and revising regulatory conformance and invalidation provisions for U.S. Forest offset projects. Staff may also make a clarification related to offsets to address concerns of ambiguity.

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AIR POLLUTION SPECIALIST BYLIN: In terms of next steps, as mentioned, we are planning to release a 15-day
package for both regulations in late November, and we will continue to engage with stakeholders.

We will have our second Board hearing in December or January, and if adopted, the regulations are expected to be in effect April 1st of 2019.

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AIR POLLUTION SPECIALIST BYLIN: Before I end the presentation, I want to flag a few items that staff is proposing to address in a subsequent rulemaking. These include adjusting the allocation to the utilities in response to. SB 100, which increases the renewables portfolio standard to 60 percent in 2030 from the existing 50 percent.

We will work with industrial stakeholders to allocate additional allowances to address an embedded energy carbon price that is not already accounted for.

We want to recognize the role of fuel cells in addressing air quality concerns under specific conditions, and we will evaluate the need for, and propose as appropriate, updates to the compliance offset protocols.

These and any other amendments would be subject to our usual public process before coming back to the Board.

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AIR POLLUTION SPECIALIST BYLIN: That ends my
presentation, and we can take your questions.

    Thank you

CHAIR NICHOLS: Thank you. We also have about 65 witnesses who have signed up to testify on this item. But I can see, and I'm aware from various of the media, social media, other inputs, that their comments are going to be largely clustered around a couple of different items.

    So I want to make some comments first and then I'm also going to talk about the schedule of the rest of this. My comments are as follows:

    I think you should put up on the screen again one or maybe two slides. I'm not sure that you can do both of them. The slide that shows the expected price of allowances out to 2030, and the slide that -- that showed the social cost of carbon, or the cost -- I'm not quite sure. I want to focus on a couple of points.

    So, first of all, this regulation that we are dealing with, the Cap-and-Trade Regulation that is, is designed not to be a revenue raiser for the State of California, and not to have prices go very high. It was never intended to be the principal tool for achieving our carbon reduction goals. It was always intended mostly as an insurance policy, but frankly also to demonstrate that it would be possible for the State of California with the size and diversity of its economy, and our concern about
climate change to actually design and implement a
successful Cap-and-Trade Program, meaning a program that
would achieve the reductions that it was called for in a
manner that was not overly expensive, and did not drive
businesses out of the state of California, or make the
price of goods too high for Californians to afford,
including the price of energy, whether electricity or
driving.

And in addition to that, that it would not be a
subject of scandal, or market manipulation, which at the
time we first started this was a very big concern in the
aftermath of the 2008 melt down of the economy.

And I think, as we demonstrated, and when we went
through the process of getting the two-thirds vote to
re-authorize this program from the legislature. Thank you
very much, Mr. Garcia. Welcome. Glad to see you here.
That those issues were aired in extensively. And I feel
that we had a good conversation and we dealt with a lot of
the -- a lot of the concerns at that time about prices of
allowances, whether they were too high or too low. And I
think we probably had more people who thought they were
too low, than thought that they were too high at that
point.

So it's a little bit ironic, I guess, that we're
here now dealing with the concerns about the ceiling
price, and what -- how to -- how to deal with the
potential threat that the prices could go too high.

But that's the nature of this program, that as it
goes along concerns get raised, and people find things
that they're going to worry about. And not to say that
those aren't legitimate, but just that we have to
recognize that people will continue to examine this. And
potentially think about whether they would like to, you
know, redo the whole program in shall way make a different
than it is today.

But the one thing that this die is pretty clear
is that as we were directed to look at the social cost of
carbon, in our assessment of the price, this social cost
of carbon that we were using was too low. There's no --
really no argument about that. And so when we look at the
predicted prices, I have to ask to start with the question
of whether you really think that it make sense to keep
going as we are out to 2030, given what we think is going
to be emerging from the studies that are underway now
about what the -- what it truly takes to address the
problem, and about what the impact is of the increasing
amount of carbon.

And I can look at any one of several people to
answer that question, including our economist, but I'll --
I'll start with Ms. Sahota who's the person in charge of
the actual running of this program.

INDUSTRIAL STRATEGIES ASSISTANT DIVISION CHIEF
SAHOTA: So good morning. And I think this tees up the question about how we've traditionally done regulations at ARB, and the new construct in AB 197 to consider the social cost of carbon, because it was really AB 197 that first identified in statute that we need to look at the social cost of carbon, and we did that in the Scoping Plan.

So how we've traditionally done regulations is look at cost effectiveness. And so in AB 32, it says to design a program that is cost effective. And that's also called for in AB 398, and in AB 977.

And when we think about cost effectiveness, it's defined in AB 32 as the cost to reduce a ton of emissions. And so that construct is really how we've traditionally approached all of the regulations at ARB when we think about cost effectiveness is what is the cost for every unit of reduction in any of the programs? And that's how we started with the Cap-and-Trade Program.

The social cost of carbon is really valuing the economics of avoided damages. So if you don't emit one ton into the atmosphere, how much economic value is saved to everyone by not having that emission. So it actually speaks to a very different concept than cost
effectiveness. There is work that is underway to look at the social cost of carbon because we identified in the 2017 Scoping Plan that the social cost of carbon values we used, which were the Obama administration values, much higher than what's in the current administration's guide book.

Those captured what could be monetized and modeled when those values were developed over a decade of work. And since that time, probably within in the last two or three years, we've seen emerging research and science that says if you even updated one part of the social cost of carbon, just the agricultural part of that entire equation, you would see a value that's probably double digits -- or triple digits, not double digits. It's about $50. It would probably be over $100.

So as we're thinking about the Cap-and-Trade Program, what we're really trying to do is get people to reduce emissions. And as we're thinking about reducing emissions, we fall back into the cost effectiveness of the program. So the allowance price, it needs to motivate somebody to reduce emissions.

If we were to put the price at the social cost of carbon, what we're essentially saying is it's not the price to reduce emissions, it's the cost of you emitting an additional ton into the atmosphere. And so it's a very
different construct in that sense.

Like I said, there is additional work going on. And actually the Independent Emissions Market Advisory Committee made one of the recommendations, which was continue to look at the social cost of carbon, and add in values, such as secondary impacts, like asthma. When you have increased temperatures, what does that mean for local air quality, smog formation? What does that mean for missed days of work, miss days of school, et cetera. Those are not included.

Emily can probably speak more to the ongoing science, and the efforts that came out of the Governor's Climate Action Summit, but the values of the social cost a carbon are expected to be much higher than even what we used in the scoping plan.

CHAIR NICHOLS: Um-hmm. Thank you for that. I think it is sort of useful just to keep in mind as part of the backdrop of what it is that we're doing here, not that these amendments directly address that topic.

Before we go on and take comments from the public, I think we should just talk about schedule. With 65 people at three minutes per, we have to think about both the cost of time --

(Laughter.)

CHAIR NICHOLS: -- as people move back and forth,
and making sure that we keep on time, and also about
breaks. So I'm going to make a couple of suggestions.
First of all, with respect to the people in the audience,
the list is up there. And you know -- you'll see where
you are on the list. We would really appreciate it if a
couple of moves ahead of your own testimony, when you're
at a person who's like two or three ahead of you, if you
could move down to the front and either stand behind one
of the microphones, or take a seat in the front row.
We've kept the seats empty there so you'd be ready, and we
can actually save some significant time, if you add up all
those moments when people are walking up to the
microphone. It really does make a difference.

As far as the brunch -- lunch break is concerned,
sorry -- lunch break, I don't think we should take one. I
think we should have Board members get up when they need
to and go grab a bite in the back. We can hear you in the
back room. So we won't all leave at once. Hopefully,
people can stagger it.

And you, in turn, who are here to speak can see
when you've got a little bit of a break, and if you could
just go grab something downstairs in the cafeteria, or if
you are the sort of person who actually doesn't eat lunch,
then you don't have to worry about this. But anyway, I
there's a way that everybody can be accommodated without
us having to take an actual 45-minute break, which then
turns into an hour and so forth.

So if that's okay with everybody -- I don't see
anybody objecting. Let's just -- let's just get started
beginning with Diana Tang. Our prize winning number one.

(Laughter.)

CHAIR NICHOLS: Congratulations. The City of

Long Beach

Good morning.

MR. TANG: Good morning, Chair and members of the
California Air Resources Board. Again, my name is Diana
Tang. And I manage government affairs for the City of
Long Beach.

I am here before you today to speak in support of
the Cap-and-Trade Program overall. Long Beach has been
supportive of this program since AB 32 was introduced back
in 2006.

I'm also in support of the waste-to-energy
facility, which would be negatively affected by staff's
proposed changes to the cap-and-trade compliance
mechanisms before you today.

The city has a long history of supporting the
Cap-and-Trade Program, as I had mentioned. And I'd also
like to share a little bit about why we also choose to use
waste to energy.
So back in 1988, our community decided that waste to energy is a cleaner and more sustainable way to manage municipal solid waste as compared to landfills. Those are the two options that we had back then, and they remain the two options that we have today for municipal solid waste.

We are proud we take 100 percent of our non-recyclable trash to -- collected curbside to this facility, which has had a significantly smaller footprint than even the smallest landfill. The facility also reduces waste volume by over 90 percent while also supporting metals recycling and narcotics disposal for state, federal, and local law enforcement agencies across Central and Southern California.

We are proud that over the years the city and our private operator have taken the initiative to proactively improve the facility's emissions technologies by installing a carbon injection system, and ammonia injection system, and we continue to use the best available technologies and practices available.

These improvements have allowed us to ensure emissions from the facility consistently fall well below the -- our air permit requirements, and in most cases by 80 to 90 percent. We are proud that we chose to locate this facility in the Port of Long Beach near many other industrial uses and away from homes. To summarize, our
community values waste to energy.

In an effort to buy time for city staff to identify an economically viable option for keeping the facility, our city council just two months ago voted unanimously to allocate 8.7 million to -- in local resources to support facility equipment maintenance and allow for opportunities to process higher value waste. We are also pleased our contracted operator is putting an additional five million towards these improvements. As mentioned, city staff are currently trying to identify an economically viable path forward for the facility.

From a facility management perspective, we are at a cross road. Our power purchase agreement, which we have relied on to support many of the facility's expenses, expires at the end of the year, while the bonds we issued to pay for the facility while also be diffused at the end of the year.

But with that said, the facility does need additional maintenance to ensure that we can continue operating well below air permits as we intend to, but for which significant resources will be needed beyond what was already approved two months ago for long-term improvements.

So the question is, is there a way we can make meaningful improvements to the facility to keep it
operational long term? If not, then that means that California's seventh largest city will go back to landfilling just like every other city in California has been doing with their waste.

And so with that, we're asking simply for parity for waste to energy in landfills.

Thank you.

MR. LARREA: Good morning. John Larrea with the California League of Food Producers.

I'm stepping in front of one of our members who is Erick Watkins with the Pacific Coast Producers. They asked me to come up and speak first on behalf of the League, and then -- and I'd ask them to come in, in case the Board wanted to hear from some of our actual members on the impacts of the new regulation. So I think I'll let them decide whether or not they want to speak to this too.

First of all, I'd just like to say, you know, we appreciate the staff's effort in the development of this package. And we are in general support of this package. We see it as a good thing. It is -- we feel it's met the requirements under 398 in order to focus on cost containment, and we believe that it's leading in the right direction.

That said, our main issue is the third compliance period. This -- we are in the middle of this now.
Whereas 398 and all the issues associated with that are post-2020, we are now feeling the effects of the third compliance period as a medium leak -- leakage risk industry. It is interfering with our ability to be able to contract and to forecast going out. It creates uncertainty going forward, so we are in full sort of the Board's -- or the staff's position that we should level out the third compliance period and provide for a smooth transition going into 2020.

In terms of what we think is going to happen on that is that if you do that, we think it will -- one, it will immediately lessen the risk of leakage because that is always a factor for us no matter what, because of the other business factors that impact our ability to be able to maintain our competitiveness. We also think it will contribute to the overall stability of the program going forward.

We need to have some sense that this is a stable program, and 2020 is going to put a lot of burdens on us, and it's going to be much difficult -- more difficult to meet. And so we want to see, you know, that we're able to prepare in this early issue.

Finally, it will eliminate, like I said, the uncertainty associate with this and provide for more forecasting.
So with that, I will -- if my members want to speak, I'll let them, and answer any questions.

Thank you.

CHAIR NICHOLS:

MR. WATKINS:  Good morning. I'm Erick Watkins from Pacific Coast Producers. We're a locally grown locally owned co-op here in Northern California. We have facilities in Oroville, Woodland, and Lodi. We just wanted to talk today, try not to be repetitious because there are a lot of speakers today, is that we really would like to focus on the third compliance period today, and that that smooth transition is really a big deal for us. We have a lot of other headwinds facing us right now, including the steel tariff. And so your consideration would be much appreciated and we fully support staff comments today.

MR. TRISTAO:  Good morning. Good morning, Chairman Nichols and members of the Board. I'm Dennis Tristao, and I represent the J.G. Boswell Company. We are both a processor and farmer, and our processing is involved around tomato paste. We've been involved with the Cap-and-Trade Program since its inception, since the adoption of AB 32 on through the climate change program of the State. We've interacted with our Association and we've interacted with many of the staff here over the
I won't echo what John stated, other than we do support John's comments. We all work together. There are a few of us here, but there are many more behind us who could not attend, and I wanted to make that point.

As a producer, I'm here to tell you that I'm in the trenches, so to speak. I know how the calculations work. I know the impact. I know the burdens. And for the most part, I want to tell you that I do appreciate staff's assistance all the way in the past few years in addressing the cap-and-trade reporting and the program.

Specifically, I wanted to congratulate the staff on the fact that on November 1st, you had 100 percent compliance with the surrender, which is quite an achievement.

As a regulated entity, I can tell you that there's a great deal of anxiety until after that November 1st date passed, as you're watching it. But having -- you know, we all have a sense of humor about it, so -- but I am here before you because our main concern is with CP3, the third compliance period. As our marketing team and our company attempts to get a handle on the cost as we go forward, this third compliance period is critical to us. And it's for the transition in the post-2020.

We support the regulation being adopted here
today. We support that provision of 100 percent leakage assistant. And we want to remind the Board that 100 percent leakage assistance is in no way an abrogation of the responsibility that we have, or that the regulation puts upon us for reductions.

You know, our goal is always to achieve our better from our benchmark from the competitiveness aspect of it. As we look at the benchmark, that's what we strive to exceed, so that we can do better as we go forward.

And then from the cap adjustment factor, we realize that there are adjustments being made and we constantly have to improve our process. And to that end, we support the incentive programs that the Air Resources Board has been instrumental in putting forward with these cap-and-trade funds, through the Energy Commission, through agricultural assistance, through the California Department of Food and Ag with the FARMER program, the SWEEP program. These incentive programs we're very much in favor of.

I'll conclude with that. We made the trip up here, specifically because this means a lot to us. Thank you.

MR. EMBURY: Chairwoman Nichols, members of the Board, good morning. My name is Michelle Embury, and I'm a part of California's Environmental Entrepreneurs team.
E2 is a national non-partisan group of American business leaders and investors who advocate for smart policies that are good for the economy and good for the environment. Our members have founded -- or funded more than 2,500 companies, created more than 600,000 jobs, and managed more than $100 billion in private equity and venture capital.

I am here on behalf of E2's 600 California members to show business support for staff's proposed amendments to California's Cap-and-Trade Program. Staff's proposal would advance a program that ensures environmental integrity and strong ambition while providing important provisions to contain program costs.

E2 is a strong proponent of California's Climate and Clean Energy Program. And last year, we advocated in support of the AB 398, which extended California's Cap-and-Trade Program beyond 2020. Our support for AB 398 was predicated on the Cap-and-Trade Program's strong track record of success reducing emissions and advancing California's clean energy economy. It is truly good for the environment and the economy.

Since the program's implementation, $2.2 billion in cap-and-trade funds have been invested in nearly 30,000 projects across the state directly supporting almost 20,000 jobs. And 68 percent of these funds benefit
California's disadvantaged communities. In every corner of the State, California's climate program and its bedrock policy, Cap-and-Trade, is working. The State is exceeding its greenhouse gas targets, program compliance is strong, and the state's economy is booming.

Furthermore, cap and trade is the embodiment of California's global climate leadership. And many states across the country depend on that vision that California sets. In fact, E2 is advocating for passage of a cap-and-trade bill in Oregon, which is modeled off of California's program.

The package proposed by staff will further the Cap-and-Trade Program's success. The amendments provide an appropriate balance of ambition and price containment, and will ensure the program maintains the flexible market-based approach, while safeguarding the market's sacred role necessary to reduce emissions in step with our 2030 goals. Therefore, E2 requests the Board vote yes on staff's proposal.

Thank you for your time.

MR. WEINER: I'm Peter Weiner from Paul Hastings substituting for Anna Fero.

And Madam Chair, and members of the Board, today I'm representing Crockett Cogeneration, LP, which operates a steam facility that supplies steam to C&H sugar in
Crockett. Crockett Cogen has a legacy contract which has required or needed transition assistance. We've worked closely with staff and very much appreciate the allowances the staff have provided for legacy contract generators without industrial counterparties. We fully support the draft amendments before you today, as well as supporting AB 32 and the Cap-and-Trade program generally.

Thank you.

MR. HENDERSON: Hi, Madam Chair and members of the Board. My name is Scott Henderson. I'm with Covanta. We're a waste energy company that has two facilities in California. We operate the facility for the City of Long Beach in Long Beach, and then we own and operate a facility in Stanislaus, where we process municipal solid waste that would otherwise go to a landfill.

By doing that -- you know, these facilities were build to take care of waste. And so we follow the waste hierarchy, the reduce, reuse, recycle. So we max -- make sure our communities are maximizing recycling efforts, and then we take the stuff remaining from those into our facilities. We combust it at a high temperature, clean the air. Our emission profile is very low. And we've shared a lot of that data with the -- with the Board.

We're concerned that the current regulation and the current amendments do not treat the waste sector
evenly, and there's a significant, you know, non-parity here. All we're asking for is to be treated the same as landfills. Landfills were legislatively taken out of the cap. We are in the cap. We're actually better from a greenhouse gas perspective than landfills. So for every ton of waste we process on a national average, we reduce greenhouse gas emissions by about a ton. It's a little smaller reduction in California, because of your low carbon grid, which is terrific.

But both CalRecycle and CARB have both done independent studies that have shown that waste energy is a far better alternative than landfilling of this material. So we are asking that the Board consider making some additional changes to the amendments and bring parity into the waste sector. I think we have been brought into the electricity sector into the Cap-and-Trade Program. And that's really not where we fit. We do not -- our existence is not to create electricity. Our existence is to get rid of waste, which is against the land -- you know, kind of competing with landfills.

And so the energy that we generate about nine times more power than a landfill gas project is a terrific co-benefit, but not the primary function. And so we'd ask that the -- you know, the Board consider this. The CARB in their 2015 amend -- appendix C was -- basically spoke
to this exact question. So they were looking at whether -- if you put waste energy in the cap and you left landfills out of the cap what would happen, and I quote, "This approach would likely result in more greenhouse gas emissions, if it results in the increase MSW going to landfills".

And so all we're doing -- all we're asking for is to kind of follow the science here and to remain consistent with what the findings of the staff has been. So thank you.

MS. SULLIVAN: Good morning, Chair Nichols and Board members. I'm Shelly Sullivan representing the Climate Change Policy Coalition. And I'd like to thank you and the staff to offer these comments today. We were urge the Board to follow the staff recommendations for the third compliance period assistance factors. We think that that's really going to be a really cost effective and a good program going forward.

But we do have concerns with other recommendations, because they're not in compliance with the directive of AB 398 with regard to cost containment measures. These issues are critical to keeping costs low for consumers and businesses. Specifically, we request the Board to require additional information on the price ceiling and the use of speed bumps. In order to ensure
our program is cost effective and a program that other states and nations and -- would consider linking to, we need a lower price ceiling and we need speed bumps to be placed at the one-third and two-thirds distance between the projected floor and the ceiling prices.

So we hope that you take these considerations and suggestions, and -- as we move forward. And we look forward to working with the Board and the staff in the first year. Thank you.

MS. SILVERTHORN: Good morning, Chair Nichols and Board. My name is Leah Silverthorn with the California Chamber of Commerce representing our 14,000 member company. CalChamber supports implementation of a robust Cap-and-Trade Program as a cost effective means of achieving California's ambitious climate change goals, and we appreciate the hard work of the Board and staff in this proposed regulation, which does provide long-term market stability by keeping most of cap and trade's features in tact.

AB 398 directs CARB to implement regulations to extend the Cap-and-Trade Program using best available science, and consider, among other factors, avoidance of adverse impacts on California households, businesses, and the economy, as well as the potential for economic and environmental leakage outside of the state of California.
To that end, the proposed regulation does incorporate a discussion of the social cost of carbon, but does set the price ceiling of carbon's rating well above that level, with no apparent scientific rationale.

CARB staff suggests that the best available science regarding the social cost of carbon, here the interagency working group, which was mentioned earlier, is an Obama era report, is insufficient to account for the social cost of carbon.

However, in reading the Statement of Reasons, it does not appear to account for how a five percent escalator is scientifically supported nor consistent with the balancing of any of the statutory factors required by AB 398. The proposal that sets the price ceiling at a level far above the social cost of emitting carbon, inconsistent with the best available science, and without regard to adverse impacts on California residents and businesses.

Failing to properly balance statutory factors in setting the price ceiling and in evaluating the speed bumps and third compliance period factors creates easy fodder for environmental attorneys to challenge these regulations as inconsistent with the legislative mandate.

It's important to remember that California makes up a mere one percent of global GHG emissions. Where
California can make its -- most impact on global climate change is by serving as a model for a robust cost effective cap-and-trade system that encourages participation by other jurisdictions.

This system requires buy-in from all parties, not just government and environmental groups, but from the businesses and industries that will support and implement these regulations. Setting unreasonably high price ceilings and speed bumps that cause spikes in pricing and trading does not encourage participation by more moderate states, many of which have recently rejected attempts at major climate initiatives.

CalChamber is Afraid to step out on a limb and support additional costs where there's an immediate need, such as opposing the repeal of California's gas tax. CalChamber supported 398, and the path to get it passed was not an easy one. If it is difficult in California, imagine how difficult it will be in more moderate states.

Here, the best available science must be implemented, and the legislature's balancing factors must be considered when finalizing the regulations. Imagine the success we can have in California if we can tell other states and nations that not only is our Cap-and-Trade Program state of the art, but has buy-in from those it regulates.
Appreciate your time. Thank you.

MS. PADRON: Good afternoon, Char and members. My name is Naomi Padron with McHugh, Koepke and Associates. And I'm here today on behalf of the California Manufacturers and Technology Association.

I'd like to begin by saying that we support a well-designed Cap-and-Trade Program. It's the most cost-effective method for achieving emissions reductions while also limiting the impact on California's economy.

That being said, we appreciate the opportunity to comment on the proposed cap-and-trade regulation amendments. Our comments today, as with those that we've made in the past, center on cost containment and focus on the continuation of industry assistance factors, a reasonable price ceiling paired with appropriately placed price containment points or speed bumps, and maintaining available allowances in the market.

First, CMTA supports the proposed industry assistance factor changes. And we would request that ARB approve maintaining assistance factors at 100 percent for all sectors during compliance period three, and post-2020 in order to protect against greater emission leakage related to high compliance costs.

As it pertains to the price ceiling and speed bump design, CMTA is concerned that the proposed
amendments fail to meet the legislative intent of AB 398. To better address this, we would recommend that ARB eliminate the five percent escalator on the price ceiling, because it is unnecessary, and only serves to create the opportunity for exceedingly high carbon prices. This creates severe political instability and jeopardizes potential linkage with other jurisdictions.

An appropriate course of action in this case would be to continue the existing model by setting the price ceiling at a flat rate above the floor price. Further, we would suggest that the speed bumps be moved from the proposed one-half and three-quarter levels down to the one-third and two-third levels, in order to provide an earlier signal and check on rapidly increasing prices.

Additionally, CMTA appreciates ARB's proposal on unused allowances. And we would just note that keeping these allowances in the market limits artificial price spikes and supports compliance with carbon reduction goals.

Lastly, CMTA supports the discussion of additional industry assistance to protect against emission leakage related to high-energy costs. This will help protect cleaner, more efficient California manufacturers.

I thank you for your consideration of these critical points. We look forward to working with you and
your staff, and would welcome further discussion on
these -- the issues raised.

Thank you.

MR. PATNEY: I'm over here.

Arjun Patney with the American Carbon Registry.

Chair Nichols, members of the Board, thank you for the
opportunity to speak today. I, ACR, would like to thank
CARB staff for drafting amendments to the cap-and-trade
regulation that are prudent and that carefully hew to
the language of AB 398 with respect to offsets.

As of yesterday, the offsets program has achieved
over 140 million tons of emissions reductions from
uncapped sources, unregulated sources. Those reductions
deliver environmental and economic benefits to
Californians and our partners in Climate Action.

To the well-meaning stakeholders who advocate
against offsets, we must ask what they are advocating for.
They are effectively advocating climate strategy that will
unnecessarily burden California consumers and ratepayers,
ultimately risking public support.

I'd like to focus on the statutory provisions to
ensure offsets deliver Direct Environmental Benefits in
State, DEBS.

As the legislative record contains no indication
of the intent behind this requirement, staff have rightly
adhered closely to the statutory language. The language allows for DEBS associated with quote, "Any air pollutant", unquote. The language allows for DEBS associated with quote, "Any pollutant that could have an adverse impact on waters of the state", unquote.

No one in this room is going to dispute that greenhouse gases are pollutants. Some, including members of the IEMAC, have asserted that such phrases as, "any air pollutant", should, in this case, be understood to exclude greenhouse gases.

We would like to point out that even if greenhouse gas reductions do enable DEBS, the DEBS language is of significant consequence. The Legislature has now required CARB to provide an assurance that offsets deliver direct environmental benefits in state.

CARB's assurance has meaning. It is understandable that the local benefits of offsets may have been unclear to many people without CARB's evaluation. If CARB, with its expertise finds, that more offsets benefit Californians than we may have expected, that's an outcome with which we should be pleased, not unsettled.

ACR supports regulatory amendments that continue to allow a robust offsets program that contributes to climate action and delivers local benefits as articulated in AB 398.
Thank you very much.

MR. PORTILLO: Hello, Chairman Nichols and Board members. My name is Luis Portillo. I'm with the Inland Empire Economic Partnership, otherwise known as IEEP. I'm here to urge you to reject the proposed price ceiling, which is part of the Board's proposal today.

IEEP is concerned about the harm that our communities could have if the cost of electricity, gas, and diesel dramatically escalate. Simply put, we cannot afford unending dramatic increases in fuel energy costs. The Inland Empire covers more than 24,000 square miles. And while our region is working harder to improve our transit -- public -- our public transit system, you know, driving to get to where you need to go still remains reality.

You know, I drive 45 minutes to get to work every day, and I'm one of the lucky ones frankly, because that was considered a short drive. More and more people are spending more time on the road, and the cost of fuel is taking up a larger and larger share of their budgets.

By setting the price ceiling so high, we think the Board is risking increasing that burden on drivers that face every day in Southern California.

You know, IEEP supports efforts to reduce our greenhouse gas emissions. And while we recognize there is
going to be increased costs associated with doing that, we shouldn't seek to needlessly increase those costs, which we is what we think the current proposal does by setting such a high price ceiling. California -- you know, as was mentioned earlier California is responsible for only one percent of the world's greenhouse gas emissions. And where our strength really lies in is being able to demonstrate a program that shows, look, you don't have to choose between the environment and a healthy economy. You can have both.

    We think that the carbon -- the Cap-and-Trade Program isn't one of those programs that really is designed to really showcase that, because we can show we can achieve the successes and the greenhouse gas emission reductions without setting those impacts so high.

    We also urge you to keep in mind the costs that, you know, consumers and businesses are already facing. When it comes to transportation result of Senate Bill 1, IEEP opposed the initiative that would have repealed it, because we think sometimes it is important to invest in that. And while we're willing to pay for our share to improve our transportation system, to improve our environment, we think that those same goals to reduce GHG emissions can be done with minimizing the risk to consumers by setting that cap lower.
So I would urge you to reconsider that, and reject that part of the proposal. Thank you.

MR. SIAO: Hello. Okay. So may I start?

Okay.

So thank you. Good morning, and thank you, CARB Board members, for your time today. My name is David Siao, and I represent Roseville Electric.

And as noted on the Board, I also happen to be Sino.

We're a locally-owned and operated mid-size municipal utility just northwest of here. Roseville Electric is proud to help advance the State's climate goals while providing safe, reliable, and affordable service.

So in my comments before you today, I would like to first thank CARB staff. They have proposed amendments clarifying how proceeds from GHG auctions may be used, while preserving flexibility for local utilities, like Roseville, to tailor programs to local needs.

So transparency and accountability are very important, especially for public funds. So I wanted to highlight for the Board today several of the many ways in which Roseville Electric has been reducing GHG emissions
while benefiting its customers.

First, Roseville is using the funds to modernize our grid with smart meters. This not only allows our system to be more efficient, reducing cost, and GHG emissions, but also allows us to provide faster and better customer service. Smart grids are essential for more advanced rates like time of use, and can also assist in integrating renewables, demand response, and electric vehicles.

Second, Roseville Electric is using GHG proceeds to fund EV rebates. We cannot reach California's ambitious climate goals without reducing emissions from the transportation sector, and Roseville is doing its part to accelerate the adoption of EVs.

Third, Roseville Electric is funding a low-income refrigerator replacement program. This will allow us to safely dispose of older refrigerators, which might be leaking HFCs and CFCs, which are extremely potent GHGs, and lowers the energy bills for customers who could not otherwise afford to replace their refrigerators.

Finally, Roseville Electric is funding low-income and multi-family housing retrofit programs. What these programs do is, first of all, they ensure that all customers can benefit from reducing emissions, not just those who can afford electric vehicles and solar systems.
It also means that we're achieving the deeper emissions, which will -- deeper emissions reductions, which will be necessary to reach the State's goals.

So again, Roseville Electric appreciates the continued flexibility and local control in how it can use GHG auction proceeds. And we hope that CARB will continue to support both, even for areas which cannot necessarily be as easily quantified, such as education or potentially wildfire reduction and prevention. Thank you.

MR. MAGNANI: Chair Nichols and Board, Bruce Magnani here with the Coalition for Sustainable Cement Manufacturing and the Environment.

As you know, the CSCME was formed shortly after the passage of AB 32 had an executive level of the member companies, specifically to work cooperatively with the Board and staff for the implementation of AB 32, and now continuing that work with SB 32.

We'd like to let the Board know that we support the cap-and-trade amendments as presented by staff today, and we believe it's consistent with AB 32, as it was discussed and negotiated in the legislature.

CSCME believes it strikes a balance, and will achieve the State's post-2020 greenhouse gas reduction goal. We believe it will be done in a cost effective manner, while minimizing emissions leakage, which we all
recognize any leakage would undermine the program, damage the economy, and hurt employees.

CARB staff has repeatedly recognized the high risk of leakage that our industry faces, year-in and year-out. These amendments will minimize the risk of leakage to our industry in the near term. As such, CSCME encourages you to adopt these amendments as soon as possible. That will give business certainty for us moving forward.

Thank you so much.

MR. WILLIAMS: Hi. Chairman Nichols, members of the Board, thank you for the opportunity to provide comments. I'd also like to thank staff for preparing amendments that were largely in support of.

My company, Bluesource, we've been involved in developing projects for the program since its inception. We've worked on 26 projects so far that have generated around 10 million tons of climate benefit. We're really proud of that. We've worked really hard, and we've been able to hire folks in state. These are current and future climate leaders, folks that are passionate on this issue.

And based on that, I want my -- my comments are going to focus on largely the DEBS issue. And if we take a step back for a second, it's been -- always been my understanding that the program was designed, California's
program, to extend beyond California's borders in terms of inspiring change, the concept of climate diplomacy.

And I think we need that more than ever. I mean, you step outside this building and take a breath, and you have a frightening reminder of the need for climate diplomacy right now.

And so also the California program was based on science based -- it's a science-based program. And within that is the idea that a reduction that takes place anywhere creates a benefit everywhere. I firmly believe that. And for us, the view of a reduction in offset utilization is not only going to increase cost to ratepayers, but it's going to hamper the ability to inspire others to follow and create these types of projects.

In a way, I view the offset program as an ambassador, in being able to work with public agencies, private landowners, different folks across the U.S. to inspire change.

With that in mind, a couple of specific ideas. It would be our recommendation that the DEBS designation would be granted for projects through 2020 to avoid shifting goalposts for projects that are already underway, and also that the process for review for DEBS designation would take place pretty quickly. I think there's
currently a backlog of review right now for projects that are in the queue. And we -- we're kind of fearful that depending on how this goes, if there's a project-by-project review on DEBS designation, that backlog is going to increase even more.

And so I think there's an opportunity here for transparency and replicability in decisions that are made about application of this DEBS issue that I think will be really important.

And my final comment is uncertainty around the DEBS issue is not good for the program overall. It's going to lead compliance entities to be uncertain with what they have, and new projects will be on hold.

And so thank you very much for the opportunity to provide comments.

MS. DeRIVI: Good morning to the CARB Board and members of the Staff. I'm Tanya DeRivi with the Southern California Public Power Authority. We're a joint powers authority comprised of 11 municipal utilities as large as Los Angeles and as small as low income and disadvantaged communities in Banning and Colton, plus the Imperial Irrigation District.

I wanted to first staff off by saying that we are strongly supportive of the Cap-and-Trade Program and appreciate legislative efforts to extend it through 2030.
Also, want to thank staff for helpful clarifying edits that were reflected in the 45-day package, and had some recommendations to further improve in the 15-day package. For public power utilities, I wanted to focus our testimony on improvements for the POU Use of Allowance Values. This includes addressing some potential concerns with the proposed quantification methodology that we fear might be overly prescriptive and could preclude investments in projects and programs that would reduce emissions, thinking about transportation electrification initiatives. That might not always be easily quantifiable. As well as issues with vegetation management, particularly given all the tragedies with wildfires across the state right now. We don't want to see barriers to investments by publicly-owned utilities in those types of programs.

My other public power utility colleagues will also be talking about our preference that CARB extend the bridge solution for the CAISO Energy Imbalance Market for an additional year to gather additional information about it, before making changes on what is a very complicated issue that we are dealing with now.

As far as the price ceiling goes, our number one concern is ensuring that electricity prices remain affordable, particularly for our low income and middle
income customers.

And we had one other recommendation to CARB staff, to the extent that there may be programs and projects that aren't explicitly outlined in the proposed regulation that perhaps there be a formalized process for utilities to come to the CARB Board to get a case-by-case showing of yes or no on whether or not cap-and-trade proceeds could be invested in those programs as a helpful clarifying edit.

Thank you very much.

CHAIR NICHOLS: I need to ask you a question. I'm sorry, I just didn't understand something that you said. Your concerns about quantification of various investments. What was the point or what do you want us to do about that?

MS. DeRIVI: For the use of allowance values, there is a provision about quantifying the emissions reductions that would be associated with those investments.

CHAIR NICHOLS: Um-hmm.

MS. DeRIVI: And our concern is that not all of the programs and projects would be easily quantifiable. So that was the concern that we'd outlined in our comments.

CHAIR NICHOLS: I see. Thank you.
MR. COSTANTINO: Good morning, Board. Jon Costantino on behalf of the Verified Emission Reductions Association, a group of offset developers that came together at the beginning of the AB 398 process to promote and educate on the value of offsets.

And as part of that work, we worked with the legislature, and they codified, for the first time, the use of offsets. So now there's a statutory mandate to have offsets in the program, which we think is great. We think that maximizing the use of offsets, as presented in the slide show today, helps with cost containment.

And offsets, just a reminder, are real, quantifiable, enforceable, verifiable, and permanent reductions outside of cap sectors. I think you're going to hear from many folks today that are supportive of offsets. We are supportive. We submitted comments about DEBS. We're supportive of the statutory language being used. We're supportive of some of the other technical changes that are being made for materiality and regulatory conformance.

And so the only comment we would -- we would suggest is that, along with what Roger said earlier, was that the sooner you can figure out what an out-of-state DEBS is and go on a project-level, project-type basis, rather than a case-by-case basis -- I mean, a protocol
basis, that would be helpful to allow folks to understand what their investments mean, and how quickly they can understand if you're an entity buying an offset, what category it falls into, because there are certain market requirements that are playing out as we speak.

So thank you very much.

MS. ALI: Good afternoon. Fariya Ali on behalf of Pacific Gas and Electric. I'd like to thank staff for all of their work on the amendments thus far. We think that they are a good start, but there are still a few areas where some additional work is needed.

On the price ceiling, we are concerned that staff's escalation factor leads to a divergence between the floor and the ceiling, which means less cost protection in the later years of the program when it is actually needed more.

To address this concern, PG&E supports using a fixed adder on the floor to set the price ceiling, which would lead to a constant distance between the floor and the ceiling, which gives greater consistency and provides better cost protection in the later years.

We'd also like to urge ARB to continue working with the natural gas utilities on natural gas allowance allocation, so that that allocation helps to foster the decarbonization of the natural gas sector, rather than
hindering it in the future.

And we'd also like to urge staff to provide equitable treatment of the types of projects that utilities can spend their allowance revenue on. We believe that renewable natural gas projects are also renewable energy, just as renewable electricity projects are and should be explicitly allowed.

On the overallocation, we agree with ARB staff that the current cumulative caps constrain GHG emissions through 2030, and support a steadily rising price signal. Our 2018 market study with NERA is consistent with this view. The study finds high allowance prices in the late 2020s under ARB's existing program design. And these high prices occur sooner if significant allowances are removed from the market -- from the market.

We, therefore, support staff's current position, and we look forward to working with staff on continuing to improve these amendments to ensure a program that is both effective and sustainable. And finally, on behalf of PG&E, I would just like to say that our hearts are with all of the communities that have been impacted by the fires in California. And right now, our entire company is focused on providing support to first responders and in assisting those communities. Thank you very much for your time.
MR. BRAUN: Good afternoon, Chair Nichols, members of the Board. My name is Tony Braun on behalf of the California Municipal Utilities Association. Thank you for the opportunity to speak today.

My comments are limited to one issue, and that is the issue of the outstanding emissions and allocating those obligations as a consequence of the operation of the Energy Imbalance Market.

Let me begin with by noting upfront that this is an extremely difficult issue. It occurs at the confluence of a complicated Cap-and-Trade Program, and perhaps even more complicated wholesale market operation and design.

The market is not a closed system. Actions happen outside the market that affect the market. Actions happen outside California that affect California. We can't control those. And it's even more difficult -- it's very difficult to control them, and it's even difficult to account for them and allocate obligations accordingly.

And so what we've done to date is to take the allowances associated with these outstanding emissions and retire them from the unsold pool of allowances. And that seemed like a reasonable approach, given the complexity of the issue of the lack of data and the clear right answer going forward.

And we'd urge the Board to consider continuing
that so-called bridging solution for number of reasons.
One, we don't have any data on how this is going to work.
The ISO's new market methodology for accounting for these
outstanding emissions hasn't been put in place yet. And
we won't -- even though the proposed effective date is
April 1, we won't have a lot of data even by that metric.
And the market and the market scope continues to change.

There is no link to behavior. No EIM entity
within California that may see these costs is going to
change its behavior. And there's no link between their
behavior in real-time and the attribution of these costs.
So it fundamental -- violates some fundamental tenets
associated with just policy development.

EIM reduces carbon emissions. The ISO studies
have found that. And more work outside by some of the EIM
entities, show that the dispatch of their fleets,
including their coal fleets, have been modified. And that
work continues. And we should have an opportunity to
continue to understand that data and how EIM reduces
carbon emissions, and actually furthers the goals that the
State is trying to achieve.

And finally, there's an element of no good deed
goes unpunished here. California entities have been --
that are outside the ISO have been encouraged to
 collaborate closely with the ISO. And to that end, the
Balancing Authority of Northern California and SMUD are set to actually go live with EIM implementation in April of next year.

If they had not taken that step, they wouldn't see these costs. Under the proposal, they will see those costs. So there seems to be a little bit of -- we could do a little learning here. And so we would encourage the Board to consider keeping the bridging solution moving forward.

Thank you.

MR. WEISKOPF: Good morning. Thank you. David Weiskopf for NextGen America. NextGen is broadly supportive of the proposed regulation. We thank the Board and staff for the extensive opportunities they've provided for public participation, the thorough and transparent processes that has informed this proposal.

While we think this proposal is generally reflective of the legal requirements of AB 398 and provides a balanced approach. We would like to point out a few areas where we think amendments may be warranted. We provide greater detail on these topics in our written comments.

First, the price ceiling drops off significantly from current trajectory of the single reserve tier in 2020. It doesn't catch up with that until 2027. And
while we see little risk of the price ceiling actually being reached under current market rules, we are concerned that this trajectory does exclude any possibility that market prices ever actually match or really remotely approach modern estimates of the social cost of carbon.

We ask that the price ceiling and potentially the floor would be revised to better approximate the social cost of carbon, while still remaining highly cost effective compared to any additional direct regulations that may be required if cap and trade does not produce the level of reductions that are needed in order to comply with SB 32.

Second, the proposed revision to the current regulations to provide an additional subsidy of $365 million primarily to oil refineries through the change of the industrial assistance factors from current levels at 75 percent to 100 percent for the third compliance period. It's not based really on any assessment of leakage risk. There's virtually no risk of -- to -- of leakage from oil refineries. And that change would come at the expense of GGRF revenue that's badly needed to actually provide emissions reductions and undermine the effectiveness of the Cap-and-Trade Program to incentivize reductions at those direct sources.

We ask that that proposal be rejected, and that
would be in greater conformity to AB 398, where the legislature had the opportunity to consider this change and rejected it, as well as AB 197, which directs the Board to prioritize direct emission reductions at major sources.

Finally, we do ask that the Board require staff to take a close look and propose regulatory changes that may be needed, if it turns out that either because of oversupply or other elements of the market design, cap and trade is not performing at the levels required of it and envisioned in the scoping plan. So we think that that would be a good -- a good proposal for subsequent regulation.

Thank you very much.

MR. McDONALD: Good afternoon, Chair Nichols, members of the Board, and CARB staff. My name is Brian McDonald. I represent Marathon Petroleum Company. Marathon Petroleum Company is a refiner and marketer of fuels -- of transportation fuels in the State of California, therefore a regulated party within the Cap-and-Trade Program.

Thank you for this time to make a few comments about the proposed Cap-and-Trade Regulation.

Following the passage of AB 398, CARB is taking on a big task to improve cost containment within the Cap-and-Trade Regulation by establishing a price ceiling.
and two intermediate price containment points or speed bumps.

Additionally, CARB was tasked with evaluating oversupply or checking on the numbers of allowances within the program.

First, I wanted to request your consideration for the comments submitted by WSPA on the proposed regulation as we believe that they will enhance it. In reviewing the proposed regulation, CARB staff has chosen the ceiling and speed bumps to escalate at five percent, the same rate as the floor. It is unclear why this was chosen, as it only serves to increase the cost associated with the program.

Peeling back the layers of previous rulemaking documents, the five percent escalator is based on the federal cap-and-trade proposal by Waxman-Markey in 2009, which intended to match a firm's alternate investment options and encourage early reductions.

This reasoning has little to do with cost containment.

For oversupply, it is encouraging to see CARB staff not make any hasty decisions to withdraw allowances from the budget, which will only serve to drive allowance prices higher. We believe liquidity in the market is important and provides time for firms to evaluate and implement emission reduction projects in support of the
program's goals. Those that believe the program is oversupplied must be under the incorrect opinion that a large disproportionate fraction of the participants in the program can bank allowances over multiple years to achieve the results.

The ability for enough firms to accomplish this is questionable, and assuming so will distort the actual benefits of allowance banking and early reductions.

Thank for your time.

MR. MARTIN: Good afternoon Chair Nichols and members of the Board. Thank you the opportunity to speak before you today. My name is Simon Martin, and I'm the Procter and Gamble Sacramento plant manager.

For more than 60 years our plant has been a proud member of the Sacramento community, and where we make natural-based ingredients for soaps and detergents such as Tide laundry detergent.

I'm here today because we have concerns with the proposed amendments to the cap-and-trade regulation. In particular, section 95894(e), known as Legacy Contracts. I believe that the proposed amendments to the legacy contract language is counter to the ARB original intent of the legacy contract provisions to provide transitional allowances that encourages negotiating GHG costs into revised contracts.
Section 95894(e) should be removed from the rulemaking package, because it would not encourage renegotiation. And we are concerned that these changes may actually create a new barrier to renegotiating legacy contracts.

Furthermore, the Board should consider whether the legacy contract provisions are even necessary at this point. Given the original intent of the legacy contract provisions, all or most parties should have already revised contracts by now to incorporate GHG costs, absent unusual circumstances not contemplated when the legacy contract provisions were first promulgated.

Give that some parties continue to seek legacy contract relief, rather than renegotiate contracts, it's like that the legacy contract provisions as written have caused unintended outcomes, disincentivizing certain parties from renegotiating.

To avoid this unintended circumstance, we ask the Board to amend the legacy contract provisions to require an applicant to make a demonstration of actual cost exposure linked to legacy contract GHG emissions in light of the free allowances provided to an applicant and its direct corporate associates. Thank you for your time.

MR. BIERING: Good afternoon, Chair Nichols, members of the board. My name is Brian Biering, and I'm
here on behalf of Bloom Energy.

I want to speak to an issue that was raised in the staff proposal -- or the staff presentation related to the treatment of fuel cells and the potential for a follow-on rulemaking that we understand would be noticed sometime in 2019 to more clearly address fuel cells, and the environmental benefits that are provided by fuel cells.

Fuel cells -- Bloom is a developer of fuel cell systems. And what's important about these systems is they not only provide reliable on-site sources of electricity, but they don't emit any criteria pollutants by virtue of not involving any combustion.

The -- in the longer term, Bloom is very focused on developing fuel cells that can run on renewable natural gas. And at the recent global climate action summit, we worked with Bay Area Air Quality Management District to provide a demonstration project of a cleaning module that can be installed on a conventional Bloom energy server to basically run it on renewable natural gas. And that's part of the longer term vision that the company has, consistent with the goals of SB 1383, and as well as AB 197, and AB 32, and SB 32.

What's happening right now in the program is that there are some instances where fuel cell systems are
included under the Cap-and-Trade Program as a directly
regulated entity when fuel cells run on conventional
natural gas.

And the issue that that creates is that it poses
a choice for the customer to basically install the fuel
cell and become a regulated entity, and may basically
create a disincentive from reducing emissions on site, for
example, from diesel generators that may not be included
as part of the cap-and-trade threshold, or what may keep
them below the cap-and-trade threshold.

So what we're looking for is really a signal that
we'll provide a transition in the longer term to convert
conventional fuel cells to running on renewable natural
gas. And we look forward to working with the ARB staff
and thank them for their help in thinking through this
issue. Thank you.

MS. MUNSON: Good afternoon, Chairwoman and
members. My name is Maddie Munson, on behalf of the
Agricultural Energy Consumers Association. I will be
brief and just align our comments with our colleagues from
the food processing industry and our colleagues from the
dairy industry that will speak later. We are comfortable
with many of the cost-containment provisions in this
amendment, but we continue to be concerned with the cap
and the level and expense of that cap. And as our members
are vulnerable to leakage and out-of-state competition, this is a very important issue for us.

Thank you.

MR. LITTON: Good afternoon, Chairperson and Board. My name is Tim Litton. I am with the Northern California Carpenters Regional Council. I'm here to represent our nearly 40,000 members that are working in the field.

We have a concern about today's proposal and the effects that it's going to have on fuel prices, and energy costs. Many of the people in my trade have a lengthy commute to work. Although California is kind of in a construction boom right now, many of those jobs are in cities that our members can't afford to live in, so they commute more than 100 miles a day just to get to work.

The working men in this -- men and women of this state have already shouldered the higher -- highest energy costs in the country and a housing market has priced them out. We can't afford to take on a larger financial burden.

If costs continues to rise, we'll have less money in our pocket to spend on goods and services that support our local economies and our families. We urge that you take some cost containment into consideration on this, and take a good hard look at what it's going to do to the
working people of California.
Thank you.

MR. CARMICHAEL: Good morning, members of the Board. Tim Carmichael on behalf of Sempra Utilities, SoCalGas, San Diego Gas and Electric. I'll note that you've clustered two Tims together, but you should have put Tim Tutt right behind us, because the world knows -- the Lord knows the world would be better off with a few more Tims, rights?

(Laughter.)

MR. CARMICHAEL: So kidding aside, we are here in general support of the proposal from staff, but we -- I want to highlight and echo a couple of the comments that my colleague, Fariya Ali, made earlier.

We submitted a letter along with other gas utilities. And we appreciate the staff's work with our sector on the question of natural gas allowance allocations. And to date, we've had a conversation that feels like it's gone on for a little bit more than a year now. And we appreciate the time and effort from staff, but we really want to continue that conversation. And we would appreciate Board direction to the staff to continue working with our sector to continue to address this issue.

You know, it's acknowledged in the initial statement of reasons. It's an important issue, and it
recognizes that gas utilities are actively working to
get -- to decarbonize. We worked active -- this year
actively with Senator Hueso on Senate Bill 1440. We'd
hoped that would have resulted in a procurement
requirement. We ended up with direction to the PUC and
ARB to consider such a program, and we support that.

These efforts are absolutely consistent with your
Short-Lived Climate Pollutant Plan. We -- you know, we
see renewable natural gas, renewable hydrogen as
delivering on the -- that very important piece of
California's climate strategy.

I also want to mention that both PG&E and
SoCalGas received permission this year sell renewable --
procure and sell renewable gas at our utility-owned
stations. We are actively working on the dairy pilot
projects, which are progressing, and hopefully there will
be more -- excuse me -- more news on that very soon.

And then I wanted to touch on the other point,
the equitable treatment of allowance proceeds.

The electric utilities are appropriately being
allowed to use allowance proceeds to invest in
infrastructure improvements, whether it's renewable energy
or in support of zero-emission vehicles. We believe that
gas utilities should be given the same permissions.
Renewable gas is a renewable energy, and we would like to
do more with that. And allowing us to use our allowance proceeds in that way, we think makes a lot of sense.

Similarly in support of near zero-emission tech -- infrastructure in support of near zero-emission vehicles and fleets. We think it makes sense to allow us to use our allowance proceeds in that regard as well, and we would like to continue that. We would like to make that request to the Board and continue those conversations with the staff.

Thank you very much for the time.

MR. CULLENWARD: Good afternoon, Chair Nichols and members of the Board. My name is Danny Cullenward. I'm the policy director with Near Zero, an environmental nonprofit focused on climate policy solutions. And I'm a member of the Independent Emissions Market Advisory Committee. I'm not speaking on behalf the committee today, but I wanted to share a couple of views related to this important package.

I think the most important thing to say at the start is our organization is -- Near Zero is fundamentally agnostic as to how California achieves its climate policy goals. We think there are strong reasons to consider market-based policies like the Cap-and-Trade Program, which have many advantages in terms of controlling costs.

I want to start off first by thanking staff, who,
in their remarks today, mentioned this issue of DEBS in
the greenhouse gas accounting for offsets, and referred to
IEMAC report, which I think comprehensively analyzes
whether or not there are DEBS associated with greenhouse
gas reductions beyond the offset credits that offset
developers rightly receive for their projects. I think
it's very positive for staff to consider looking into
changing the ambiguity that's in the current rule. I want
to thank them for their engagement on that.

Despite that progress, I do want to raise some
serious concerns, which I know many of you have heard
before from me about the overallocation issue. And I want
to return to, Chair Nichols, your opening statement at the
beginning of this session about the scoping plan and the
role the Cap-and-Trade Program has consistently played in
the Board's efforts to control climate change.

The Board has always used this program to
quantitatively backstop as an insurance policy to pick up
the emission reductions we don't achieve through other
strategies.

And with respect, I have to say the quantitative
analysis supporting that notion in the current package is
factually incorrect. Appendix D's analysis of this issue
rests on a math error, plain and simple, and it does not
provide the quantity backstop that the program used to
play. Now, that is not to say that it won't produce important emission reductions or contribute meaningfully to the state's climate goals. But the role identified in last year's scoping plan was for this program to continue to rely as a backstop program that guarantees we hit our target.

The proposed structure today increases the ambition of the program relative to today, but it doesn't rise to the level of ensuring we reach our goals. And so I would suggest to you that if no adjustments are made to oversupply, not even to monitor the issue, as I would hope the Board would consider in the future, we're looking at a situation where one of two possibilities is the most likely outcome. Either we need to develop more regulations to get on track for our 2030 goal, especially addressing the tough sectors, or we risk not being on track to get our goal.

Because again, the role identified for the Cap-and-Trade Program in the scoping plan is almost half of the reductions called for in 2030. And it is quite clear that if emission reduction trends continue as they have for the last couple of years, that we will have a significant surplus of credits, likely several hundred million, that enter the next phase of the period and make it unlikely that the program will constrain emissions on a
quantity basis.

Now again, we respect that there are many reasons to do tradeoffs between this policy and other approaches. And my group doesn't see one particular approach or another as necessarily superior. But the analytical foundations of the policies portfolio need to make sense. And with respect, they currently do not. So I want to thank you for your time on that.

And one last -- Well, I won't say more. Thank you very much for your time.

MS. MODDELMOG: Chair Nichols and members of the Board, I appreciate the opportunity to provide comments on the proposed amendments to the California cap on GHG emissions and market-based compliance mechanisms regulation.

My name is Patty Moddelmog and I'm a senior associate or Ceres's California program. Ceres is a non-profit organization advocating for sustainability leadership. We mobilize a network of 52 leading U.S. companies representing over 587 billion in annual revenue to advocate for the adoption of meaningful climate policy.

This group is a called BICEP, Businesses for Innovative Climate and Energy Policy, and includes many California-based companies. I'm here to express our support to amend the cap-and-trade regulation to make the
program consistent with AB 3398 requirements.

BICEP members recognize the economic opportunities associated with tackling climate change and the costs of inaction, and are committed to working with policymakers to pass meaningful energy and climate legislation and regulation that will help the nation rapidly transition to a low carbon 21st century economy.

A strong Cap-and-Trade Program in conjunction with California's other key climate programs, such as the Low Carbon Fuel Standard, is critical to meeting state's 2030 GHG reduction goals.

California's Cap-and-Trade Program has a track record of successful compliance and has proven an excellent backstop for the state's GHG mitigation program, ensuring California will meet its current climate goals.

The Cap-and-Trade Program and complementary air quality measures are crucial to the state's powerful toolbox to reduce emissions, maintain market certainty, and increase economic vitality while ensuring all Californians have access to clean and healthy air.

The proposed amendments provide a reasoned approach to ensure consistency with AB 398. In particular, the proposed price ceiling in combination of cost containment measures strike a good balance to drive emission reductions, while providing a safety valve, if
something unforeseen with the market occurs.

In summary, California's Cap-and-Trade Program is working. The program has become an integral part of the economy stirring innovation and building new industries. Furthermore, California's demonstrated success in addressing climate pollution in the world's 5th largest economy is critical for inspiring similar action around the globe.

We urge the Board to adopt the proposed amendments to ensure the program continues to drive down emissions in a cost effective manner.

Thank you for your consideration of my comments.

MR. TUTT: Good afternoon, Chair Nichols, members of the Board. My name is Timothy Tutt, and I'm representing the Sacramento Municipal Utility District here today.

We support the Cap-and-Trade Program and believe that your staff has worked very well with stakeholders to implement and propose these amendments. There's a lot to like in the 45-day language, but we look forward to working to improve with the 15-day language and subsequent implementation.

I'm going to just raise four or five points that are in our written comments. And first, we support flexibility in the PO use of allowance value. There's
been some changes to clarify that. We would like more. We think that the allowance proceeds should be usable for general education and outreach about climate change, and energy renewables efficiency, et cetera, because we believe it's very important to continue to keep public support for the program through that kind of general education.

We also believe that the allowance proceeds should continue to be able to be used to procure allowances for compliance with reasonable metrics about using those allowances, similarly to the ones that were already allocated.

And then we recommended a variety of additional specific allowed uses in the regulations, such as efforts to reduce GHG emissions from forest fires and programs to foster low-GHG refrigerants.

We support the cost containment provisions with some revisions. What we would like to see is something very similar to that -- remember that flatter line on the chart that you saw, a price ceiling that is at the price floor plus $60, and at price containment points that are very simple, price ceiling plus $20, and price ceiling plus $40. That spreads those price containment points out.

We want to have two distinct price pauses as the
legislature intended at levels that allow cost-effective market investments. We also support removing the barrier of additional cost burden for electrification. This has been a long-standing issue. You must -- you guys must develop a plausible and feasible method to do this. And it should be okay to use estimations like you do in the LCFS program, like the projections that are used already in the electricity system allocations, and are likely to be used when your staff updates the allocations potentially for the 60 percent RPS. That's going to be based on projections. The ability to use projections for electrification should be a part of that.

Finally, we support the staff position on oversupply and banking, and urge you to support that position. They thought through this well and decided to maintain the provisions in the program that worked best. Any changes for that are likely to reduce the program effectiveness.

One last thing, staff mentioned proposal and 15-day language to remove the true-up of allowances -- legacy allowances based on the CPUC decision. We do not -- we hope you do not adopt that change, because it's important to SMUD.

Thank you.

MS. ROEDNER SUTTER: Good afternoon. I'm Katelyn
Roedner Sutter with Environmental Defense Fund. Thank you for the opportunity to provide comments today, and for all the time that staff has dedicated to putting this regulatory package together.

While this set of proposed amendments is not exactly what EDF had been recommending, we do recognize that CARB is balancing multiple policy interests, so we are generally supportive of these amendments.

There's a few issues I would like to touch on though. First, we strongly encourage CARB to begin working now to identify high integrity reductions to back the price ceiling units. It's important that CARB consult with the legislature to consider a rainy-day type fund to start the pipeline of reductions well in advance of potentially reaching the price ceiling.

To guarantee the continued integrity of the Cap-and-Trade Program and maintain its position as a global model for emission reductions, the best option would be not to wait until there is revenue from the price ceiling to begin purchasing reductions to fulfill that ton-for-ton requirement.

Second, EDF maintains our position that a modest cap adjustment post-2020 is important to increase California's climate ambition. Specifically, the 52.4 million allowances that are currently slated to be split...
between the two post-2020 price tiers should be removed from the program entirely. These allowances are not needed for cost containment, and we think it's an important opportunity to increase ambition.

We recognize that CARB is trying to balance stringency and cost containment, but this is a really important step towards meeting our 2030 target to increase ambition. So we would respectfully request that CARB give this proposal further examination or explain why they do not see this as an opportunity to increase ambition.

And then lastly, I want to address the concern about the price ceiling. We've heard some pretty emphatic views here today. And honestly, the reaction to this set of proposed amendments by some segments of the regulated community seems a little out of proportion with the actual content of these amendments.

As I've illustrated in my previous points, if EDF had had a free hand to develop these amendments, we would have done some things differently too. We asked for increased ambition post-2020. And we want to see a price ceiling that's significantly higher than the previous APCR, rather than below it until 2027.

But what's most important in these amendments is that California is moving forward with a program that has been successful. Our emissions are declining. Our
economy is thriving. And we believe that staff is well within the scope of what the legislature asked for in AB 398.

So in addition to my recommendations I've made, we would urge CARB, at the very minimum, to not give into further alarmist pressure and reduce the price ceiling anymore.

So thank you for your work on these amendments and for your consideration of these suggestions.

Thank you.

CHAIR NICHOLS: Thank you.

MS. BERLIN: It's my note pad.

Good morning, Chair Nichols, members of the board. Good afternoon. Excuse me. My name is Susie Berlin, and I'm here representing today the Northern California Power Agency, and MSR Public Power who are joint powers agencies comprised of publicly-owned utilities that range in size from the City of Santa Clara to the City of Biggs, which isn't, and which includes Roseville who you heard from earlier today.

Also here on behalf of the Golden State Power Cooperative that represents the State's rural electric cooperatives that serve their member customers in primarily rural areas.

First of all, I would like to address the
provisions regarding the EDUs -- EDU use of allowance value generally. I'm hopeful that the 15-day changes staff had referenced earlier will include some of the refinements addressed herein. Namely, while we support staff's efforts to provide greater clarity on what programs are allowed, we think that they should not be viewed as constraining the flexibility of EDUs to design and implement GHG emissions reductions programs and measures that provide the optimal benefits to their members and electricity ratepayers.

To do this, we recommend that the list of programs included in the proposed amendments be characterized as guidelines.

Next, avoided emissions are emissions reductions. And the regulations should explicitly recognize programs and projects that directly attribute to carbon avoidance as permissible uses of allowance value. EDUs, and POUs, and electric cooperatives in particular, are uniquely situated to provide direct and impactful benefits to their ratepayers that mitigate the risks of wildfires and avoid increased statewide GHG emissions.

Targeted and individualized programs and measures for utility infrastructure, resiliency, vegetation management, and wildfire prevention could complement the broader statewide efforts funded by GGRF.
The proposed amendments -- next issue is the quantification of emissions reductions, namely the proposed amendments appropriately call for estimates of emissions reductions, but elsewhere require EDUs to demonstrate reductions from the programs. This language needs to be reconciled.

Related to this is the way in which program emissions reductions are viewed. The total number of emissions reductions should never be the sole measure of a program's success. First of all, as Ms. DeRivi from SCPPA noted earlier, not all program's emissions reductions can be readily quantified. And secondly, worthy programs that provide fewer emissions than others may be providing those emissions in disadvantaged, low income, or highly impacted communities, which clearly meets the broader objectives of AB 32 and AB 617.

Next, the regulation includes a category for other GHG emissions reductions activities, which we support, but caution against a too strict interpretation. Addressing the specific requirements as guidelines rather than program limitations, as I mentioned earlier, would address this, but it is important that this section clearly allow for the use of allowance value investments in programs and projects that directly attribute to carbon avoidance.
We also support the comments regarding maintaining the EIM bridging solution and thank staff very much for all of their efforts on this.

Thank you.

MR. ABERNATHY: Good afternoon, Chairwoman Nichols, members of the Board and staff. My name is Kevin Abernathy. I'm the general manager of Milk Producers Council, and also the vice president of Dairy Cares.

So 398, our read on that directly -- or specifically directed CARB to avoid adverse impacts on residents, households, businesses, and the state's economy. So anytime we look at something that potentially has an impact of fluctuating things that can impact pass-through costs down below, which we're certainly down below in the dairy industry, we certainly want to pay quite a bit of attention to that to make sure that we're addressing all the potential impacts and crossing all the t's and dotting all the i's.

As the Board considers the proposed regulation amendments, it's critical to implement cost containment mechanisms that will allow the California dairy industry. And we are such a interwoven web between our producer segment and our processor segment that we will maintain viable, and not at a severe detriment cost disadvantage to our competitors outside of California.
We believe the authors of 398, Assemblyman Garcia, that 398 intended modest price ceilings and floors for credits, sufficient allowance and allocations, and industry assistance, which we are very appreciative of and have a tremendous success story from the industry standpoint through our hub-and-spoke models and so forth that have went from power generation on form, and now we're transitioning into renewable biogas that's going into the transportation segment.

As mentioned in the staff report, in-state dairy offset projects are an integral part and a tool in meeting the carbon reduction, as far as the goals of cap and trade, and also meeting the state's implementation of the short-lived climate pollutant strategy. It's very important that these off -- amendments reflect and facilitate these types of offsets. It is absolutely critical, as this industry does not have the ability to pass on any pass-through costs given our federally now mandated price setting.

And then also the CME that prices all of our milk that's turned into the wonderful dairy products that we all like and love to consume.

An interesting note, I would say that all segments of California are bearing a burden. When we look at national averages, we're between had 41 percent to 113
percent between residential and industrial cost, compared
to the nationwide average.

And I would say that, you know, California dairy
families in particular have been a great environmental
leader since stewards with the backing of this Board and
other regulatory boards throughout the State.

And we continue to find innovative ways to combat
climate change. And I would just preference with this,
we're doing it right. Let's not stop getting this thing
right.

Thank you.

CHAIR NICHOLS: Thank you. I'd like to comment
at this moment that we are up to 74 people who have signed
up to witness to speak. That may be more people than are
in the room actually. But in all seriousness, I want to
cutoff sign-ups in the next five minutes. We're not going
to prevent you from speaking. But if you think you might
be speaking and you haven't come and given your name,
please do so, because we really need to know that there's
a line here.

Okay. Thank you very much.

MS. FOWLER: May I?

Good afternoon, Madam Chair and members. My name
is Carolyn Fowler. I'm vice chair of the California
Democratic Party Women's Caucus. I'm also a senior
assembly member for the California Senior Legislature.

Our bodies have been watching this issue, and we have supported AB 398 in total -- totality. However, our concerns now are around containment.

One in five women, single and older, live below the poverty level, while another 32 percent have incomes higher. Yet, they are still unable to meet their basic living expenses. And this is particularly true for older women of color, black and Latino, and they're facing currently economic insecurity.

They have the greatest risk of poverty with over 60 percent, as I said, being women of color. When adding the number of older Californians at the sublevel poverty rate, with the number of hidden poor, nearly 40 percent of the Californians age 65 plus have a substandard income level, and are on fixed income.

California's direct care workers predominantly women again, including certified nurses, home health aids, and personal care aids are responsible for 70 to 80 percent of the paid hands-on care for older adults, and are among the lowest paid of all U.S. workers. And approximately 45 percent of these workers are in households earning below 200 percent of the federal poverty level.

Now, this data is not hidden. You can check the
Commission on the Status of Women, Justice in Aging, the Kaiser Foundation, California Commission on Aging. As a contractor, I work with the SLATE-Z in Los Angeles, the federal zone and -- in metro L.A. to create awareness just for our students alone in understanding the discount programs that are available to get to and from school.

However, understanding that, and recognizing that, there are right in LAUSD 16,000 homeless students, and 10,000 students that are foster care. So your current proposed pricing plan would be detrimental to many of these groups from employment and a residential perspective.

I respectively[SIC] ask the Board to reject the proposed pricing level, and support the legislation's request, which initially was in support of AB 398, but watching the costs and the impact that it would have on the residential and consumers, I should say, just as -- as alone.

Additionally, we're trying to build a strong middle class. And as I gave you these statistics, clearly you can understand even $0.10 more almost is going to be a major impact and a deficit to them. So hopefully, Madam Chair, I've identified some real-world concerns for you in the community.

Thank you so much.
CHAIR NICHOLS: Thank you. You're allowed to use the word "real world", if you were listening to me before.

MS. FOWLER: Oh, good.

(Laughter.)

CHAIR NICHOLS: It's okay for you. It's just us. I want to express a little frustration. And it's not with you. It's with the way this issue has been presented. And I'm going to ask -- I am going to ask that we put the chart back up that shows what we anticipate the price is actually going to be, as opposed to this issue about the ceiling on the price, because I think there -- I don't know if there's confusion. But to me, this argument about the price ceiling is a little bit, I won't say irrelevant, but maybe it is a little bit irrelevant, in the sense that we were required to put a price ceiling out there, because there was a fear that there could be some occasion in which there would be a runaway increase in the price of allowances.

That is not the intent of the program, and it is not what we actually believe is going to happen under the program. That's the part that I'm finding frustrating. And --

MS. FOWLER: I think it would be helpful, MadamC Chair, then if maybe -- the reports that most people see is that it could escalate as much as a dollar more or more
per gallon. And so --

CHAIR NICHOLS: I've seen that same data myself.

MS. FOWLER: Oh, okay.

CHAIR NICHOLS: And so will this --

MS. FOWLER: Is that not true?

CHAIR NICHOLS: Does this help maybe?

VICE CHAIR BERG: She asked if it wasn't true, the dollar amount?

CHAIR NICHOLS: Yeah. No -- well, it's --

VICE CHAIR BERG: She just asked you.

CHAIR NICHOLS: I heard her, and I'm trying to give an answer.

(Laughter.)

CHAIR NICHOLS: I think the -- I think the way to answer the question is actually to refer to the chart. And I'm going to ask Rajinder to do it.

INDUSTRIAL STRATEGIES ASSISTANT DIVISION CHIEF SAHOTA: Thank you, Chair Nichols. And we do appreciate the concerns about cost containment, because we do believe AB 398 requires us to balance cost containment with the needed reductions to achieve the targets. If you look on that chart and you see the single line from 2018 to 2030, that is the floor price. That's the minimum price at which the State will sell allowances.

To date, we have been at the floor in the
program. And projections by market analysts and third
departies indicate we will be at that lower line through the
next decade -- into the next decade.

The number that you're quoting, the $1.09 is
really predicated on a worst case scenario, which is that
top green line, which ends at about $94 in 2030. So
what's happened here is the reality is prices are going to
be along that lower line. We've seen that historically.
We know the projections are there. And that's what we
expect to see. Even the secondary market is pricing
products at that lower line.

But folks who would like to see a further
diminished role for this program have taken it upon
themselves to look at the worst case scenario and project
that as the price of the program. And that is not the
expected price of the program.

CHAIR NICHOLS: So the $1.09 is a 2030 --

INDUSTRIAL STRATEGIES ASSISTANT DIVISION CHIEF
SAHOTA: That's right. It's a 2030 --
CHAIR NICHOLS: -- number. In 2030, I hope to be
a live in 2030.

INDUSTRIAL STRATEGIES ASSISTANT DIVISION CHIEF
SAHOTA: -- worst case scenario.

(Laughter.)
CHAIR NICHOLS: No. No guarantees. But the
price of gasoline could be a $1.09 more. But more importantly, I think is the fact that that is the worst case. So that's why I want -- I want to answer your question honestly, because I can't guarantee you to this day at this moment that it couldn't happen. But everything that we know says it's not going to happen.

And if we saw ourselves getting close to that level, we would be doing something about it. And we'd be doing it sooner rather than later. We wouldn't be waiting around until 2030. We'd be doing something in, you know, 2020.

So I just feel like this is a -- maybe has been an issue that has caught people's attention because they took a number out of context somehow. And obviously, I understand why they would be concerned. But I do want to really thank you for coming and for being willing to stand up there and engage with me on this issue, because I think it's important that we try to get the word out as well, if we can.

MS. FOWLER: Thank you.
CHAIR NICHOLS: Thank you.
BOARD MEMBER GIOIA: Can I make -- can I also make comment?
CHAIR NICHOLS: Yes, sir.
BOARD MEMBER GIOIA: I appreciate that you
pointed that out, Chair Nichols, because, you know, that you're identifying a worst case scenario. I do have to observe I find it interesting that we are not seeing public outrage or public comment on what, you know, Severin Borenstein has identified in many -- many of his writings about the mysterious increase of -- in terms of the price of gasoline in California compared to other states, this differential. And there's been an attempt by the legislature to try to investigate this further, and there's been some pushback by industry from doing that.

And so no one seems to complain about the need to investigate this -- this differential in price of gasoline. And, you know, we can have our staff comment about it, or having experienced this that when a refinery experiences an accident and closes down, or ramps down temporarily, that the price of gas goes up substantially.

So these are two things that aren't speculative. They're two things that have happened. And between both of those, that's -- at various times, we've seen dramatic increases of $0.25 to $0.50 a gallon from a combination of both of those things happening at the same time.

So I just thought I'd make an observation about that. And because I know, frankly, that a lot of this -- this effort about talking about a potential worst case scenario has been sort of -- the information sort of
originates back with many in industry who are sort of publishing reports on that.

CHAIR NICHOLS: All right. Back to the list here.

We're up to number 34, which isn't even halfway through the list of people who signed up. So we've got to move along.

Marcus Gomez I believe is next?

MR. LOPEZ: Madam Chair, I'm going to acknowledge my Senator, the Honorable Dean Florez. He's a brother. He was my Senator for many, many years, and it's really an honor to see him here today.

Madam Chair, I am the Mayor of the City of Orange Cove, 34 years Mayor of the City of Orange Cove, and I'm also Chairman of the Latino Elected Officials in the Central Valley. We represent the lowest income people in the State of California, farmworkers, but we're proud. We're proud.

But we're here to make sure that we speak on their behalf, that poverty, if -- extremely high in Bakersfield to Fresno. We're highest in the State of California, and we are disadvantaged communities, okay? But we are hard workers, and our people work hard, and we just want to be able to get a fair deal out of this.

We're concerned that any increase in -- for
example, some of the farm workers travel 60 miles, 70 miles to go work from Orange Cove to Mendota to go pick melons, okay? That is outrageous and it's real costly, when you're dealing with farm workers that are in poverty. But you know what, they're proud farm workers, and they go out and work every day when there is work. They work on a seasonal basis, the lowest wages that you can ever imagine. But you know what, we're still proud and we keep working. We are the food basket of the world, and people don't recognize that.

If you increase the food who's going to pay for it? The people. The people will pay for it.

So this is why I'm here asking the Board to please -- and I'm glad to hear the Chairman say that there's misinformation. I'm glad to hear that. And I'm hoping that it is -- that is the cause, because we are concerned that the well-being of the citizens of our community are really concerned. And we are concerned that -- a lot of people don't know, but we're having to pass taxes for law enforcement in the small rural cities, because we're losing our police departments.

Poverty -- I know. I'm the chairman. There's a lot of poverty in the cities in Fresno County. But you know what, we still want protection, so we tax ourselves, you know, for police protection.
So again, Madam Chairman, on behalf of the citizens we serve, especially the farm workers and all of our communities, we thank you. And God bless you. And I hope that you consider my statement.

Thank you, ma'am.

MR. SWARTHOUT: Good afternoon. My name is Patrick Swarthout with the Great Coachella Valley Chamber of Commerce. I believe that was Victor Lopez. I'm not sure what happened to Marcus Gomez.

But I just wanted to -- I wanted to -- I'm here representing the greater Coachella Valley Chamber of Commerce with its 13 -- with its over 1,300 members in the Coachella Valley. And I do want to recognize our Assembly Member Eduardo Garcia, and thank him for his leadership representing the Coachella Valley here in Sacramento. He's done an incredible job. And after the election, I know he'll be there for at least another two years. Hopefully, a lot longer than that.

Please consider our opposition for the proposed price ceiling. Even though we realize that this is a worst case scenario, we always know that in California, worst case scenarios seem to happen more often than they should. And so we -- we would take that as a part of the Board's proposal today to oppose the ceiling.

Our business community in the Coachella Valley,
like other communities throughout Coachella -- throughout California depend on affordable energy in order to sustain jobs. As we all know, the cost of doing business in California continues to escalate, which makes it harder for our businesses to grow and pay good wages. It is important to promote an environment that supports small businesses owners and entrepreneurs instead of continuing to burden them.

We already know that California consumers pay 49 percent more than the national average for their utility bills. Our members cannot afford higher fuel and energy costs. We feel the lawmakers' intention is that your Board needs to avoid adverse impacts to our residents, households, businesses, and not create excessive costs that will hurt the state's economy.

I ask your Board respectfully to reject the proposed high ceiling, which would result in devastating effects on our small business community that rely on economic activity.

Thank you.

MR. ALONZO: Good afternoon, Madam Vice Chair and members. My name is Nathan Alonzo. I am the Vice President of Government Affairs for the Fresno Chamber of Commerce. Our organization was also in support of the cap-and-trade extension.
I'm here this afternoon to speak in opposition and of concern with the proposed price ceiling before you for consideration here today. Our 1,200 members and the 77,000 jobs that they provide in California's Central Valley represent a beautiful mosaic of mom-and-pop shops, small family-owned businesses, immigrant-owned businesses, and women-owned businesses. Over two-thirds of our members have less than 10 employees with many of those being people who have just started their business and are grasping at the American dream.

I say all that to emphasize that the proposal here today will make their dreams of growing their business or surviving that much more unlikely.

In our home region, businesses owners pay more in energy costs and in transportation costs than near any other region in California. We have hotter and colder weather. We drive longer distances for daily necessities. And we drive more than anyone else.

Higher prices will devastate our business community and our families. This possible increase in fuel costs will force thousands of more families to make the choice that too many already have to make between fueling up to go to work or putting food in the fridge for them and their kids.

This will force a business owner trying to make
payroll, while balancing rising costs in products question whether or not it makes sense to go forward. We already pay, as one of my colleagues said, 49 percent more in utility costs than the national average. And because of this, consumers are hurt all the way down the line.

Let's not make it harder for business to stay in business. Let's not hurt employees and families. Let's consider our friends and neighbors in California's Central Valley who can't afford this.

I please ask that you reject this proposal and take our statement into consideration.

MR. PARRA: Good afternoon, Madam Chair and members. I, too, would like to acknowledge my former senator, Mr. Dean Florez. My name is Daniel Parra, and I'm a Council Member for the City of Fowler. Fowler is a small city located in Fresno County with over -- with 6,000 residents. Over 60 percent are Latino. Our home is just small families, small businesses, and agriculture. I am here because the pricing proposal before you today will hurt my community.

CARB's proposal is not what the legislature envisioned when they came together from both sides of the aisle to pass AB 398. The language in the bill directed CARB to establish a ceiling on the price of allowances to avoid adverse impacts on residents, households,
businesses, and the state's economy. This proposal will
definitely cause adverse impacts on my community.

Our residents cannot forward such an increase in
ergy and fuel costs. I ask that you take our residents
into account when you cast your vote today and urge you to
follow the directive set forth by the legislature.

Thank you for your time and consideration.

MR. GURIATO: Good afternoon, Madam Chair and
members of the Board. My name is Maria Guriato. And I'm
a former City Council Member from the City of Salinas and
also Mayor Pro Tem.

I right now am representing the Latino Seaside
Merchants Association. I'm here today to voice our strong
opposition to the proposed price ceiling in CARB's
proposal. The Latino Seaside Merchants Association
represent Latino businesses in the tri-county area, San
Benito, Monterey, and Santa Cruz County.

Our business community depends on affordable
energy in order to sustain jobs that pay good wages, offer
products and services at reasonable prices, and promotes
an environment that supports small business owners and
their employees.

We are concerned about the harm to our members if
the cost of electricity, gas, and diesel dramatically
escalate. These excessive costs will hurt our suppliers
and consumers. With the increase of costs, our suppliers will be forced to increase their costs, which in turn affects the employees. Our businesses and consumers cannot afford higher fuel and energy costs.

We have situations where we have -- as some of the other groups have mentioned, we have our employees and our businesses that are commuting. They're going three to four hours to another location, and sometimes they're piled up in a car or in a van, and they're -- you know, they're basically pooling their resources to be able to get to their jobs.

If you increase that more, and they haven't received any type of wage increase, what happens is then they really are impacted and it's a detriment to their family.

Additionally, growing costs under this proposal makes it more difficult for businesses to maintain good wages for their employees. Unaffordable operational expenses that can't be avoided will likely result in pay raises -- pay raises getting deferred, new hires getting put off, or even workers losing their jobs.

I ask the Board respectfully to reject the proposed price ceiling, which would only make it harder for these employers to sustain good-paying jobs and not have our economy threatened.
I also ask that we consider what's happening around us today. We are having a disastrous fire in California in two locations. And all those vehicles that are commuting, the fire trucks, the supplies, the sheriffs, the paramedics and all that, they're making round trips. They're going across. They're help -- they're coming in from other areas. You can only imagine how much more the cost will be if they're -- the fuel costs are increased.

I also want to ensure that you're aware that the central coast at the seaside merchants -- Latino merchants represent is predominantly the agriculture and hospitality industry. And the agriculture out of the Salinas Valley, which is known as the salad bowl of the world, is the second largest in the United States. And they're dependent on transportation, and they're dependent on the fuel, and all their equipment and machinery.

And, you know, when you look at it, it's not just the employee. It just keeps on going up till it gets to the consumer. So again, I thank you very much for listening to us, and I hope that you'll take this all into deep consideration.

MS. WILLIAMS: Good afternoon, Chair and the Board. My name is Vivian Williams, and I represent National Action Network of Los Angeles. And I, too, am
concerned about the rise in the cost of gas and electricity for my community in South Central Los Angeles as we cannot afford the cost increase. And I ask the Committee to be mindful and considerate of my neighbors, as we would have to decide which bill to pay, gas or electric, if you make the decision to increase the cost of gas and electricity.

I ask the Board to be considerate as the working class for we just can't afford it. I'm a part of that group. If the cost jumps the way that we've been told, just couldn't afford it. We have to pay for gas. That price goes up. Electricity goes up. The cost to ride the train goes up. Take the train and the bus in order to get to work and then to get back home.

That's an increase, and we would like -- I would like for you to be considerate of us the citizens.

Thank you.

VICE CHAIR BERG: So if I could -- if I could just ask if you see your name coming up, the next two, if you could make your way down, because we still have quite a few people, and we want to make sure to hear from everybody and not have to cut the time. Thank you.

MR. NICHOLS: Thank you. My name is Jarron Nichols. I'm here on behalf the Ministers Convention and the National Action Network and also the NAACP for
Compton. I came to speak on behalf of all Los Angelans.

I saw that my aunt Mary Nichols was on the Board, so I had to definitely come and speak.

(Laughter.)

MR. NICHOLS: She said something today that I wanted to speak on behalf of, the worst case scenario.
The worst case scenario. Someone who has never ran for political office in the United States of America is elected to the highest elected office in the United States of America.

(Applause.)

MR. NICHOLS: Today, I believe a lot of people in this room are protecting the worst case scenario. For us, gas prices for middle class people, people of lower than middle class, it affects us directly and indirectly, whether we want to admit or we don't want to admit it. In the famous words of Muhammad Ali, "Don't count the days. Make the days count".

I would say today, for us, don't count the dollars, but make our dollars count that we've already spent. For us, in Los Angeles, I also work with the Black Lives Matter. But today, for me, I would say our communities matter, our gas prices matter, our economics matter. And raising our gas prices would just gash us. I would ask that this Board recycle the money that we
already have into the community programs that we have, especially for Los Angeles, Compton, Inglewood, Long Beach, anywhere inside the L.A. county area and the -- and outside of there.

It affects our communities, our youth programs. It affects everyone. I was speaking with a gentleman today that we came down here with, and -- I just found out. I didn't even know this. We don't even have -- at some L.A. Unified School Districts, we don't even have a nurse that comes to our schools every day. Some of them have to wait to get sick basically. That's Basically what you're saying. Like, you can't get sick on Monday. You've got wait till Tuesday or Wednesday. That affects us directly.

I would -- I would thank you guys for your time, and I would just ask that the monies that we have that we would allocate it directly to our communities and the programs that we have for our youth today.

Thank you.

MR. BUIE: Good afternoon. I Reverend Oliver E. Buie of Holman United Methodist Church from South Los Angeles. And I'm here to stand and speak for the community in which I represent, which is a brown community, which is deeply injured whenever there's any increase in any cost.
I'd like to take the time and thank you. And I believe that Mrs. Nichols, the Chair, has represented the truth that that was a worst case scenario. However, we are deeply concerned that if there's any increase, because it has a profound an impact on those within my community. Also, many of the people in my community are paying 50, 60 percent of their salaries just for housing. So any increase anywhere will have a profound impact on their lives or whether they eat, or even whether they have a place to live if there is an increase.

So I want us to please look at the cost and hopefully like -- like the gentleman before me had talked about the worst case scenario, it can happen. So if it does happen, I want us to be proactive -- the Board to be proactive in putting in mechanisms in place to safeguard the community and to safeguard the most vulnerable.

And I believe that each and every one of us are aware that California leads the country in the poverty rate, where there is one out five Californians living in poverty. And so as we make considerations, I think that we need to look at the people more than the corporations. We know that the large corporations have had a windfall due to the recent tax break. And so we need to give some break to the people who actually make things happen.
Also, CARB has acknowledged that the majority of the stakeholders input has indicated the importance of a reasonably low-price ceiling and appropriate placement of speed bumps to put market safeguards in place.

Nonetheless, the agency has included in its SRIA a lower range and upper range scenario of price ceiling and speed bumps that are higher than a majority of the stakeholders recommended. The stakeholders have spoken. I plead -- I stand here asking that you would hear us.

Also, Supervisor Gioia, I want to thank you for bringing up the point, because I have noticed that about if there's just an interruption, oil prices or gas prices go up 50 percent. I don't know what authority you have, but I would encourage you to make sure you look into that. And next time it happens, that something -- that there is an investigation, because many people are hurting unnecessarily. And I'd just like to take this time to thank you for letting me make a comment and encourage you to look out for the least of these.

MS. NAVARRETE: Hello.

VICE CHAIR BERG: Hi.

MS. NAVARRETE: I had in my notes that I was going to say good morning, but now good afternoon.

(Laughter.)

MS. NAVARRETE: It is a great honor for me to be
here representing our admirable chairman of the board, Dr. Ruben Guerra and the Latino Business Association.

The Latino Business Association is consistently committed to better serve and rightfully represent Latino businesses and its communities throughout the state of California since 1976, and today is no exception.

As I was approached to speak on behalf of your -- of the Board, and understanding the -- how important it is to your mission of being able to check -- or your mission of making a difference and an impact in the environment, there's -- there's very important issues that you guys address.

And there -- it is very obvious, and I have no doubt, that the California Air Resource Board has -- has and will continue to create an impact. And, of course, we are viewing -- or we see that there -- that you have the bigger vision to help other generations and future generations.

I personally admire this, due to the fact that I have two girls. We understand more that we have to do more to reduce exposure of pollutants and improve the quality of life in California communities facing environmental and economic change, because -- and due to facing environmental economic -- the change through the CARB -- through CARB. And it's very important for us to
truly understand the decisions that you guys make.

As -- but as we further analyzed this situation, we have concluded that despite your higher purpose of prioritizing environmental justice, using the amendment to do so really is not the way to motivate. In fact, it's the way to shun the possibilities of communities positively viewing your higher objective, and engage, and collaborate with CARB.

This is why we respectfully ask you to consider our strong opposition to the proposed price ceiling this Board is doing.

VICE CHAIR BERG: Thank you.

MR. ADAMS: Good afternoon to Madam Chair Nichols in her absence and to the Board. It is stated up there that my government name Lovester Adams. But I stand before you not only as Lovester Adams, but I stand as a member of the clergy. I stand here as Bishop Lovester Adams today on behalf of my great church that the God has allowed me to pastor in this particular season, in South Central Los Angeles, as well as holding a position on the patriarchal council of United Christian Communion, who also entitles me the opportunity and affords me the opportunity to make various decisions that could also impact our surrounding communities at large.

As well as currently holding a position as the
recorded secretary for the Baptist Ministers Conference of
Los Angeles and vicinity, which holds over 300 various
pastors from around -- from the surrounding communities at
large.

We've heard a lot of talk today as it relates to
the CARB, and dealt with the worst case scenario. We've
heard that a lot today as it relates to the worst case
scenario. And if we get to the worst case scenario, are
we prepared for the worst case scenario to -- we have a
safety net and place to safeguard us.

I would like to say that the Board's proposal
that's going to take place could worsen -- could worse the
cost of all Californians, especially on the -- of the
seven million California families already struggling just
to get by on a day-to-day basis.

ZEV subsidies aren't going to communities of
color, minorities. They're areas with the highest
concentration of solar panels or wealthy suburban. Many
low income Californians can't afford to live near their
places of work simply because the cost of housing is
simply too high and we cannot afford it.

Increasing transportation costs will affect them
the most, simply because they can't afford to live near
their work place. In my community alone -- my community
alone that I see every day, there are people who are
simply struggling on a day-to-day basis. We're feeding. We're housing. We're doing the best that we can. But if things are constantly increased, it takes a great impact and affect on the surrounding communities at large.

I would say to you today, and I urge you to take steps that will contain costs and meet our environmental goals, not simply to raise the price, because if we hit it and the refinery said the pump is going to hit it, the station owners are going to hit it, and we're going to hit it, and we're going to feel it hard into our pockets.

Thank you for your time

VICE CHAIR BERG: Thank you.

MR. WILSON: Good afternoon, Chair and Board. Thank you for this time to speak to you on the matter which is at hand. Today, I'm here to represent the Baptist Ministers Conference of Los Angeles under the leadership of Dr. Lee Arthur Kessee, who serves as our President. I, as well, serve as a Treasurer of that fine Conference. And I normally would not get involved with such issues of politics.

However, I also pastor a group of people who will be well deeply affected if gas prices rises higher than they already are. I've heard several times about worst case scenario. As far as I'm concerned, we already are in worst case scenarios.
I don't know if this is allowed, but the Bible says when the galley are an authority, the people rejoice. But when the wicked are in power, they groan.

And I want to just share that the church in which I pastor, Solid Rock Mission Church in the City of Compton, Compton is a very poverty type community. Things are already bad in that community, really bad in that community. Even on Wednesday nights, out of my own pocket, I make sure the community -- streets surrounding my community is fed, because things are that bad. That diabolical around that city.

And I would just say please consider that these gas prices, if they go up, everything goes up, crime goes up, and everything else goes up.

Thank you so much for this time.

VICE CHAIR BERG: Thank you.

Good afternoon.

MR. LEWIS: Good afternoon. My name is Pastor Prentiss Lewis, and I pastor in the City of Los Angeles, a church called Greater Starlight Baptist Church. I stand here representing that particular church, but also serve with the Progressive Baptists State Convention, where I once served as president. And now I am Quality of Life Minister. What we seek to do is do what we can to encourage a better quality of life in our community, and
surrounding community.

Let me just say quickly thank you, Chair and thank you, Board for hearing us today. I think we're all aware of the fact that we have to aggressively address the climate change. And listen, I'm the one that realizes that in order to do that, there are certain prices that we must pay.

I want to also say that I commend you and your work. But those costs ought not be paid disproportionately by communities of color, and low-income Californians who can't even afford some creature comforts.

The church where I minister I watch broken people. And these people are broken, because sometimes they have to choose between -- between a meal and a ride to work.

The reality is they don't work in the area that they live. And because of that, they have to -- you know, they have to travel that distance. And it has become so bad in our community that they're losing their jobs. And they're losing their jobs, because they can't get to work.

All I would encourage you to do is to recognize that reality. And in recognizing that reality, act appropriately. Even as you now, you know, decide on this very issue.

So that's basically what I have to say. I think continually of the people that I serve. And my greatest
desire is to see their quality of life better each day.
Thank you so much.

VICE CHAIR BERG: Thank you.

MR. MOSELY: Madam Chair and distinguished members of this great body of leadership. Good afternoon.

We live in what is considered the Golden State. However, I'm concerned about how golden it is as it relates to is it because of the economic welfare and policies or is it because of the golden cloud that hovers over our communities, because of the increasing amount of pollution. Pollution that greatly affects our communities, disappropriated number of our youth, asthmatic, can't breathe.

And is already stated, if a parent has to make a choice, because there's not a nurse in a LAUSD school, you have to ask the question, if the child gets sick on the day that there's no nurse, that parent has to leave their job that they're already struggling. Many parents are working multiple jobs because of the downsizing of the work days.

Some parents now multiple jobs because they've been taken from a 40-hour week because employers don't want to pay for health care. Some working 28 hours and have to go back and do another job. They have to use public transportation in order to get to work, go through
I'm Part of the National Action Network Los Angeles Chapter. And I sit and watch them walk to school with their children, get on a bus to go to work, to leave work early, to come back and get their child or their children to take them home. Hopefully, there's something to eat, because they've been enough hours they've accumulated in order to feed them.

Murphy's law says whatever can go wrong will go wrong. And I understand what was said and what was stated as it relates to potential possibilities. But if it can go wrong, it will go wrong.

And I'm thankful again for looking at what our supervisor here said, whenever there's a problem in El Segundo about the gas, refineries shutting down, it hits us first. Our communities become a premier target for price increase.

Everything is going up, and even though they're moving toward $15 an hour, that's really not a substantial amount of money, if you're only working 20 hours a week.

Thank you so very much for this time.

VICE CHAIR BERG: Thank you.

MR. SARAGOSA: Good afternoon, Vice Chair Berg, Board members. My name is Michael Saragosa. I'm a Council Member in the City of Placerville. I ask you
today to consider rejecting the price ceiling that is recommended in the staff proposal, and adopt the one that is more in line with the bipartisan agreement in AB 398.

I know our residents, businesses, and our local economy will feel the negative effects of increased energy cost, whether it's directly to refuel energy purchases or indirectly in the cost of goods and services.

Our local economy is driven a lot by tourism. I know a lot of other cities around the state it's the same way. Significant increase in the price of fuel will have negative consequences on our local businesses and workers who rely on a healthy tourism presence.

Unlike other cities in the State coastal areas, our local economy is still recovering from the Great Recession. We do not want to take a step backwards.

AB 398 represented a significant victor for the environment and for all Californians and it received bipartisan support, as it should have. The expectation was that the regulatory process should avoid adverse impacts. I believe this current price ceiling proposal falls short of that expectation.

You know, I also get to work with communities of color throughout the state. And I can tell you there's not a lot of Teslas in Compton. In Orange Cove, there's not a lot of plug-in stations to do that or solar panels
These proposals will have real-life consequences for people of color, people in low-income communities. I don't believe that it's alarmist for them to be here, and to talk about those real-life consequences.

And so I ask you to consider adopt a price ceiling that is in line with both the language and spirit of AB 398.

Thank you.

VICE CHAIR BERG: Thank you.

MS. SOLORIO: Good afternoon. Anna Solorio, Community Housing Opportunities Corporation. First of all, thank you -- thank you, Board -- and hi, Phil -- for the opportunity to speak today.

So we are a nonprofit. We've been around for about 30 years. We own and manage affordable housing. We're also developers. We also run a energy program and we have been a recipient of LIWP funds. And we're able to do some really major upgrades to homes in West Sacramento and Pinole -- excuse me, Pittsburg, where we did -- using cap-and-trade funds. So just want to shout-out for that and acknowledge that. We were be able to put solar -- solar panels on homes. We were able to do major upgrades to homes, that we couldn't normally do through our other energy programs. So good on that. Really positive.
Totally support that.

So -- but I do need to acknowledge that we're very -- because we track the housing industry, we're very aware and sensitive about cost to housing. We are still -- we are in a high housing crisis. There is a huge lack of affordable housing rentals and ownership. So for example in my county, Solano, even though CHOC has -- is in around five or six different counties. But in Solano specifically, you know, a large amount of money is coming into that county, as well as the Bay Area, as well as the State and through REITS to buy and purchase multi-family complexes, to do minor upgrades, a lot of the time using public purpose funds, and then doubling and tripling the rents

So we continue to have a housing crisis and will continue to do so, unless there's some dramatic -- beyond your role, dramatic changes in policy. But just want to point out your policy has a very detrimental effect on the cost of housing.

I can go into more detail, but I'm not going to use my last minute. Just to say, unfortunately, talks have broken down between -- we belong the 200, between your staff, that we were not able to come to a compromise or reasonable accommodation. So we filed a lawsuit. And because of discrimina -- we believe discriminatory
practices that these regulations have on low income, especially peoples of color.

So I want to invite everyone who has not been heard or doesn't believe they're going to be heard join us in our lawsuit. This superior court just acknowledged that our suit has merit and is advancing our suit through the court system.

So we would love to work with you to come to a reasonable accommodation. Again, if people here in the room feel that we're not going to be heard, or this report is not going to address some of our real-life concerns, the court is an alternative.

So thank you for the opportunity to speak.

MR. HALLENBERG: Good afternoon, Board members. My name is Ryan Hallenberg. And I'm had on behalf of the Valley Industry and Commerce Association, which represents over 400 businesses and non-profits in the San Fernando Valley and greater Los Angeles area.

I am here to voice our strong opposition the proposed price ceiling that is being considered by the Board today. The legislature provided a clear outline for what they wanted the Cap-and-Trade Program to be. At the heart of the design, there are cost containment features, such as a price ceiling that places a limit on the price allowance -- of allowances, as well as two speed bumps
which triggered the sale of additional allowances in order to reduce market volatility.

The proposed price ceiling misses that mark. The legislature fully intended the price ceiling and speed bumps to serve as safeguards that provide cost containment. If these are set too high, these will be ineffective in reducing market volatility. As a business organization, we aren't opposed to cleaner air or a healthier environment. However, we do become anxious when policies are introduced that aim to improve air quality but risk increasing the cost to do business here in California.

California is already one of the most expensive states to run a business. Business here pay more on their utilities than the national average. And the gap between California and the rest of the nation is only getting worse.

Under this proposal, increased costs will make it more difficult to do business in California. Rising operational costs will likely result in delayed pay raises, reduce hiring, and even people losing their jobs.

The new pricing structure needs to protect consumers, businesses, and the economy against any adverse impacts. I respectfully implore you to establish a lower price ceiling. As currently configured, this ceiling will
only put our economy at unnecessary risk.

Thank you for your time.

MR. SCOTT: Okay. Good afternoon, Madam Chair, in absence and to the Board. I'm Will Scott, Junior. I'm a farmer. I'm also the current President of the African-American Farmers of California.

But first, I would like to thank the Board for the opportunity that you have provided for me, the incentive programs you have as far as purchasing a tractor incentive program. Without that program, I would not have been able to purchase a new tractor.

And I would also like to have this opportunity extended to the other small farmers -- continued to the other small farmers. They need the opportunity also to upgrade their tractors, so they can participate in this clean air business.

I feel that if the cost to purchase credits sky rockets, it will mean less credit to purchase and less funding for farmers to upgrade their equipment. I don't use pesticides on my crops, and I farm sustainable. When I go to farmers market, I'll also teach them how to eat the, you know, health food.

So that's one of the benefits of being a small farmer. I -- also, I want a clean environment to live in, not only into the underserved areas, but also throughout
What I'm asking you to please consider is the consequences of setting the cost of carbon credits too high on small farmers like myself who want to do the right thing. But absent the investment of incentives to upgrade equipment, many small farmers will be -- will have to shut down, and they would have to sell their property to big ag business.

And as you know, small farmers is an asset, not only to this community, but also to this civilization. If you look at the United States, the United States was started by small farmers. You know, we -- they advance on us. And I think that, you know, in order for us to get young people into it, I think that avenue should still be there. We should sustain it. Because when I ask the Board too to think about the collateral damage that will be done to the least of us, you know, if consideration isn't sent forward.

That's probably all I have to do, but I thank the Board for what you're doing. But I think that not only do we have to breathe, but we have to eat in order to live in this civilization. So I think you for this opportunity to stand before you. I thank you for your time also. And I ask you in advance to take some consideration about the collateral damage that you may do to the least of us.
Thank you.

MR. CHAVEZ: Good afternoon, members of the Board and staff. My name is Ron Chavez. And I am the Director of Community Development for California Community Builders. And I'm here comment on CARB's scoping plan.

Our focus is to close the ratio wealth gap through homeownership. Following the Great Recession and recent housing crisis, the racial wealth gap is at its largest since the Great Depression.

Several years ago, we started The Two Hundred Project. Our plan was to organize 100 community leaders across the state with a series of mini-conferences aimed at developing and understanding of the obstacles to homeownership.

Today, The Two Hundred represents a coalition of over 800 community leaders, which now includes YIMBYs, millennials, and students. And our plan now is to organize -- to include student -- senior citizens.

The Two Hundred Project is led by a leadership council composed of esteemed community leaders that have a long history of defending the civil rights of marginalized communities.

Founding members were the Honorable Cruz Reynoso, the first Latino State Supreme Court Justice; Joe Coto a former State Assemblyman, and former Chair of the Latino
Caucus; John Gamboa who has been a champion of civil rights for many years; and Herman Gallegos who was a founding founder of the National Council of La Raza with over 50 years of activism. The Council includes leaders from throughout the State, and is committed to social equity. 

As you know, and have heard, The Two Hundred sued CARB because we believe the scoping plan will disproportionately negatively impact communities of color. What you may not know is that The Two Hundred is deeply concerned about the future. It is not naive about GHG and the effect on global warming.

Like GHG scientists, The Two Hundred relies on facts. California is now a majority minority State. And the future economy will rely on people of color. They are our seed corn. They will pay the taxes and fund entitlements for retiring Baby Boomers. Latinos are the majority of California's K through 12 students. Ninety-five percent of California Latino youth under 18 are native born. Latino youth under 20 make up more than half of the California's population under the age of 200. The Two Hundred understands that public policy cannot be made in a vacuum. Past public policies like redlining denied people of color the opportunity to buy a home and accumulate wealth. This is at the core of
today's racial wealth gap.

Between 1934 and 1962 the federal government issued $120 billion in FHA and VA loans, of which 98 percent went to white families, and only two percent went to African-American and other minorities. This policy created the largest middle class in the world, and a legacy of wealth to pass on. It is also institutionalized housing segregation ghettos, which results in negative health outcomes, health levels of -- high levels of stress, diabetes, high blood pressure and lower life expectancies, inferior school systems, higher crime rates. Home ownership is tried and true path to success and well-being in society. Policies that increase the cost of housing like net zero and prices that increase commute costs --

VICE CHAIR BERG: Mr. Chavez, your time is up. Could you just give us a summary sentence, please?

MR. CHAVEZ: Policies to reduce GHG must not -- must equitably spread the burden and not further penalize those that have been historically marginalized.

Thank you.

VICE CHAIR BERG: Thank you.

MR. GARCIA: Good afternoon, Madam Chair and Board members. My name is Juan Garcia and I'm the owner of PG Cutting Services in Lake Elsinore. It's a concrete...
cutting company and hard demolition.

I came here today to voice my opposition for the proposed price ceiling that is part of the Board's proposal. Let me clarify. I understand that there might be been a little bit of misconception. I appreciate the clarification, but I came all the way from Riverside County, so I'm still going to speak.

We're a family-owned and -operated business that works with concrete cutting and drilling projects that range from small residential to large capital improvement projects, such as LAX. We have 23 employees. As a small business in Riverside County, we run a tight budget. I need as much certainty as possible with outside costs, including energy and fuel. Our energy costs are some of the highest in the nation.

By increasing energy and fuel costs to businesses, we will have to look for ways to pass out -- pass on added expenses, either by raising our prices or reduce or workforce.

In 2008, I almost had to close the doors because diesel was $5.49 a gallon. I don't want to get anywhere near that anymore.

We all want cleaner air, I agree. And I'm doing my part, because ever since this started, I have had to upgrade my equipment from tier 2 to tier 3, tier 3 flex to
now tier 4, and tier 4 final, et cetera.

I -- these machines now have to have more filters and sensors to burn cleaner, and they're less reliable. Even the manufacturers can't keep up with giving us what we need. So now I have to have three machines instead of two machines, so I can have backups. So we're already being impacted. And we appreciate what the Board is doing for a better environment, but I would say at whose expense?

I respectfully ask for you to reevaluate your proposal. We need a price ceiling that does not punish California's small businesses and consumers. Thank you for your consideration.

VICE CHAIR BERG: And thank you for coming, Mr. Garcia.

MR. GARCIA: Thank you.

MS. BECKSTEAD: Good afternoon, Vice Chair -- Vice Chairwoman Berg, Board, and staff. Thank you for the opportunity to provide comments. My name is Christina Beckstead, and I am the Executive Director of the Madera County Farm Bureau.

And I am here today not only on behalf of the members in Madera County, but also on behalf of my counterparts in Merced and Kings County.

I'd like to echo the remarks made earlier today
by our fellow industry partners and representatives and
those to come, but would like to emphasize the concern on
the price ceiling.

We are concerned that the Legislature's direction
is being ignored, and that the proposed program will
dramatically increase the cost of consumer goods to
Californians. As presented, we believe that the proposed
price ceiling would fail entirely at its statutory purpose
of controlling costs that are placed on households,
businesses, and the overall economy.

Agriculture and its related industries, including
manufacturing and processing, employs tens of thousands of
Californians who depend on agriculture for their jobs and
wages, whether they work on the farm, in its supply chain,
or at the neighborhood grocer. Higher costs will force
many to make difficult decisions for their businesses and
employees, as they try to find ways to continue to push
forward to provide food not only to California, but to the
nation and the world.

Higher costs already affect our ability to
compete nationally, and directly impact hiring and wage
decisions made for employees. Higher energy costs that
will result from this price ceiling will only make this
problem worse.

Please keep in mind that these additional
operational expenses are all factored into the prices everyone pays at the grocery stores, restaurants, and anywhere else they buy California grown food. If you increase one of these costs, you increase the price of food.

If the Board decides on a path that does not contain -- that does not contain costs, it would make it more expensive to grow, ship, process, and store food impacting millions with higher food prices. This would especially hurt low income families for whom healthy groceries are a major expense.

We believe that a balance that reduces greenhouse gas emissions while containing costs is a way to protect this industry and create more sustainable environment. Our members are stewards of the land who do everything to not only be efficient but sustainable.

We thank you -- we thank the staff for their time and efforts.

Thank you.

MR. AGUYO: Good afternoon, Board members and staff. My name is Peter Aguyo here on behalf of Nisei Farmers League. Our President, Manuel Cunha, isn't able to be here. He is currently at the San Joaquin Valley Air Pollution Control District to support the PM2.5 plan.

Our organization, which represents over 400
farmers and packers, large and small, who employ thousands of farm workers also supported AB 398 to improve the air quality of the Central Valley. Our farmers received incentive funding for cap and trade that allowed them to remove old tractors and trucks, and replace them with equipment that produce significantly less emissions.

However, we worry that if projections aren't correct, and the amount reaches the price ceiling, it would decrease the purchases of credit, which would reduce the amount of incentive funding, and prevent farmers from upgrading their equipment.

Our farms pay some of the highest utility rates in the country. And when you factor in the cost of fuel, many of our small forms will simply not be able to stay in business. Besides the potential loss of jobs, farmer workers travel longer distances un less fuel efficient vehicles to work. Any increase in utilities or fuel is less money for family expenses. Agricultural workers, farmers, all suffer with increased energy costs.

On behalf of the Nisei Farmers League, we urge this Board to adopt a price ceiling consistent with the bipartisan agreement contained in AB 398. Thank you for your time and consideration.

VICE CHAIR BERG: Thank you very much. So what we're going to do is we're going to hear from Mr.
Rodriguez next, and then we're going to go ahead and take a break for our court reporter, and we'll take a 15-minute break, is that okay?

THE COURT REPORTER: (Nods head.)

VICE CHAIR BERG: And so thank you, Mr. Rodriguez.

MR. RODRIGUEZ: Good afternoon, Madam Chair and members of the Board. My name is Roy Rodriguez. I'm Council Member in the City of Orange Cove. Our population is 90 percent Latino and most work in agriculture or a related field. I'm here today because the proposal before you today will harm my community. Many Central Valley communities have been left behind in the economic recovery. Our residents and farmers still struggle with the effects of the recession.

Our community wants better air quality, but we want to make sure that the costs do not dramatically increase and cost and even greater hardship on our residents. I want to repeat that last statement, because it's important.

Please do not pass a price ceiling that will increase cost of credits to the point where no one can afford to purchase them, therefore closing businesses, increased job loss, and energy costs. This type of help is not what my community needs or wants. Let's work
together to fix our air and environment, but in a way that it doesn't hurt our community in the process.

Thank you very much.

VICE CHAIR BERG: Thank you, sir. So we're going to take a break. And we're going to start back sharply at 2:20 -- 2:20.

Thank you.

(Off record: 2:04 p.m.)

(Thereupon a recess was taken.)

(On record: 2:19 p.m.)

VICE CHAIR BERG: Am I on now?

Okay. If we can have everybody take their seats. And if we can go ahead and check to see where you are on the speaker queue. And if Mr. Hayes can kick us off for the last 20 people.

MR. HAYES: Madam Chair, distinguished members of the Board, my name is Ron Hayes. I'm the senior pastor at the Visions of Heaven Church, also Executive Director of Visions Community Outreach. We're a nonprofit organization, as well as a church in South Central Los Angeles, and right near downtown. We're maybe 20 blocks away from skid row.

The reason for mentioning that is that my job today here is just to convey a feeling to you, to the Board, to let you know the concerns. All the statistic,
all the data that is required, I'm sure the Board would --
can get all of that.

But I want you to just hear from the shepherd's
heart, or the heart of a faith leader how important it is
that our concerns be considered. We hope that you would
consider all that the inner-city, and the downtrodden, and
disenfranchised go through on a day-to-day basis.

It's important to us, as we lead this charge --
we're in the trenches, we're on the front lines, leading a
people that feels like they're disconnected,
disenfranchised. There's almost no hope. And we're there
on daily basis just leading that charge.

One of the programs -- one of the programs that
our organization provide is a food program. We have a
homeless shelter, but there is a food pantry that we have.
You should see the lines that come to our church, to our
local edifice, you know, just reaching out to get whatever
resources that they can get. It would touch your heart.
It would touch your heart.

As I said, we're just a few blocks away from, you
know, skid row downtown Los Angeles. You know, as a male
guy, you figure you have to put on your hard and your
boots and stuff to walk down there in that area. I do not
know if the Board could stand walking down in that
degradated area. It's rough. It's tough. It's people
living like you wouldn't believe. I'm sure you've seen
the picture. I know you have the data.

But, you know, I'm asking the Board at this
time -- I'm asking the Board at this time -- I'm
pleading -- I'm pleading our case. We're asking that the
Board would take into consideration all that it needs.
Every is an issue. The gas is an issue. The energy is an
issue. The housing is an issue. You know, the resources
that always, you know, seems like the good old boys get
the contracts that sort of thing. Would you consider us
in South Los Angeles, would you consider us the people
that are on skid row, would you consider the inner-city
kids that have the programs that we need. You know,
they're not in the suburban areas where, you know, they
seem to have these things that -- at their finger tips.

But we're finding -- I'm hoping that someone that
would stand with me that would champion for these people,
for these disenfranchised people that they will come and
help us. Please, help us at this time. We thank you for
your time.

VICE CHAIR BERG: So as our next speaker comes
down, again, if you could keep your eye on the list and
move down, so that when it's your turn you can pop up and
get on the mic. It really helps us out. We have another
19 speakers. It's going to be a little bit less than an
hour, and you could help us keep it to that time.

Deb.

MS. TRAVGH: I'm not Deb.

VICE CHAIR BERG: Oh. You came down. Thank you.

(Laughter.)

VICE CHAIR BERG: Melissa. Yeah, lease keep your eye on the list.

MR. TRAVGH: Good afternoon. My name is Melissa Travgh with BizFed Central Valley. BizFed includes 50 members up and down the valley. Those members collectively represent 20,000 businesses that employ more than 300,000 workers.

When the legislature extended cap and trade last year, it specifically tasked the Air Resources Board with making sure costs for carbon emission allowances would not become so high it would hurt businesses and consumers. To do -- to do that, ARB must set a ceiling price for the carbon allowances.

However, the recommendation before your Board sets the ceiling price so high, it will likely result in skyrocketing costs for carbon allowances. When businesses have to pay more, those costs are passed on to consumers, and some businesses will be driven out of California.

Californians already pay an average $0.85 more per gallon of gas than residents of other states. The
legislature increased per gallon costs by another $0.12 last year. And costs are expected to increase another $0.36 to $0.44 per gallon beyond that under ARB's enhanced Low Carbon Fuel Standard. California's families simply cannot afford more spikes. Overly high price ceilings would result in exactly what the legislature wanted to avoid in passing AB 398. BizFed Central Valley is asking the Board to reconsider the carbon allowance price ceiling at a more realistic level.

Thank you.

MS. BLATTLER: Good afternoon. My name is Tricia Stever Blattler. I'm the Executive Director for Tulare County Farm Bureau.

The Farm Bureau in Tulare County, much like Merced, Madera, and Kings counties, who had a representative speaking earlier, represents a lot of small- and medium-sized farmers and ranchers. And a lot of those farms and ranches are price takers.

We're highly dependent on export markets for many of our fresh grown products including locally in Tulare County a lot of citrus and grapes.

We compete locally, nationally, and globally with farms that are able to produce at much lower regulatory costs than those of us based here in California.
And farms are especially vulnerable to rising energy costs. The cost of doing business in California is already alarmingly high. Our operational costs must also be passed along the entire food chain that you represent in the grocery store, the wholesaler, the supplier, and the distributor.

In Tulare County, the agricultural industry directly supports approximately 25 percent of our employment base, second only to government employment. We are directly impacted anytime prices rise for food, and certainly impacting the jobs that are available in our local economy.

Indirectly, our multiplier effect in our community is additionally three more dollars for every dollar produced within agriculture. And when drought and water impacts are crippling our communities, it is difficult to leverage all of those additional costs on the backs of all of our other production inputs.

In addition to the cost that we see directly involving shipping, transportation, supply chain management, and many other costs, we also have a rather disadvantaged population in many respects. About 25 percent of our county's population relies upon the food link pantry system in Tulare County to supplement their food insecurity issues.
We know that imposing this price ceiling may largely impact and hurt some of our lowest income families, and families directly employed in agricultural positions.

We know that passing on more energy and fuel costs disproportionately impacts those low-income communities, particularly in farm communities like Tulare County. Decisions that you will make will impact jobs directly in agriculture and many outside indirect jobs, and, in general, have a significant impact on families in Tulare County and the central San Joaquin Valley.

For these reasons, I would ask you to respectfully reconsider the price ceiling. We oppose the current proposal and would ask that you seek to find a more reasonable approach to this plan.

Thank you.

MR. JONES: Good evening to the distinguished Board. I'm Reverend James R. Jones, Junior. I am the Pastor of Greater Liberty Baptist Church, but the President of Minister Alliance down in Southern California.

I thank you all for this opportunity. I do have the blessing and the burden of dealing with the least fortunate in our communities. As one of my colleagues just spoke, one of my programs is I do feed homeless, as
well as give them a shower. And to experience -- to come out and actually experience the gratefulness that meal and that shower. But some of those same folks even drive off, drive off with -- they have to borrow gas money that I give out of my own -- out of my pocket.

When we do it to the least, I'm unapologetically a Christian. The Bible tell me -- when we do it to Christ say we're doing it unto him.

I -- as the Supervisor made a statement as far as he don't see -- where he doesn't see the outrage or -- a lot of times you don't see the outrage, because there's a disconnect. Mainstream knows who don't get hurt, and don't -- but I'm here to offer not as a way of -- I believe in -- by omission of permission, that we all are responsible for the conditions of our community.

So as a way of kind of bridging the gap, I offer my services to any of you up here who want to connect or -- I can get you -- you want to see outrage, I can get you -- I can set up those town halls where you'll get that outrage.

But at the end of the day, we need to work together. And unlike the administration at the top now, we want to be able to build bridges and not walls. God bless you.

MS. WILLIAMS: My name is Rae Williams, and I'm
representing the National Action Network. Today, I want
to talk to you about not raising the electric/gas prices.

One of the reasons being is because the people
that move here are the same people that are leaving here,
and we can't even hold the people that are moving here due
to the increase in inflation.

So when we -- if you raise the gas prices, that's
going to make the economy in California less sustainable.
So we have to do what's good for the greater good of the
community.

Thank you.

MR. BLODGETT: Good afternoon. Bruce Blodgett
with the San Joaquin Farm Bureau. Members of the Board
and staff, thank you for this opportunity to provide a
little bit of input. I wanted to talk about -- a little
bit about agriculture briefly in our region. It's a $2.5
billion industry in 2017 numbers. So that was what our
farm gate value was. That isn't the value of the produce
when it hits the grocery store. That's the farm gate
value.

And when you see an agricultural industry we're
dependent on so many things. We're depending on water.
We're depending on the land obviously. We're depending on
a whole host of other things, inputs, and obviously
energy. We're extremely dependent on energy and the cost
of energy, and how that impacts us. And that's already
been covered.

But I want to talk about a couple different
commodities. Our top four commodities are dairy, walnuts,
almonds and wine grapes in some order every year. They
kind of bounce back and forth depending on prices and
yields on that given year.

Let's talk about briefly about dairy. You've had
dairy interests speak already today. In the last 10 years
we've seen exactly one dairy expand in our county. One.
We've seen no new applications for no -- there's not been
one new application for a dairy. It requires a use permit
in our county. Not one new dairy has come to our county,
and only one is expanding. We need to talk about what's
going on in the industry, because I think it's getting
lost here.

The problem that we're seeing is that there's --
nobody is looking at the cumulative impacts. I'm in a
meeting this week in this room. Last week, I was across
the hall. I could be down in Fresno at another one at
this very moment. I mean, there's always another meeting,
and nobody is looking at the cumulative impacts to
agriculture of all of these regulations and costs.

And as you look at that, dairy is the first one I
wanted to mention. Asparagus. We were the number one
asparagus growing county in the State. At one point, we had over 60,000 of asparagus. We have less than 1,000. Cumulative impact of regulations like this are the cause of that. Less than 1,000 acres. Our last big processor just went out business. Has closed doors. We have some small ones left, but it's very small at this point. That was a significant industry for us and it's gone. Old Vine Zinfandel. How many of you have seen bottles of Old Vine Zinfandel from Lodi, or the foothills, or whatever. These vines lasted more than 100 years, and they continued to produce wonderful wines. And they're now being pulled out.

It's kind of a ironic that they could make it through prohibition, but they can't live in California's regulatory climate anymore. Made it through prohibition, but can't stand -- or can't make it through California.

Walnuts. One of the fastest growing commodities in our county the last probably 10 years, in terms of acreage. A lot of people pulling old vine and planting walnuts and almonds, to be honest with you.

But you know where our newest processor is? Sparks, Nevada. Cost of doing business in California. So now our walnuts being processed, being taken, shipped, and taken to Sparks where the rest of that economic activity is taking place.
So we'd ask you to look at these things. You know, I said our crop report was 2.5 million[SIC]. It's not going to be 2.5 million[SIC] in 2018. I can already tell you that. The numbers -- farm prices are depressed right now. The farm economy is depressed right now. Rules like this certainly are not helping.

Thank you.

MR. TWIGHT: Good afternoon. My name is Cedric Twight. I represent Sierra Pacific Industries. If you don't know, Sierra Pacific Industries is a family-owned vertically integrated timber products company that owns approximately 1,645,000 acres in California. They operate ten saw mills, five cogeneration plants and some other manufacturing facilities. They support 3,450 high-paying jobs.

Sierra Pacific is also a participant in the compliance offset program as an offset project operator for improved forest management projects. As a forest offset project participant, we're encouraged and thankful that ARB is looking and taking this opportunity to make improvements in that forest offset program.

Sierra Pacific believes that the most beneficial regulatory proposal that you'll be evaluating during this process for the forest offset program comes from the California Forest Carbon Coalition, and their proposals --
their regulatory proposal for environmental health and safety regulation invalidations under 95973(b)(1) in Appendix E.

Currently, the environmental health and safety invalidation regulations imposes significant negative economic penalties for any environmental health and safety violation, regardless of whether or not it impacts the environmental integrity of the project, or even if the violation occurs on site.

So this creates a lot of negative economic uncertainty relative to economic risk of making further investments in the Forest Protocol Program.

The proposal by the California Forest Carbon Coalition solves much of those issues. They -- in the proposal, it ensures that all offset project operators must comply with all environmental health and safety regulations. It provides -- it incentivizes the identification and cessation of offending activities, and it provides a clear and equitable means of developing the penalty for any environmental health and safety violation.

So in doing so, it removes that negative economic risk and should greatly increase the participation for further offset project investments.

So for those reasons, I'd hope that you'd support those recommendations from the California Forest Carbon
Coalition for the environmental health and safety invalidation regulation changes to 95973(b)(1) and appendix E.

Thank you.

MS. WARMS: Hi. Good afternoon, ARB members and staff. My name is Emily Warms, and I'm representing New Forests. New Forests was an early investor in the California carbon offset market, developing the first project under the Compliance Forest Offset Protocol in partnership Yurok Tribe in Northern California.

Today, we've enrolled over half a million forest acres, providing over six and a half million tons of greenhouse gas reductions, approximately half of which are from projects located here in the state.

We'd like to express our strong support for the Cap-and-Trade Program, and in particular for the offset program, which is the most rigorous and robust offset program in the world.

We appreciate your technical amendments on materiality and regulate -- regulatory compliance, and encourage you to continue improvements related to program implementation, efficiency, and transparency. We work with a range of landowners from Native American tribes to private forestland owners. And we've seen first hand how the offset program has provided a host of benefits, in
addition to greenhouse gas reductions, from forest health improvements to economic opportunities in rural communities.

So we want to thank you for your efforts on this program and encourage you to further strengthen the program going forward.

Thank you.

MR. BRUNELLO: You're almost through this item.

Tony Brunello representing the California Forest Carbon Coalition. Heard most -- several of my members, and we'll have one more coming up next. The Forrest Carbon Coalition represents a majority of in-state forest carbon offset developers. We hope that you will support the Cap-and-Trade Program. Appreciate your help and look forward to your vote on this item.

Thanks.

MR. TUCHMAN: Good afternoon. My name is Tom Tuchman. Madam Chair, members of the Board, thank you for your work on the new rule. I represent the Usal Redwood Forest Company. It's a community forest based north of Fort Bragg, California. It includes representatives of the environmental community, business community, and local public representatives.

Our participation in California's carbon program was really the foundation for the acquisition of the
50,000-acre Usal Redwood Forest in 2007. And ten years later, we've sequestered approximately five million additional tons beyond the baseline calculations that we undertook under the protocol.

And so we think it's a very important program, and very important to both the economic and environmental health of our region.

Three things to leave you with. One is forest offsets and offsets generally lead to real additional benefits, both for the environment and local communities.

The second thing is I want to thank you and your staff for the good and hard work that you do. We know it's a tough -- a tough job, and we really feel like we've been treated fairly.

And the third, and you've heard from our colleagues from the coalition, we hope you'll take a serious look at our proposed suggestions on how to improve the program and the offset project opportunities in a way that we think both achieve the pub -- underlying public benefit and make it usable for forest project operators.

Thanks.

MR. MAULHARDT: Good afternoon, Chair Nichols, distinguished members of the Board, and Board staff. My name is Thomas Maulhardt. I work for Campbell's Soup Company at our tomato ingredient plants here in the
Central Valley.

California is a great place to grow tomatoes. The combination of warm dry summers, fertile soil, and available water make it one of only a few regions worldwide where this is true. Add to that farm transportation and processing infrastructure, plus the knowledge base in our university seed companies and technology industries, and you have the perfect mix.

Farmers that are able to grow a huge quantity of tomatoes and pick them at the peak of ripeness and flavor. Processors take this bounty and turn it into tomato paste, diced tomatoes, and other products that allow so many worldwide to enjoy salsa, spaghetti sauce, ketchup, and let's not forget tomato soup.

Processes in California have been working for decades to improve and optimize their operations, modifying processes, and modernizing equipment to maximize efficiency. Tomato processors here are world class and will continue to innovate into the future.

But the processes that evaporate water to create tomato paste, along with the cooking and sterilization require large quantities of heat provided by burning natural gas to create steam.

These processes are time-tested, safe, and ensure the can of tomato soup can be enjoyed and taste just as
good on a cold winter night as a warm summer evening. In
order to continue to supply products to all our customers,
it is vital that we keep prices under control. Things
like the rising cost raw materials for packaging,
transportation, and labor are challenges we constantly
work to overcome, so that these customers can continue to
enjoy a safe, nutritious, and affordable food. Our
industry is in the forefront of the effort to deliver
delicious meals from California's farm to forks around the
world.

The Cap-and-Trade Program puts the cost on
emissions to carbon to incentivize the technologies that
will lead to a low-carbon future, but that transition will
be difficult. Cities, states, and countries around the
world are watching to see if California efforts to reduce
GHGs can be achieved while still allowing our economy to
prosper, and our way of life to endure.

The stakes are incredibly high. And we must
succeed to serve as an example to those who would follow,
otherwise those efforts will be in vain. California
cannot solve this problem alone.

Some transitions to a cleaner future will be made
more easily than others, and some sectors will be subject
to more pressures along the way from competitors and areas
that don't have the same commitment to GHG reduction. It
is critical that those managing the program recognize the
fact, and work to ensure the process is smooth and orderly
as possible. That is why we believe it is important to
extend the industry assistance levels for the third
compliance period.

That provides a buffer for our industry from
international competitive pressures, and some areas where
leakage could result in actually higher emissions.

The Governor and legislature have now begun to
implement programs with guidance and collaboration from
food processors and State agencies to provide the funding
to make our industry more efficient.

And we're looking forward to a cleaner energy
future.

Thank you.

MR. KRAUSSE: Good afternoon, Madam Chair, Board
Members. Mark Krausse on behalf of Pacific Gas and
Electric. I'm going to maybe separate from the subject a
little bit.

The topic you heard about this morning on what
was characterized as legacy generators. Our contract, we
have I believe one of the last two remaining contracts
that some believe are legacy generators. We do not
believe ours qualifies for that. Just wanted to let the
Board that we continue to negotiate. Met with our
counterparty yesterday and are willing to continue to negotiate.

At the same time, what the gentleman from Procter and Gamble said this morning I think really hit home for me, which is the more the Board continues to give assistance to counterparties, the less likely those counterparties are to reach agreement.

We can't outbid you. Essentially, that's what it comes down to.

Thank you.

MS. ROBERTS: Good afternoon, Chair and members of the Board. My name is Tiffany Roberts and I represent Western States Petroleum Association. Thank you for the opportunity to speak today.

In my testimony, I'd like to highlight some positive aspects of the draft package before you. And I'd also like to highlight a couple of areas where additional work needs to be done.

So first, the positives. ARB staff has done really good work in analyzing the need to extend the second compliance period industry assistance factor to the third compliance period. Since 2005, CARBOB production capacity has been added in Asia and East Africa, increasingly demonstrating that California's refining sector is trade exposed.
Extension of second compliance period industry assistance factors can help mitigate some of that trade exposure. We support CARB staff's proposal on this issue.

Next, CARB staff has correctly found that the state's climate initiatives have collectively achieved more emission reductions than forecasted. Rather than focusing on the positive news that California is doing better than expected in achieving its climate goals, a few stakeholders have tried to make the case that because of this overperformance, allowances should be removed from the market.

This assertion is not well founded. The suggested remedies would actually have the potential to disrupt the stable market that CARB has worked diligently to develop. Debates about oversupply inevitably involve debates about allowance banking, since the perceived concern about oversupply arises from a fear that allowances banking allows entities to avoid -- avoid reducing emissions. Allowance banking, however, promotes early investment in emission abatement measures, and plays an important cost containment role without compromising environmental integrity. This is something to be celebrated, not punished. As such, we support CARB staff's proposal on this issue.

Now, I'd like to turn to an area where more work
is needed. Specifically, the pricing ceiling and speed bump placement. AB 398 provided six criteria that should be considered when developing the pricing ceiling and speed bumps. They're all important.

WSPA believes that using the social cost of carbon can be an important starting point, but that ultimately consideration for linkage, leakage, and household impacts should persuade the Board to set a lower prices ceiling. We feel the current proposed price ceiling and placement of speed bumps will not provide adequate cost containment. And we believe more consideration needs to be given to the potential impact that high allowance prices can have on consumers and the economy.

Thank you.

MS. BUSSEY: Good afternoon, Chairman Nichols and Honorable Board members. I'm Julia Bussey representing Chevron Corporation.

First, I simply want to echo the comments by several industry folks regarding the excellent work that's been done on offsets on oversupply, and the third compliance period. The package represents a lot of good work and thought in those areas. We are concerned, however, on a few key provisions.

The Board has the opportunity to structure a
program that is environmentally sound, and also least cost
to Californians and the companies operating here. AB 398
provides substantial authority to the Board to contain
costs. But setting cost-containment mechanisms so high
that they will not be triggered is the same as having no
cost containment at all.

Business faces a much steeper challenge between
2020 and 2030, a steeper cap, declining industry
assistance. We urge that you consider a lower price
ceiling and set the cost containment points at one-third
and two-thirds between the floor and ceiling.

The cost containment points are needed to reduce
volatility. AB 398 gives additional responsibility to an
economic Committee to study the market when the first
speed bump is triggered. The higher the first speed bump,
the less effective economic review will be.

California's desire to be a world leader is also
impacted. By adopting various high priced ceiling -- very
high ceiling prices, California signals to potential
partners that high prices are acceptable. Higher ceiling
prices also impact how industry invests in California.
Economic leakage leads to emissions leakage, which defeats
California's goals.

We wish that you would plan of the unexpected and
recognize that much better information will exist after
California has more years of a much steeper cap under its built. Thank you very much.

   MS. SHROPSHIRE: Good afternoon, Chair Nichols and members of the Board. My name is Robin Shropshire. And I'm here today representing Panoche Energy Center.

   I plan to be brief today, but wanted to let you know that Panoche agrees to continue to work with our utility counterparty in good faith to try to find a contract solution. One of the important goals of those negotiations is to ensure a carbon price signal is accurately reflected in the energy price.

   Having said that, we're here to ask you for help. Our simple request is that the 15-day package includes transition assistance for the third compliance period. Secondly, that historically it's been demonstrated to be effective for Board members to participate in the discussions between counterparties. We request that in the continued negotiations that a Board member participate to help move this forward.

   Then last, if in the -- if in six months a resolution hasn't occurred, that in the next rulemaking relief is provided by taking allowances from our counterparty to cover emissions. I know that both the Board and staff are eager to get beyond this.

   And I just want to thank you for your support.
That's all I have.

Thank you.

CHAIR NICHOLS: Thank you.

MR. SKVARLA: Good afternoon, Chair and members.

My name is Michael Skvarla. I'm with the Gualco Group here on behalf of the California Council for Environmental and Economic Balance.

I think we've heard a lot today about some of the political concerns and some of the structural concerns of this program moving forward. CCEEB, in general, supports the structural changes that are being made to this program as we -- as we proceed into the 2020 area -- or the post-2020 program for SB 32 compliance.

We support the staff's recommendations and urge the Board to adopt them in regards to the allocations to the third compliance period and other things that will keep this market kind of even and steady, which is really the goal of markets and what business is looking for in most regulations. We want to see that steady and even consistent hand from the regulator to allow us to enter into this market and make the investments that we need to make between now and 2030 in order to achieve California's goals.

That can't be done by disrupting a third compliance period to achieve a three-year increase in
revenues, only to bring us back down in 2021. Those disruptions are not necessarily built out of having this even pace and good steadiness, as much as they are built to kind of punish businesses that some folks don't see acceptable in this state anymore, as they're trying to make this investment.

And it sends the wrong signal as executives and stakeholders and shareholders are making investment decisions for the California companies.

And so to that end, we urge the Board to kind of keep the steady pace, maintain the CP3 -- the third compliance period industrial assistance factors as it evens us down over into the next phase of the program, as adopted by 398.

It's that even and steady transition that's needed in order to ensure that the investment is made here and not made elsewhere. Additionally, we'd like to support banking, as this allows businesses to make those early investments. It also allows them to kind of jump in early, while they're doing the physical infrastructure needs that they have to do at their facilities.

As you guys know, we have a lot of regulations and laws that extend beyond this building in terms of permitting. Those permitting things can't be made overnight. You know, we know that for a large facility,
it can take sometimes seven years to get the permits. And that -- we're going to see that in the later years of this program, especially when the markets tighten up.

And then to that end, we do have the political concern. And I think the biggest political concern that you guys saw here is the price ceiling. We do have concerns about cost. Wages haven't grown substantially in California or the rest of the United States over the last 20 years. They're not keeping up with inflation.

And to that end, the public's ability to pay over time is going to be tightened. We've seen how this fight has ended up in other infrastructure fights. You know, and those of you at the local level know that -- what it takes to get those bonds passed.

We're continuing to place an additional burden on the public to pay costs to fund the programs that we need. And in doing so, we need to balance that. And so it is a political decision for this Board to make, but we want to make everyone aware that it has to be considered that this is going to provide a burden.

And we have to be willing to accept that burden, whether we hit that ceiling or not. It's the -- that's the signal that's going to be sent.

So we urge the Board to move forward with this process and adopt this rule.
Thank you.

MR. BOYLES: Good afternoon. My name is Cody Boyles, and I represent the Agricultural Presidents Council, of which Nisei Farmers League is a member. And I'll be very brief.

We are opposed to the price ceiling for reasons that have already been stated and articulated far better than I ever can.

Thank you very much.

MR. SMITH: Good afternoon, Chairman Nichols and members of the Board. My name is Steven Smith. I'm a director of regulatory programs with Phillips 66. We produce market gasoline, diesel, and jet fuel under the 76 Brand. By coincidence, I am number 76 speaker. I made sure that happened.

(Laughter.)

MR. SMITH: But no, we market under the 76 brand here in the west coast states.

So I just want to reiterate we really appreciate staff's great work in taking the many goals in AB 398 and rolling them into regulation. We supported many of staff's recommendations in our written comments.

So I'll be really brief and limit my comments to today's favorite topic of cost containment. I do think there was really good discussion amongst the Board earlier
today on the difference between the actual allowance market price and the price ceiling. I think that was good that that got out and was discussed briefly.

And towards that point, we do agree with staff's conclusions that prices may stay below the ceiling closer to the floor for the near term and into the start of the next decade. So I thought that was a good discussion point.

However, we do believe via our own modeling and via some external modeling, assessment of other models, we do think that there is at least a probability that prices in the next decade could go up to the floor -- up to the ceiling. We think there's a -- there's a probability there -- a statistical probability.

So -- so our ask is simple. I'll just conclude. Our ask is simple and it's consistent with, I think, what you heard from WSPA earlier. Please keep the door open as we go forward on price ceiling. I think that it is important to the state's economy. Consider I think perhaps bifurcating that issue. Often separate and future rulemaking could be helpful. And even more specifically, please look at the five percent escalator on the price ceiling. When you tack on five percent escalation, plus what could be two and a half percent inflation, you get seven and a half percent escalation. Prices really would
move up quickly. So please look at that specifically.
With that, I'll conclude. Thank you for your
time.

CHAIR NICHOLS: Okay. Where is Nico van Aelstyn?
Is he not here apparently.
We have the written testimony. Okay.
Well, okay, we can accept that into our record.
All right. Well, I don't think so.
Okay. Mr. van Aelstyn has left us with his
written testimony, but apparently isn't here to speak in
person, so we will accept the written testimony, of course
and close the record at this point, and move to
discussion.

I would like to ask -- give the staff the
opportunity at least -- it's been a long day and a lot of
things said. Although, you can probably concentrate them
into a few major points. But if there are things that you
feel the need to respond to at this point that you feel --
where you feel the testimony or the record may not be
clear, we would certainly invite you to do that at this
time.

Rajinder.

INDUSTRIAL STRATEGIES ASSISTANT DIVISION CHIEF
SAHOTA: Sure. I have about six issues that I think came
up across more than one commenter.
CHAIR NICHOLS: Okay.

INDUSTRIAL STRATEGIES ASSISTANT DIVISION CHIEF SAHOTA: Those include waste to energy, legacy contracts, the price ceiling, oversupply and the third compliance period.

CHAIR NICHOLS: Um-hmm.

INDUSTRIAL STRATEGIES ASSISTANT DIVISION CHIEF SAHOTA: I think there were some other comments related to the use of allowance value. And we think that the 15-day package the staff is working on will address most of those concerns and comments. And we have been working closely with you the utilities on that.

CHAIR NICHOLS: Okay.

INDUSTRIAL STRATEGIES ASSISTANT DIVISION CHIEF SAHOTA: I would be happy to take questions or comments from the Board members unless it's been identified or if I've missed anything. If you identify that for us, I can add that to the list.

CHAIR NICHOLS: I think it would be good if you just go through it, if you wouldn't -- unless you want -- don't want to hear the reactions. Sorry, I just thought we would give her an opportunity to quickly address those major points, and then we can go on. Okay.

INDUSTRIAL STRATEGIES ASSISTANT DIVISION CHIEF SAHOTA: Okay. So I'm going to take the price ceiling
first, because that one has come up quite a bit.

CHAIR NICHOLS: Um-hmm.

INDUSTRIAL STRATEGIES ASSISTANT DIVISION CHIEF

SAHOTA: And I know that's an understatement.

First of all, some of the issue that were raised by the commenters are real issues, the housing issues, the affordability, all of those are real issues that need to be addressed. But what we're trying to do here today is we're trying to be responsive to legislation about achieving greenhouse gas emission reduction targets for 2020, 2030, and that's mandated.

And we did our due diligence there. We went back. We did the scoping plan, and we identified the least costly way to get to the 2030 mandated target, and the least costly way includes a Cap-and-Trade Program.

And in designing the Cap-and-Trade Program, we added several features, not just the pricing ceiling, to mitigate against economic impacts to the economy, to households, and to ratepayers for energy costs. AB 398 enhances some of those cost containment features.

But in looking at cost containment in the package overall, and there are some new stakeholders to this process, so I want to hit a couple of these points, we do have features such as multi-year compliance periods to help with price spikes and unexpected emissions.
obligations year to year.

We do have a broad set of sources, so the market is liquid, and so there isn't an opportunity to manipulate prices and have price spikes in the market. We have allocation to the industry to minimize for leakage, so that production, emissions, and jobs don't leave the state of California. AB 398 enhances that requirement by mandating that there be an assistance factor of 100 percent. Staff is proposing an additional 100 percent for the third compliance period. And when it comes to individual households and energy prices, we give allowances to utilities, who then go ahead consign those allowances, and you see those as a climate credit twice a year on your bills for natural gas and electricity now.

So in designing the program itself, we have looked at all of these individual potential impacts and tried to make sure that it has features to address each of these. On the price ceiling, specifically the way that it's designed. There were six or seven criteria, that were included in AB 398.

We went through each of those criteria. I think it's slide eight that speaks to what those criteria are, and identified how we considered those and responded to those in setting the price ceiling. Relative to the current regulation, we have multiple mechanisms in this
package to address the concerns on high prices.

The first is the two reserve tiers. Those remain below the current reserve and the current regulation, so we are making available 156 million more allowances in this proposal than would be there without this proposal at lower prices. The price ceiling is set to be below the existing regulation until very far into the next decade. And then when it gets above that current price ceiling in the next decade, it coincides when the offsets limit increases. And offsets offer another containment feature for the latter half of the decade.

We continue to allow banking. We are not proposing to remove any allowances from the system, which would add scarcity and increase prices today and into the next decade.

And again, we are increasing the amount of allowances that are given to industry to help them with the compliance with the program, and so that they don't face the full burden of compliance, and that they are transitioning over year-over-year into the program, and continue to do so through the next decade.

Now, the price ceiling, I have to reiterate again, is a worst case scenario. It is for a potential situation where prices get higher than expected. Models predicted that we will stay close to the floor through
this decade into the next decade. The secondary market will give us a heads up if prices are starting to inch upwards.

    We will see that priced in futures contracts. It's not like it's going to happen overnight. It's not going to happen a month from now. It's not going to happen two months from now. So this is not something that's going to be thrust upon all of us, and then we'll be grappling to figure out what to do with it.

    We will see this coming. There are many metrics that are available to us to monitor the market and the prices, including production data that is put out annually.

    There is also annual reporting that we do to the Board, annual reports that we do to the legislature, and these are things that we can include in those reports, so that there is monitoring and reporting back by the staff on these.

    There is a scoping plan update, where we can speak to what the programs are doing in total and individually and answer questions then.

    The four quarterly auctions are publicly posted with the results, so anyone can see what the prices and how they're changing over time. The IEMAC had a recommendation that we also post secondary market prices
on our website, so that there's additional information on
what's going on in the market. And that's something we're
looking into.

So I feel like on the price ceiling, we've done
diligence as the staff. We have the ability to
monitor if prices are going to get high, and we have the
time to react as needed, and have discussion with the
Board and the legislature and other stakeholders.

CHAIR NICHOLS: Okay. Thanks.

Could I just say something about that, and maybe
we'll get into this more as we move on towards the
resolution. But I have a very strong sense that we're not
really being told the real reason behind the very, very
strong opposition that clearly has been mounted by WSPA to
this price ceiling.

That is the amount that's involved 30 years from
today, I don't want to say it's irrelevant if --
certainly, if you're a poor person who can't afford to
fill your car, it's not irrelevant. But from their
perspective, this is not the game as far as whether
they're going to be selling gasoline in California.

It must have to do with something else. And
because they support the Cap-and-Trade Program, I don't
see it as, you know, an attack on cap and trade. There
has to be something about their own internal planning,
where putting a number like this into whatever the models are that they use has an impact on the way they are thinking about the future of their business in California. I mean, I don't want to pretend that I can put myself into the mindset of an executive of an oil company, but I've spent enough time now, you know, talking to these people that I feel like I should be able to understand how they think at least. And this one is just -- it's frankly puzzling. It's just puzzling. And to have mounted the kind of campaign that they have around this issue is also, you know, unusual, let's say.

So I have to think that there's something that to them looks like it's going to impact maybe the competitiveness of their California operation or their -- some internal ceilings that they're operating with on, you know, investments. Does anybody have -- I mean, can you really -- can you shed any light on this situation?

I'm sorry, I --

(Laughter.)

INDUSTRIAL STRATEGIES ASSISTANT DIVISION CHIEF SAHOTA: Was that for staff for maybe the members themselves of the group in the audience?

CHAIR NICHOLS: It could be for anybody. I don't -- I would ask staff. I mean, you've been living with this for -- you've conducted the multiple workshops
that are out there.

SAHOTA: So I can tell -- I will share what I have -- I have had as a perception of AB 398.

CHAIR NICHOLS: Okay.

SAHOTA: We've had a program in place since 2013 through 2020. That program has been designed and modified multiple times. I think this was the seventh regulatory change to the program.

CHAIR NICHOLS: Right.

SAHOTA: And it has had a price ceiling structure that has been about $84 as the maximum. If it were extended post-2020 into 2030, it would naturally extend to about $84 in 2030.

I think some are viewing AB 398 as a second bite at the apple on the original structure of the program. AB 398 says to consider what the existing structure of the price containment reserve looks like.

CHAIR NICHOLS: Um-hmm.

SAHOTA: And so there's been an expectation in the market about what to plan against for 2020. So in setting the 2021 number, we didn't want to set it too far below that
you're de-valuing the investments that were predicated on
the existing program structure.

    CHAIR NICHOLS:  Right.

INDUSTRIAL STRATEGIES ASSISTANT DIVISION CHIEF

SAHOTA:  And so for us, it seems like it's a second bite
at the apple to try and get prices lower in the program in
general.

    CHAIR NICHOLS:  Um-hmm.

INDUSTRIAL STRATEGIES ASSISTANT DIVISION CHIEF

SAHOTA:  I don't -- there are a couple issues that play
out there.  If you have a price ceiling, that is something
at $60, and it's flat, which is essentially one of the
proposals that we had.  It's flat from 2021 to 2030.  It's
$60 every year.  No escalator.  It's just inflation.  And
then you add in two reserve tiers, that means those
reserve tiers are closer to the floor.

    What you're essentially doing at that point is
flooding the market with low-cost allowances, which
dampens the price signal, which dampens the effectiveness
of the program overall.  And that's something, as the
staff, we don't think is the right outcome for the
program.  That's not a model that people will want to
replicate.

    CHAIR NICHOLS:  Right.

INDUSTRIAL STRATEGIES ASSISTANT DIVISION CHIEF
SAHOTA: But that is a model that if you don't want to consider carbon in your long-term liability, or you don't want to invest in technology, may work for folks who are able to purchase at those prices and pass the cost onto consumers.

What we want people to do is to think about taking action today, but know that if they don't take action today, there's going to be a higher compliance cost tomorrow.

CHAIR NICHOLS: Tomorrow, that's the whole point, yeah.

INDUSTRIAL STRATEGIES ASSISTANT DIVISION CHIEF SAHOTA: Right. So from my perspective, it seems like it's a second bite at the apple on just the overall structure of the program.

CHAIR NICHOLS: Well, I think that's helpful. I appreciate your willingness to enter into that conversation.

I will now turn to the Board for questions or comments that you may have. And I know, Ms. Mitchell, you've did, so let's start with you.

BOARD MEMBER MITCHELL: Thank you, Madam Chair. There's just one item that we've gone through that is of concern I think to me and maybe to some others. But we heard from Long Beach and Covanta on the waste-to-energy
situation. They are new to the program. And I know historically we have provided a higher level of transition assistance to people that are just coming into the program.

So I would ask in the 15-day change that our staff continue to look at that and see what might be done to provide that higher level of transitional assistance.

Thank you.

INDUSTRIAL STRATEGIES ASSISTANT DIVISION CHIEF SAHOTA: Of course. We'll go back and look at the proposal and see what we can work with there as part of the 15-day.

BOARD MEMBER RIORDAN: Madam Chair, I want to just say I would agree, and ask staff to work with them. And I think philosophically my feeling is that the State of California is saying do not use landfill as a result of our trash. And so -- and the recycling market is somewhat difficult right now as well. So these people who are involved with waste-to-energy, and as long as they're operating a facility that is permitted and doing very well in terms of air quality, I think we need to encourage them and help them a bit. So if staff could do that in a 15-day change, I would be very grateful, and support what Ms. Mitchell said.

EXECUTIVE OFFICER COREY: Yeah. We'll work on
that, Ms. Riordan. And just to clarify, the waste-to-energy plants had an exemption the first two compliance periods. And as you noted, per Board direction, they were brought into the third compliance period through 2024, with respect to transition assistance, recognizing that they're -- then the 75 percent diversion from landfills would become effective. So what I'm hearing is direction to really work on and look at increasing the transition assistance for basically the starting point, given the fact they're just being brought into the requirements of the program. So that's clear.

BOARD MEMBER RIORDAN: Yes.

CHAIR NICHOLS: Okay. Other questions or comments on these items from the Board?

Looking down at -- Ms. Berg.

VICE CHAIR BERG: Well, you had mentioned that you were going to talk about the third compliance issue. I got a little confused. To be honest, I heard praise for the staff and the plan that there was a smooth transition period, and then I heard concern for the plan that it wasn't. So I just need a little clarification just a little confused.

INDUSTRIAL STRATEGIES ASSISTANT DIVISION CHIEF SAHOTA: Sure. So the staff proposal is to smooth out the
amount of allowances given to industry to minimize for leakage for the third compliance period. The industry that is medium or low risk for leakage, for them without the change, their costs increase. They almost double across all of those sectors in total. And so they are supportive of that.

There are others who are not the regulated or affected entities that feel like that money is a giveaway to industry, and a diversion from the GGRF funds. But the truth of it is, is that there's already precedent for taking a conservative approach in addressing leakage. And I think twice the Board has acted in the past on previous amendments to keep it at 100 percent assistance factor.

The legislation for AB 398 sets that assistance factor at 100 percent from 2021 to 2030. And staff in the spirit of taking a conservative approach on minimizing for leakage is proposing that we go ahead and smooth that out with 100 percent.

So it's the balancing of what the staff believes is a conservative approach in addressing leakage versus the generation of funds to be into the Greenhouse Gas Reduction Fund.

VICE CHAIR BERG: Okay. Thank you for that clarification. And then we did hear from the natural gas side of the utilities a request for some parity in their
investment plans. Could you just kind of address that, please?

INDUSTRIAL STRATEGIES ASSISTANT DIVISION CHIEF SAHOTA: I think that's referencing the use of allowance values. So both natural gas utilities and electric utilities get allowances from the State to help minimize impacts to ratepayers.

They are consigning all or some portion of those allowances at auction. They get the money back, and it either comes back as a climate credit or can be used for certain purposes that are going to reduce greenhouse gases or benefit ratepayers.

And originally, we had text just for electricity. Then we added in text for natural gas utilities, because they were phased in the program in 2015. And the ask is that the way they use that money from both of those consigned pools of allowances be under the same requirements, that if you're going to use it for renewable energy like wind or solar in the utility side, you be able to use those consigned values for RNG.

And we believe that the language that staff is clarifying as part of 15-day will make that clear.

VICE CHAIR BERG: Okay. Great. Thank you for that. And then I think you addressed the overallowances, but you also, in our briefing, had talked about a plan
that you had to bring more information back to the Board
and could you just share that?

INDUSTRIAL STRATEGIES ASSISTANT DIVISION CHIEF
SAHOTA: Sure. And then -- so AB 398 asked us to look at
the issue of overallocation. And this has been a hot
topic for over a year now. And staff has done two
workshops on this, put out a white paper, and we did an
appendix on this as part of the rulemaking package. And
the IEMAC did not take an official position that we have
an overallocation issue.

They called for monitoring and making additional
data and statistics available, and looking to see if it's
an issue and adding in some of other self-ratcheting
mechanisms as needed. So we are going to follow through
with that and make more data available, so it's
transparent for some of the stakeholders to understand
what the supply of allowances is relative to the emissions
in the program.

And what we propose to do is track that annually,
because we get emissions updates annually. The allowances
are -- the supply of allowances is known in the
regulation, but updated quarterly as to which accounts
they're in. And so what staff would do is take the data
that's already available on the public website, match that
up with the emissions so that it's clear what the demand
is against the emissions versus what some of those
allowances are in the marketplace, whether they're with us
or with the regulated entities.

And after 2020, we will actually know what that
number of unused allowances is relative to emissions that
have occurred through the end of this decade. There are
several estimates out there. They're over a wide range.
And so the call has been by some folks that based on those
estimates, we take some allowances out the system today.

Our analysis and several other analyses don't
indicate that there is an oversupply of allowances through
2030. But we will know in 2021 what the difference is
between emissions and what's left over for allowances. We
would report back to the Board and indicate, based on the
actual data, what does that mean for the ability of the
program post-2020 to be effective in reducing towards
2030.

VICE CHAIR BERG: Thank you very much. And my
last is our forever down to the last two legacy contracts.
I really don't want to have a large discussion about this,
but really do want to have staff make sure that one party
isn't favored over another.

And honestly, these last two really need to get
resolved. And so I can't express enough, since I've been
involved with this, that these need to get resolved. I
said this the last --

CHAIR NICHOLS: Yeah, I was about to say, it's like I want to send you to your room, kids, if you don't stop fighting.

(Laughter.)

CHAIR NICHOLS: I think we did that like three or four times ago.

VICE CHAIR BERG: We did that last time.

So, staff, you know, please look at what we're doing. Make sure that it keeps both parties equally to the table. And that would be my recommendation.

Thank you.

CHAIR NICHOLS: Any other comments?

Yes.

ASSEMBLY MEMBER GARCIA: Thank you, Madam Chair. And thank you, Rajinder, for covering those six points. Some of them were part of questions that I was going to raise.

And, you know, I'm quite surprised we don't have twice as many people in line to speak, given that there has been an assertive effort -- in fact, I opened the mailbox here and it's the Californians for Cost Containment targeted advertisement that many who are here look quite different in pictures, but --

(Laughter.)
ASSEMBLY MEMBER GARCIA: Again, I'm surprised that we didn't have that many more individuals. Because if you tell me or any of the folks in my district that I represent that we're taking on a possible regulatory action that's going to increase gas prices, electrical prices by a $1.09, given the debate that occurred over the course of the last year, but settled last Tuesday as it relates to infrastructure investments and gas prices, I'm again surprised that we don't have more people here.

My concern will always be, and I've raised this before, are we overemphasizing in the scoping plan cap and trade, and not looking at all of the other mechanisms in place to help -- help us address our emission reduction goals, given that cap and trade is important for our industries, and who were extremely involved in the development of the public policy that led to AB 398. We gave a tremendous amount of options, I think, and flexibility within the policy to get to a place where we are today.

I think the one piece perhaps that you could elaborate is what happens if our projections are off? And you mentioned where we may be able to foresee this happening. But what's the immediate action that we take to try to avoid the escalating cost that has been, I think, at the center of questions today? So maybe you can
kind of walk us through a hypothetical where we identify -- you know, that we're getting into that zone and what actions are we going to be taking here?

CHAIR NICHOLS: Good question.

INDUSTRIAL STRATEGIES ASSISTANT DIVISION CHIEF SAHOTA: So it's appropriate to think about it in the context of the scoping plan, because the scoping plan that was adopted in December of 2017 is already a little bit out of date. We had measures for RPS under SB 350, which were 50 percent by 2030. And then since then, the bill has been signed to set that at 60 percent by 2030, and plan for 100 percent by 2045.

So by virtue of that legislation, we're already minimizing the role of the Cap-and-Trade Program as we saw it in the 2017 Scoping Plan.

Then we have the Low Carbon Fuel Standard. We modeled an 18 percent carbon intensity reduction for the scoping plan. But as we went through the rulemaking this year, we ratcheted that up to a 20 percent carbon intensity for 2030. So again, we're reducing the role of the Cap-and-Trade Program.

Now, each of those has costs associated with it. Within the Cap-and-Trade Program, it's important to know that when you -- when prices start to go up, you're going to start see it -- seeing it factored into demand in the...
products that are offered in secondary markets. We're going to see it in the trading volumes. We'll see it in the prices that are reported in the system. We have the market monitor. We have our market monitoring staff. And they review that data daily.

So it is -- it is not that all of a sudden we will read about it in a report a week after there's a spike. We will -- we will review that data daily. We have secondary market data subscriptions that we will review daily.

I think the question really is what happens if your long-term projects are off -- the uncertainty with the long-term projections, and that was something we also looked at in the scoping plan development. We did an uncertainty analysis that looked at, you know, what are the emissions expected to be under a wide range of fuel prices, energy prices? What does it look under a wide range of economic conditions, high economic conditions, low economic conditions?

And when you look at the measures, there's questions related to performance. I mean, I talked about SB 100 and I talked about the Low Carbon Fuel Standard, which will minimize the role of cap and trade. But then you've also got some mobile source measures out there, and what happens if we don't move forward with our CAFE
standards? And that will actually mean that there's more demand on the Cap-and-Trade Program.

And so what we plan to do as part of ongoing review of this is look at the modeling that we did in the scoping plan, and look at how you adjust it for some of these factors, and what the implications are for the program, how the economy is impacting the business-as-usual, the emissions that we thought would be there, and then continue to provide those annual updates to the Board. And actually your committee hearing under AB 197.

ASSEMBLY MEMBER GARCIA: Right. Clearly, balancing a real fine kind of -- you know, both the goals and objectives of emission reductions and trying to keep in mind the economics and implications to these industries that are extremely important to California's economy.

INDUSTRIAL STRATEGIES ASSISTANT DIVISION CHIEF SAHOTA: That's correct.

ASSEMBLY MEMBER GARCIA: I wanted to shift a bit and talk a little bit about direct environmental benefits, and the question of, you know, our direction has been in several pieces of legislation now to, okay, invest and mitigate and minimize impacts locally. In the context of this conversation, can you kind of elaborate how we are defining or looking at direct benefits at this point?
INDUSTRIAL STRATEGIES ASSISTANT DIVISION CHIEF

SAHOTA: Sure. And by direct environmental benefits, we understood that we're looking for benefits beyond just the greenhouse gas reductions. So whether they're air quality benefits or water quality benefits or avoiding adverse impacts to water.

So we took the actual definition directly out of legislation. We didn't try to modify or reinterpret it. We took it as is. And what we did in the rulemaking package is say that if projects take place in the state of California and if the gases that are sourced out of the state of California, this is the reason those provide a direct environmental benefit.

For example, if we're looking at something like forestry in California, the forests not only reduce greenhouse gases, but they actually are a scrubber for the air when we think about air quality. And so for each of the protocols that we had in the rulemaking documents, we identified these additional benefits that they provide to the state of California, if they take place here.

Now, if those projects are located outside the state of California, we don't automatically exclude them. And that is because we are walking that fine line between the Dormant Commerce Clause. The burden is on any project developer outside the state of California to then make a
scientific case for why they, and that project outside the
state of California, meet that definition that's in
legislation.

And as we get those, our intent is to go through
those and make all of the material and all of the analyses
that we require for those public, so that's very
transparent to all members of the public, and all
stakeholders. This is the evidence that was used to make
a decision in the case for this offset project.

Now, AB 398 also includes the creation of a
offset compliance task force, which is to focus on offset
project types in California or increase offset projects in
the state of California. We will be releasing a
solicitation for that soon so that we can staff up for all
of the various rules and everything that cause maybe 11
specific technical expertise rules that are called for and
public stakeholder role is in there.

And that group will come together and we will --
we will work with them, because that is a committee that
our task force created by ARB. We will be working
directly with them to try and identify additional
opportunities in California.

ASSEMBLY MEMBER GARCIA: Thank you. You've
answered my questions clearly. There remains, you know,
some uneasiness perhaps in the audience. I feel like
we're moving in the direction that the policy has set forward. Rest assure, that January come along and you've got 80 legislators on one side and 40 on the other, questions will arise. I can honestly tell you that up until this point, and that's not very common, I've not received a single message, email, call from any of my colleagues on either side of the aisle questioning the regulatory framework that's before us, where typically I would hear. And that doesn't mean that they're not thinking about it or concerned about it. It's just not at the top of their list, I guess, at this moment.

But rest assured that in January, right, when this gets rolled out and individuals hear from their respected constituencies, right, they'll be probably interested in having the conversation. And I look forward to convening, you know, the Joint Legislative Committee to being able to carry this conversation, and again allowing for a space for individuals who were here today or not to voice their opinions once more, and perhaps get some legislative input as well as we move forward.

So I just wanted to thank you for taking my questions. Thank the staff for putting this work together. Madam Chair, I yield my time.

CHAIR NICHOLS: Well, thank you. We owe you a tremendous debt of gratitude. Unlike some of your
colleagues who are on study trips, or resting, or possibly enjoying --

(Laughter.)

ASSEMBLY MEMBER GARCIA: I'm not tired. I don't tired.

(Laughter.)

CHAIR NICHOLS: You're here and you're acting in the liaison capacity that you took on, so we appreciate that very much.

Supervisor Serna.

BOARD MEMBER SERNA: Thank you, Chair Nichols.

So first of all, I want to thank staff for being extremely thoughtful, maybe even preemptive in terms of really trying to think about the sensitivities associated with this -- with this action -- this proposal. We had a very good conversation, Rajinder and I did, during our briefing about -- especially the price elasticity of petroleum and how this might affect that, especially set against the backdrop of an increasing and growing market for zero-emission vehicles.

There's so many different fluid component parts to this equation, it's difficult, I'm sure, for any accomplished economist to kind of just put their thumb on one thing and consider that the principle influencer here. It does concern me a bit when we hear from speakers
that -- and their -- the leading edge of their commentary is suggesting that we directly control gas and electricity prices, I got to tell you.

But one thing that we haven't really broached -- and I would ask this of Rajinder to comment on it -- is there are so many other things that are affecting the cost of housing, the cost of electricity, the cost of petroleum, could some of the safeguards -- some of the measures you already explained in response to other Board members, could they actually be employed by this Board, by the legislature? If the ultimate cost component to the consumer, whether it be in the form of petroleum prices, electricity, cost of housing, if it were to get exorbitant, in more than a decade let's say, could it be the will of this Board, could it be certainly the will of the legislature to return back and make adjustments -- certainly within the framework of what's being proposed today, to kind of take in the whole picture here, not just the value price of carbon credits, but the ultimate value concern for the consumer?

INDUSTRIAL STRATEGIES ASSISTANT DIVISION CHIEF

SAHOTA: So the answer is always yes. The legislature is able to pass legislation, work with the administration direct us to take any variety of actions. In AB 398 we got very specific direction on the post-2020 Cap-and-Trade
Program. And a lot of it was related to costs. But I think in terms of how the Board remains informed, how the legislature remains informed, there are several opportunities to come back together, think about what's going on, and assess what to do as we move forward and make adjustments as needed.

We have the annual updates to this Board on the scoping plan and on several of the large policies that we implement here. We have the legislative committee hearings -- the joint legislative committee on climate change, the hearings over there. We've certainly been asked to present at other oversight hearings at the legislature, and we've made ourselves available in specific programs and just in general on the scoping plan.

And then we also have the periodic updates to the scoping plan, where we get to actually take a little bit of a step back and assess what we've done in the last few years, and assess what we're going to be able to do in the coming years.

And that really requires us to do a full economic analysis, emissions modeling, looking at environmental analyses. And so those touchpoints provide multiple opportunities to reassess not just individual programs, but also the suite of policies that we have control over here at ARB.
BOARD MEMBER SERNA: I appreciate that response. And I asked the question, not just for my own edification, but I think, you know, as a county supervisor and as one that represents some of our most economically disenfranchised neighborhoods anywhere in this region, I am extremely sensitive myself to anything that is affecting the cost of living for folks that are living right now on the edge in making choices between their prescription drugs and their transportation costs, those type of things.

So I want to make sure, especially for those that approached us today at the podium with these concerns, hear and understand exactly what you're saying cumulatively in response not just to me, but some of the other thematically similar questions here, because they need to understand that this is not a one and done kind of decision that we're being asked to make. We're making incremental adjustments as we go along. And that -- that is a very, very important thing to remember in the context of all of it.

So I appreciate the -- again, the work by staff especially you, Rajinder.

INDUSTRIAL STRATEGIES ASSISTANT DIVISION CHIEF SAHOTA: Yeah. And I -- and I unfortunately forgot to mention that one of the newest tools that we have is the
funding from the Cap-and-Trade Program, the investments in disadvantaged communities to make sure that people have access to the technology, to the low carbon tools that are available, and so that they're not trading off between getting an electric car versus other basic needs.

BOARD MEMBER SERNA: Sure.

INDUSTRIAL STRATEGIES ASSISTANT DIVISION CHIEF SAHOTA: And those are powerful tools, because when you look at the suite of policies in the scoping plan -- and I'll stick to the gasoline issue. When you look at those policies, successfully implemented, we would see a reduction in on-road fuel demand of 45 percent. But you want to make sure that everybody gets to benefit from not having to go to the pump and pay for gas.

BOARD MEMBER SERNA: Sure.

INDUSTRIAL STRATEGIES ASSISTANT DIVISION CHIEF SAHOTA: And so those kinds of mechanisms and the programs that actually target some of those investments are critical.

BOARD MEMBER SERNA: Thank you.

CHAIR NICHOLS: Other questions or comments?

Yes, Mr. Takvorian.

BOARD MEMBER TAKVORIAN: Thank you. Just a follow-up on a couple of things. Thanks to staff for all of the work that you've done and the public hearings that
you've held. It probably goes without saying, and I don't
know who might still be in the room that expressed
care over cost containment and the impact on low
income communities and disadvantaged communities, but I
do -- I do think it's really important that it was clear
that there's a really narrow understanding not only of
this rule and this program, but also of the programs of
CARB.

And I think it's really important -- and La Ronda
and I were talking about this, that as much as we can,
that CARB needs to really reach out to some of the --
especially the small business associations that were
represented here today. I had a conversation with Mr.
Scott from the African-American Farmers Association, and
he wasn't aware of some of the incentive programs that we
have.

And Abshi --

AIR POLLUTION SPECIALIST SINGH: Abajh.

BOARD MEMBER TAKVORIAN: Abajh -- I'm sorry --
was in the wrong place at the wrong time.

(Laughter.)

BOARD MEMBER TAKVORIAN: I grabbed him and we
started to have a conversation about it as well. He was
surprised that there were any programs like that. Didn't
understand that there was an investment side of these
programs. And I want to be sure, because I think that
many of the comments were very heartfelt and sincere,
obviously, about the challenges of surviving in these
economic conditions.

And I really want to ask staff what you might
think about how we might proceed with reaching out to some
of these organizations and these individuals after today
to get them some of that information. That's my -- I have
other questions, but that's my first question.

EXECUTIVE OFFICER COREY: Yeah. I think one of
the points that you mentioned, Ms. Takvorian, was I think
the ag funding, for instance. Actually, the source of the
funding is actually cap-and-trade proceeds. That a good
share of that actually in the last two years has gone into
the valley. I think it's 100 -- the legislature two years
in a row appropriated about 135 million. In one case,
130. Two in the other with about 80 percent going to the
valley.

But your point in terms of outreach, and I think
that is an area that we've been evolving on in the
organization. It certainly has been with respect to 617.
And with your help and the help of other Board members and
others, we're looking at how we can be more effective that
way, in looking at establishing much closer relationships
with a number of the community based organizations, which
is -- I would say we've made a number of strides in that
department.

We're looking for additional advice, counsel, and
any help you can provide on that we're open and interested
in it.

BOARD MEMBER TAKVORIAN: Okay. Thank you very
much. I know that we're getting better and better at
this. So that was not a critical comment. It's more -- I
mean, when we see the number of people who have a
misunderstanding I think of the programs. I think it
motivates us all to want to do a little bit more. So I
appreciate that.

I also appreciated the clarification that the
staff provided in the direct environmental benefits
definition. I did hear that some additional clarification
might be beneficial. And I wanted to ask if there were
plans to do that. And I did hear you respond to Assembly
Member Garcia, but I just wondered if there was more that
you might do with that, Rajinder?

INDUSTRIAL STRATEGIES ASSISTANT DIVISION CHIEF
SAHOTA: Sure. The ambiguity stems from one sentence in
the regulation. And the way to fix it is to just make
sure we repeat the same qualifier that we're looking
beyond GHGs for both air and water, instead of having it
in just one place.
So we will go ahead and make that change. And it was something that was flagged in the IEMAC report as well, and some stakeholder comment letters. And so that was always the intent. We will make sure we clarify that as a 15-day change.

BOARD MEMBER TAKVORIAN: Okay. Thank you for that. And I also wanted to follow-up on the comment about the retroactive allowances, and wanted to ask you if you could kind of explain the rationale for the additional what I think is about $365 million worth of allowances to some of the largest users of the offsets.

INDUSTRIAL STRATEGIES ASSISTANT DIVISION CHIEF SAHOTA: I'm sorry?

BOARD MEMBER TAKVORIAN: Some of the largest recipients of the allowances.

INDUSTRIAL STRATEGIES ASSISTANT DIVISION CHIEF SAHOTA: Third compliance period. Yes. Okay. So I just flipped it in my head. I thought you were talking about oversupply. And then I got myself oriented. Sorry about that.

Okay. So this is the third compliance period concern, which is where if you're medium risk or low risk, your assistance factor drops to 75 percent or to 50 percent. And I think you're asking specifically about the refiners in the state.
So if you look at a refiner in the state of California, they have emissions associated with their facility, and they have emissions associated with the fuel that they put into the rack that is used by consumers in the state.

So, for example, one of the largest refiners in the state has about a 40 million plus compliance obligation. And they get no allowances for the fuels, and they get some allowances for their facility.

When you look at the amount of allowances they're getting relative to their total compliance obligation, it's less than a quarter of what their compliance obligation is. And so they're getting -- they've been already identified as at risk for leakage. We do believe that there is a risk for leakage. We've seen in the past when a refinery has gone down in California, we have imported in oil from other places. So there are other places that can produce and provide for us this good. And what you want to do is make sure that that production and those jobs are protected from leakage. And the way to do that is through that mechanism of allocation.

And so when we think about the AB 398 direction to set the assistance factors from 2021 to 2030 at 100 percent, and we think about it's not just the refiners, but also the food processors, steel manufacturing and the
other sectors, we took a conservative approach and are proposing to set them all at 100 percent for all three categories.

BOARD MEMBER TAKVORIAN: And how do you then balance that -- and this leads to the last question I have. But how do you then balance that with the impact on environmental justice communities, where those users are the most polluting and have reduced -- well, where there actually isn't as much reduction in those communities for both GHGs and co-pollutants? It seems to me there's relationship there between the utilization and the lack of reduction.

INDUSTRIAL STRATEGIES ASSISTANT DIVISION CHIEF SAHOTA: So the utilization of the allocation for leakage minimization?

BOARD MEMBER TAKVORIAN: The allocation -- the allowances as well as the -- as well as the offsets themselves. So where we have yet another update to the study that shows us that these emissions are not reducing at the level that we would hope for in those -- in those communities from the refineries.

CHAIR NICHOLS: So the question really is what would happen if you didn't give them these additional allowances that they're asking for?

BOARD MEMBER TAKVORIAN: That's a better way to
CHAIR NICHOLS: How can you justify that in the -- if you're trying to get them to reduce their emissions. And your answer would have to be, I think, that they're not going to reduce their emissions just because they don't get those extra allowances, but that the consumers will get hurt, because they're have to pay more money for imported gasoline --

INDUSTRIAL STRATEGIES ASSISTANT DIVISION CHIEF SAHOTA: That's exactly right.

CHAIR NICHOLS: -- because they're not going to stop buying gasoline just because the refinery didn't get those extra allowances.

So it's a -- it seems counterintuitive, but I think in reality if we could make that nice neat, you know, connection between not giving the transition assistance and getting the refineries -- anticipating that to do more to reduce their emissions, that would be net a good thing, right?

But it isn't going to lead, as far as we can tell, to a reduction in the overall use of the product. It's just going to get it from another place, which is going to ship it in and charge more money.

INDUSTRIAL STRATEGIES ASSISTANT DIVISION CHIEF SAHOTA: That's correct. And we've seen that when a
refinery has gone down, that that's exactly the pattern
they came through for over a year. We brought in -- we
brought in fuel from Europe and Asia to meet the demand
that was in California.

CHAIR NICHOLS: Yeah. So we have to do other
things to reduce the demand in California.

INDUSTRIAL STRATEGIES ASSISTANT DIVISION CHIEF
SAHOTA: Right.

BOARD MEMBER TAKVORIAN: I was going to say, so
that's -- that's the demand and supply side discussion
that we need to have, but I appreciate that. Thank you
for the clarification.

My last question is to ask for an update on the
status of the adaptive management plan, which I don't
think we've heard about really in terms of a substantive
update for a couple of years, but you did talk about it as
part of the scoping plan in 2017.

And to look at the areas in the state that are
most impacted by emission increases and the relationship
to the Cap-and-Trade Program. And I wondered what your --
the status on that and the update might be.

Thank you.

INDUSTRIAL STRATEGIES ASSISTANT DIVISION CHIEF
SAHOTA: Sure. And there's a couple of things that staff
has been working on related to how do you look at the
Trends of greenhouse gases alongside the trends of criteria and toxics pollutants in the state.

And in the report -- in the 2017 scoping plan, we had flagged and referenced that there were two reports that had been done on this by external entities. There was an OEHHA report. There was also the Pasteur report -- Cushing. Sorry. Sorry. Cushing.

I shouldn't have attributed it to the wrong person. I apologize.

And both of them -- both of them spoke to data gaps and the need to improve the data that we're trying to use to look at this issue.

And so in both AB 197 and AB 617, we were provided the tools to actually go and try and improve the data set to explore what these relationships look like. And sometimes it's not always clear. They may be inverse in some cases. There might be -- even within a sector, it may look like a close relationship or it may not. And so better data is going to be critical to actually really understanding what the means, even at individual facilities.

And so there will be a regulation coming to the Board in December, I believe, that is under AB 167 to look at consistent reporting across the state for criteria pollutants throughout the state. That is data
traditionally that comes through the air districts. And it is a regulation that we'll be relying -- working with the air districts to make sure it's provided consistently and in a timely manner so that this -- these kinds of evaluations can be done, not just by ARB, but by external stakeholders.

The other thing that's occurred is an update to the visualization tool. It now includes census tracts in it, so that anyone who has access to the internet can look at census tracts in their community. They can look at the CalEnviroScreen scores, a list of the facilities in that census tract. The individual and aggregated emissions within that census tract, and charts to look at a comparison of greenhouse gases, criteria and toxic pollutants and emissions trends. And so the access and available to that information has -- has improved greatly to the level that is of interest to the folks that we were getting comments from from the EJ representative groups.

So there is work that has been done, and we are -- we're making progress to make sure that we can -- we can follow through on this ask.

BOARD MEMBER TAKVORIAN: Yeah, I think that's --
CHAIR NICHOLS: Okay. A Quick follow.
I'm sorry. Go ahead. If you're not finished, go ahead and finish.
BOARD MEMBER TAKVORIAN: No, I think that's an important point, and I do appreciate that the transparency has increased. I think it's the adaptive management tool was to put the cap-and-trade trends and the emissions together for those census tracts. So we have all these individual tools. We need to look at what the trends are over -- over time, the relationship, not only to cap and trade, but hopefully over time to the other regulations that are coming into -- into being.

So do you have any update on where that integration, where the -- an intersectional tool might occur, so that we can actually see it over time and weigh the effectiveness of the rules together.

INDUSTRIAL STRATEGIES ASSISTANT DIVISION CHIEF SAHOTA: So in terms of looking at the data, like being able to look at greenhouse data and criteria and toxics data, you can do that at the census tract level now with the new functionality and the visualization tool. It pulls those together.

So we've got greenhouse gas data reported separately. We've got criteria and toxics data that was pulled in through a different database here. They're now available in the same database in that mapping tool by census tract. So the functionality exists. I think we still need to continue to work on making sure that we
address the data gaps that have been identified, both in
those studies, and even that we agree with internally that
we need to have a better handle on to be able to do the
kinds of analyses I think you're asking for.

BOARD MEMBER TAKVORIAN: Thank you.

CHAIR NICHOLS: A follow-up from Dr. Balmes.

BOARD MEMBER BALMES: Yeah, just a short
follow-up. As many of the staff know, the Adaptive
Management Program is something I've been harping about
for as long as I've been on the Board. It had a different
name initially. And you just talked about it being
integrated at the census tract level. But I think the
original intent was at the facility level. So that's --
those are two different things.

And then another thing you said, and, you know,
we'll be talking about this at length in December, was
that there be data on emissions available for criteria
pollutants.

CHAIR NICHOLS: Um-hmm.

BOARD MEMBER BALMES: But it's the toxic
pollutants that I'd be much more concerned about at the
census tract or neighborhood level. So I'm looking
forward to our discussion in December about the emissions
inventory that's supposed to be statewide according to AB
197. And I'm pretty sure it's at the source level, not
the census tract.

CHAIR NICHOLS: Mr. De La Torre.

BOARD MEMBER DE LA TORRE: Thank you. I appreciate a couple of the points that were made by my colleagues around some of the possible adjustments that need to be made. But I wanted to address the issue of the ceiling, because we had so many people come talk to us about the price ceiling.

I'll start with a paid Tweet that I got, and then I also got it on my various newspapers that I check out it popped up. So notwithstanding the very clever algorithm that figured out to dump this stuff on me --

(Laughter.)

BOARD MEMBER DE LA TORRE: -- when I saw it, I thought, well, that's not very effective. So I'll read from -- from one of these.

"The State regulators are ignoring the Legislature resulting in skyrocketing household costs for food, energy, and fuel. Please re-Tweet to CARB to let them know that we can't afford higher energy and fuel costs".

And then in the little box with the picture of the sad looking woman, "State regulators' actions may result in skyrocketing my cost of living".

So I see that thing, and I'm wondering, what --
yea, what am I doing? Why -- why do people need to reach out to me. Clearly, the algorithm found me. And, you know, folks, you can spend your money however you want on whatever consultants you want, but stuff like that just isn't very good. Just my reaction to it.

In terms of the price ceiling, a couple points. One, I really like symmetry. I like having something that's smooth and consistent. Business is always saying to us we just want consistency. We want to know what we should be doing. And here we are giving you consistency, not unlike what you've had for the last several years with the high and a low, gradually increasing.

That's -- it's symmetrical. It's simple. It's consistent until 2030. That's pretty good. In fact, some folks came to lobby me on your behalf. And when I told them that, they said, yeah, we like consistency. We like to have -- as business people, we like to have some foresight about what we're expected to do. So we left on very friendly terms from that meeting.

That is what you say you want. And then when we give it to you, because it's not the result that you want, then we get algorithms, and Tweets, and advertising and -- et cetera, et cetera, et cetera.

Interestingly, on that Tweet, by the way, most of the comments below were about AstroTurf. FYI.
Thank you.

(Laughter.)

CHAIR NICHOLS: Okay. Are there other Board members who wanted to comment?

VICE CHAIR BERG: Can I make a closing comment.

CHAIR NICHOLS: Yes, you may make a comment.

VICE CHAIR BERG: You know, I just would also like to thank staff. And I think that my fellow Board members and Assembly Member Garcia, you would agree with the fact that our -- Rajinder earned CARB's highest honor this year as the Executive Officer's Award of Excellence. And I think that that was presented to her last month. And I think it's fair to say, on behalf of my fellow Board members, that a honor very well earned. And I had hoped to be there.

And so I did actually get to have the write-up. And I would have never guessed that your bachelor's and masters was only in atmospheric science, since you also seem to be -- have a great expertise on markets, on data collecting, on how to analyze this, and how to look at it, and your team. That is quite amazing. So congratulations, Rajinder.

INDUSTRIAL STRATEGIES ASSISTANT DIVISION CHIEF SAHOTA: Thank you. I really appreciate that. It's been exciting to work on this program, and especially with the
Board members, and the Executive Office and the staff.

CHAIR NICHOLS: Great.

But before we bring this to a vote, I neglected to call on one of my Board members. So go ahead, Mr. Eisenhut.

BOARD MEMBER EISENHUT: Thank you, Chair Nichols.

I heard your earlier comment about -- and by the way, I wanted to get my comments in before Rajinder lost her voices, so I hope I'm in time.

(Laughter.)

BOARD MEMBER EISENHUT: Your earlier comment about monitoring the price ceiling because that is a target that's 12 years away. And Rajinder's comments about daily and annual monitoring. And I'm asking really if -- because I know that staff would do the work anyway, but if there were a formal inclusion of a trip-wire that said if -- if the price is 80 percent of the price ceiling, that it triggered a mandatory review. So that's my question of staff.

INDUSTRIAL STRATEGIES ASSISTANT DIVISION CHIEF SAHOTA: So there is actually a trip-wire, to use your words, in AB 398. And in AB 398, it says if you have two consecutive auctions that exceed the price in the first reserve tiers, so even at that bottom tier of that three tier structure, there is a report that the Independent
Emissions Market Advisory Committee must provide on the likelihood that we would reach the prices in the price ceiling.

BOARD MEMBER EISENHUT: Thank you.

INDUSTRIAL STRATEGIES ASSISTANT DIVISION CHIEF SAHOTA: So folks had already contemplated and made that part of the legislation. But that's -- that was a -- that's a really good point.

BOARD MEMBER EISENHUT: Okay.

CHAIR NICHOLS: Okay. It's clear that not every issue that anybody has with this program has been resolved. But I feel like we have had enough discussion at least at this point on the amendments that are in front of us to be able to move on.

So I would like to ask for a motion on the -- and a second.

EXECUTIVE OFFICER COREY: Hey, Chair?

CHAIR NICHOLS: Yes.

EXECUTIVE OFFICER COREY: Chairman, this is -- the next step is to put the 15-day out and return in December for the Board vote, because we have to go through the CEQA comments and response process.

CHAIR NICHOLS: So you're not going to just send it to the Executive Officer at the end, but you're going to bring it back to the Board.
EXECUTIVE OFFICER COREY: We have to return. We have to return to the Board.

CHAIR NICHOLS: So at that point, then we --

BOARD MEMBER DE LA TORRE: As amended.

CHAIR NICHOLS: Yes, as --

(Laughter.)

CHAIR NICHOLS: Only as amended. So -- but -- so that means you don't want us to be voting at this point then?

EXECUTIVE OFFICER COREY: We don't -- that's correct. We don't have a resolution. We'll return in December for the vote after the 15-day.

CHAIR NICHOLS: Okay. I'm sorry. I didn't understand that that was -- that that was your intention. Okay. All right. That's -- we will not take a vote. The record is closed. It will reopen for the 15-day comments. We will receive comments at that time. We will come back the Board.

Okay. Thank you.

We have to fairly brief items, neither one of which requires action, but they're both important information. And they are the small off-road engines, what used to be called lawn and garden equipment. That's mostly what it is. And we've got a bunch of the equipment out there. The expo is still going on. And then the
legislative report, which is I think also fairly brief.

But I think we should probably take a brief stretch break now.

Yes. Okay. If we take a break, I would strongly suggest those who haven't had a chance to look out in the lobby to go take a look before we get back, because there's a lot of interesting equipment there.

(Off record: 4:00 p.m.)

(Thereupon a recess was taken.)

(On record: 4:11 p.m.)

VICE CHAIR BERG: Ladies and gentlemen why don't we go back and take our seats, please, and we'll finish up on our last two items.

I do hope you've had an opportunity to see outside our small engine showcase, because many of us will wake up on a Saturday morning and hear those leaf blowers, or other lawn type of equipment when we think, really? Can't they make those quieter?

So our next item on the agenda is Reducing Emissions from Small Off-Road Engines: Operator Exposure, Health Risks, and Pathways to Zero Emissions.

This is an informational item to update the Board on the small off-road engines, also called SORE, which are primary -- primarily used in lawn and garden equipment.

The Board first approved regulation for SORE in
December 1990 with the ultimate goal to promote the use of electrical powered equipment. Not surprisingly, battery performance issues and poor commercial viability have been challenging. But today, as we can see right out at the showcase, there are zero-emission options that meet performance and power expectations of the lawn and garden industry.

Staff will highlight several case studies where the electrical equipment has been evaluated and where it's already been adopted.

Mr. Corey, would you please introduce this item?

EXECUTIVE OFFICER COREY: Yes, Vice Chair Berg.

So small off-road engines, or spark-ignited engines, rated at or below 25 horsepower are used primarily to power lawn and garden equipment. And currently, there are approximately 16.7 million small engines in California, producing about 118 tons per day of smog-forming emissions.

Staff last reported to the Board in November 2016 to propose amendments to the evaporative emission requirements for small off-road engines. Staff proposed various measures to increase the compliance rate with existing diurnal emission standards and highlighted the need to further reduce emissions in light of the expectation the smog-forming emissions from small off-road
engines will surpass those from light-duty passenger cars in the next few years.

The Board adopted the amendments and asked staff to return and provide an update on progress toward accelerating the transition to zero-emission equipment. We're here today to provide that update just as you noted.

Staff will also update the Board on a recent study that was conducted to better understand exposure to exhaust and resulting health risks associated with the operation of gasoline power lawn and garden equipment.

And with that, I'll ask Dorothy Fibiger to begin the staff presentation.

Dorothy.

(Thereupon an overhead presentation was Presented as follows.)

AIR RESOURCES ENGINEER FIBIGER: Good afternoon, Vice Chair Berg and members of the Board. It is my pleasure to present an informational update on CARB's activities surrounding small off-road engines.

Today's presentation will highlight the significance of the emissions associated with this category, and the need to achieve further reductions. It will also underscore the potential health risks to the operators of this equipment. Finally, we will present staff's vision to promote zero-emission equipment to
eliminate these issues.

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AIR RESOURCES ENGINEER FIBIGER: Small off-road engines, referred to throughout this presentation as SORE, are sparking-ignited engines rated at or below 19 kilowatts or 25 horsepower. SORE is primarily comprised of residential and commercial grade lawn and garden equipment, including mowers, blowers and trimmers.

Utility equipment, such as generators and specialty vehicles, including some golf carts, can also be included in SORE. Today, we will be focusing on lawn and garden equipment that falls in the SORE category.

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AIR RESOURCES ENGINEER FIBIGER: There are two pollutant emission sources from SORE. Exhaust emissions occur when the equipment is in use, while evaporative emissions occur primarily while the equipment is stored. Approximately 60 percent of SORE emissions are from exhaust.

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AIR RESOURCES ENGINEER FIBIGER: For nearly 30 years, the Board has helped reduce emissions through SORE regulations. In December 1990, the first emission standards for SORE were adopted and set to go into effect in two tiers. Tier 1 was set for model years 1994 to '98,
and called for a three to 55 percent reduction in exhaust emissions of hydrocarbons and NOx. Tier 2 was set for model years 1999 and beyond and worked to promote electric equipment, but was relaxed due to a lack of reliable electric options.

The first evaporative emission standards for SORE were adopted in 2003, and 2008 saw the reduction of credits -- the introduction of credits for professional level zero-emission equipment. Just this year, Blount became the first manufacturer to qualify for the zero-emission equipment credits with their Oregon brand.

In November 2016, amendments to SORE evaporative emissions regulations were introduced. At the time, compliance with existing standards was low, so changes were implemented to increase accountability. The Board also asked about increased incentives for zero-emission equipment, and directed staff to return in 2018 to update progress towards electrification.

In 2020, staff will return to the Board with regulatory amendments for lower exhaust and evaporative emission standards.

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AIR RESOURCES ENGINEER FIBIGER: As you may recall from our 2016 presentation, this graph really struck a chord with several Board members and showed that
SORE will be an increasingly important portion of smog-forming emissions in the State of California. Through CARB's regulatory activities, emissions from light-duty passenger cars are decreasing significantly. Smog-forming emissions from SORE, however, are projected to rise slightly due primarily to the increasing number of SORE equipment. By 2031, without further regulation, smog-forming emissions from SORE are projected to be about twice that from light-duty passenger cars. To achieve the overall mobile source emission reduction goal of 80 percent, staff plan to return in 2020 with reduced standards for both exhaust and evaporative missions for small off-road engines.

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AIR RESOURCES ENGINEER FIBIGER: In 2016, we also alerted the Board to the 50 percent failure rate observed by CARB during preliminary testing of SORE evaporative emissions. Since that time, staff has completed several compliance tests as shown on this graph. Each symbol on the graph represents test results for five engines. Green triangles represent passing results, while red dots are failures. Overall, the compliance rate is 58 percent. The 2017 model year shows an improved compliance rate over
2016, though the difference in pass rates is not statistically significant. Testing is ongoing and more results will be available soon.

Now, I will hand the presentation over to Zoe Zhang from the Research Division to talk about operator exposure to exhaust emissions.

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STAFF AIR POLLUTION SPECIALIST ZHANG: Thank you, Dorothy. Operators of lawn and garden equipment can be subjected to high air pollutant exposures due to their close proximity to exhaust. Professional gardeners and landscapers who use these devices on a daily basis are of particular concern. Unfortunately, up-to-date information on exposures and the associated health risks is limited, so staff conducted an in-house study.

Pollutant concentrations were measured at operators' breathing zone, while they were performing typical gardening activities. Measurements included air toxics such as benzene, 1,3-butadiene, xylene, ethylbenzene, and formaldehyde. Real-time levels of particles, carbon monoxide, and noise were also monitored.

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STAFF AIR POLLUTION SPECIALIST ZHANG: Eighteen new and one used gasoline-powered devices were tested along with five new electric devices. These devices
included chainsaws, leaf blowers, string trimmers, hedge
trimmers, push lawn mowers, and riding lawnmowers.

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STAFF AIR POLLUTION SPECIALIST ZHANG: This is an
infrared video of a string trimmer operator, where we can
see a large dark plume coming out of the exhaust pipe,
rising up, and reaching the breathing zone. The dark
color of the plume is due to the imaging technology, which
indicates a mixture of carbon dioxide, or the vapors, and
toxic chemicals, such as benzine and one 1,3-butadiene.

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STAFF AIR POLLUTION SPECIALIST ZHANG:
Preliminary results showed that all gasoline-
powered lawn and garden equipment increased the operator
exposure to benzene toluene, ethylbenzene, and xylene,
also known as BTEX, and 1,3-butadiene. Chainsaws produced
the highest exposure among the devices tested, possibly
due to the close proximity to the operators' breathing
zone and relatively stationary position of the operators.

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STAFF AIR POLLUTION SPECIALIST ZHANG: Cancer
risk assessments were conducted based on increased
exposures to carcinogens, benzene and 1,3-butadiene, over
a 25-year exposure period for commercial uses. While all
devices increased the operator's cancer risks, use of
chainsaws led to the highest cancer risks. In this study, we tested four chainsaws and the cancer risks ranged from 41 to 158 with an average of 81 additional cancers per million workers exposed.

Cancer risks from the remaining devices ranged from two to six potential additional cancer cancers per million workers consider exposed. Commercial operators of gasoline-powered devices could potentially double the current cancer risks from benzene and 1,3-butadiene compared to baseline exposures, which are predominantly from mobile sources.

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STAFF AIR POLLUTION SPECIALIST ZHANG: The results show that using zero-emission equipment reduces operator exposure to toxic air pollutants. We would expect improvements in health as a result. However, limited by the small sample size and short testing duration, the findings presented here should be considered as preliminary.

Results also indicate that using zero-emission equipment reduced short-term exposures to carbon monoxide and noise. With noise, reduction ranged from on 10 to 70 percent compared to gasoline-powered devices.

In summary, the results suggest that moving towards zero-emission technology will reduce exposures and
the associated health risks for expose -- for operators of
gasoline-powered lawn and garden equipment.

Now, I'll hand the presentation back to Dorothy
who will discuss the current state of availability of
zero-emission equipment.

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AIR RESOURCES ENGINEER FIBIGER: Thank you, Zoe.
As you pointed out, zero-emission equipment, or
ZEE, can reduce health risks to operators. It can also
reduce smog-forming emissions, which is essential to
helping California achieve its mobile source strategy
emission reduction goals.

In 2016, when we last reported to the Board,
commercial electric lawn and garden equipment was fairly
new to the marketplace. Today, there are 12 brands of ZEE
that are marketed to landscape professionals. Each
manufacturer has optimized power, weight, and battery life
in different ways. Improved battery technology is key to
improve all facets of ZEE. Commercial operators expect
performance as good or better than gas-powered equipment,
and manufacturers have achieved this in some categories
and are close in others. At present, string trimmers and
hedge trimmers have demonstrated equivalent performance
while leaf blowers meet all but the highest powered demand
applications.
AIR RESOURCES ENGINEER FIBIGER: Over the past 18 months, staff has partnered with several manufacturers of ZEE to arrange demonstrations of the equipment with groundskeeping groups. Our goal is to have State agencies lead by example on converting to electric equipment. The demonstrations have allowed crews to test out equipment and see how ZEE fits with their current needs.

We began these demos with Capitol Park, since they are nearby and we could coordinate easily. The crew was able to test several brands of equipment under a variety of conditions.

Overall, feedback on the equipment was very positive. ZEE is especially popular in the downtown area, where noise and fumes are frequent complaints. In Capitol Park use of electric equipment allows crews to run equipment early in the morning and near outdoor presentations.

AIR RESOURCES ENGINEER FIBIGER: As a result of the demos, Capitol Park has purchased ZEE to supplement their gas-powered equipment and has plans for more. Capitol Park estimates they are at about half electric usage, though that will very seasonally and by task, with the highest ZEE usage occurring in summer. While we are
concerned about operator exposure year-round, the overall emissions impact is most significant in the summer when ozone levels can exceed ambient air quality standards. Notably Capitol Park avoids all usage of gas-powered equipment on spare the air days.

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AIR RESOURCES ENGINEER FIBIGER: Building on the success Capitol Park, we began coordinating similar demos with the grounds crew at CSU Sacramento. For similar reasons, the crew was mostly positive about electric equipment. The low noise of ZEE allows for use near classrooms.

Additionally, ease of starting the electric equipment made the chainsaws and polesaws particularly popular. CSU Sacramento has purchased some ZEE and is planning for more going forward. The CSU demonstration included Husqvarna's robotic lawnmower, the Automower. Honda's robotic mower, the Miimo, is currently running at UC Davis. Though grounds crews thought the -- thought these mowers were not practical for widespread use on campuses due to landscaping layout, the heavy foot traffic means many people have seen the mowers in operation. They frequently remark on how quiet the mowers are.

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AIR RESOURCES ENGINEER FIBIGER: Expanding on the
achievements of the demonstration projects in the Sacramento area, we have begun promoting ZEE statewide, including demos with groups from the Department of Transportation, various Department of General Services groups, as well as college campuses and county government.

Crews that work in city centers around college campuses like ZEE because it's quieter and therefore much less disruptive. Groups that work on less manicured landscaping report high-powered needs, which are sometimes difficult to meet. Newer, high-powered ZEE, can help with these heavy -- with the heavy-duty work and can eliminate this issue.

The other problem groups have is remote work where they are unable to plug into the grid throughout the day. There are trucks in development aimed at landscaping professionals equipped with a battery bank to provide all-day power for ZEE.

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AIR RESOURCES ENGINEER FIBIGER: Our demos have evolved into the ZEE roadshow which is a trailer with five brands of commercial grade ZEE in all available equipment types. The roadshow just began in October and is already visited an electric vehicle showcase at UC Irvine and the California Green Schools Conference in Pasadena.

The equipment was left with the grounds crew at
UC Irvine which enabled them to go all electric for several weeks. The crew is enthusiastic about moving to more electric equipment going forward. After today's hearing, the roadshow will visit public colleges and local government groups. The equipment will be left for one to two weeks to allow them to test various brands and equipment types and decide what works for them before purchasing.

Many groups have had bad experiences with ZEE in the past, so by letting them try out several brands that work for other landscaping crews, they can overcome these biases.

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AIR RESOURCES ENGINEER FIBIGER: Modifying the State Administrative Annual, or SAM, is another way to the State is leading by example. The SAM is used statewide by government groups to set policies on many aspects of government grounds, including landscaping and hardscaping.

We have been working with government operations to update the SAM language to move State groups toward use of electric equipment, which will have impact statewide. Matt Henigan, Deputy Secretary for Sustainability with Government Operations will be speaking after this presentation about those updates and our collaboration with DGS.
AIR RESOURCES ENGINEER FIBIGER: To promote use of ZEE among residential and commercial users, staff has recently launched a zero-emission landscaping website. The site is aimed primarily at residential users with a comprehensive list of available ZEE and links to websites where equipment can be purchased.

This is a simple central place to direct users of lawn and garden equipment who are looking to switch to ZEE. There are also links to several review pages so users can get a sense of the variety of equipment available. Additionally, there are listings of landscape maintenance companies that use all zero emission equipment.

Commercial grade equipment is listed separately from the residential equipment to allow for easier access for landscapers looking to convert to ZEE.

AIR RESOURCES ENGINEER FIBIGER: In the U.S., sales of lawn and garden equipment are dominated by gasoline-powered versions as shown on this graph in red. While sales of electric equipment, represented by the blue, have increased 40 percent in the past ten years, in 2017, they were still only 13 percent of the total.

State level data is not available. Currently we
are conducting a survey of SORE population which will help
determine the percentage of ZEE in use in California. In
2020, along with new emission standards, staff will
propose new reporting requirements to obtain this data on
an ongoing basis. By continuing to promote ZEE, lowering
SORE emission standards, and increasing ZEE incentives,
our goal is to drive up the percentage of ZEE sales in
coming years.

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AIR RESOURCES ENGINEER FIBIGER: Incentives are
necessary to promote ZEE, because it is more expensive to
purchase. Here, we show a cost comparison between
electric and gas ride-on mowers. This is the most
expensive version of ZEE and its gas equivalent, and they
show the most stark example of cost differences. The Mean
Green mower shown here has an upfront cost over twice that
of the gas-powered equivalent. The cost of the Mean Green
is driven primarily by its batteries, which are sufficient
to run the mower for a full day.

Even with this price difference, the break-even
point occurs in less than three years, because the
electric mower costs less to operate. Higher gasoline
prices would move the break-even point earlier as does
engine maintenance, which is much higher on a gas engine
mower.
Handheld equipment, which has lower power demands, can have a break-even point of less than 18 months.

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AIR RESOURCES ENGINEER FIBIGER: A crucial component of transitioning California lawn and garden equipment to ZEE is incentives to reduce the high upfront cost of electric equipment. In May 2015, the Bay Area AQMD implemented an exchange for commercial lawn and garden equipment to help with the upfront cost of switching to ZEE.

The program was financed with over $800,000 in settlement funds and was only available to participants in Alameda and Contra Costa counties. Schools were given top priority, and then other municipal agencies were allowed to participate. Demand for this program exceeded available funding, and there was also interest from other counties.

Most participants said the electric equipment performs comparably to gas, but spare batteries were necessary for regular use. South Coast AQMD and San Joaquin Valley APCD are both preparing to launch similar commercial exchanges soon.

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AIR RESOURCES ENGINEER FIBIGER: In addition to
the commercial exchanges, many air districts have active exchange programs aimed at residential users. These programs typically offer a discount when replacing gas-powered equipment with electric, and have been financed through a combination of Carl Moyer and district funding.

In addition to these active exchange programs, many of other districts have had similar residential programs in the past.

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AIR RESOURCES ENGINEER FIBIGER: A growing number of cities have put into place local ordinances and wholesale transformative practices. Over 100 cities in California have ordinances limiting leaf blower use in some manner.

We'd like to highlight two cities in particular. Ojai, who's Mayor is pictured here, recently converted to 100 percent ZEE for landscaping thanks to a $60,000 grant funded by the Ventura County Air Pollution Control District.

In 2016, South Pasadena became the first city in the nation to earn the title Green Zone City, a certification that the American Green Zone Alliance awarded. All hedge trimming, lawn mowing, and leaf blowing on city-owned properties is now done completely
with low-noise zero-emission equipment.

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AIR RESOURCES ENGINEER FIBIGER: Through the California Department of Education and a growing number of proactive schools, green schools programs are proliferating. These activities pave the way for improvements to schools' landscaping practices. Staff are exploring pathways to incorporate additional guidance on adoption of ZEE to green schools programs.

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AIR RESOURCES ENGINEER FIBIGER: Since last appearing before the Board in November 2016, staff have been working across divisions to develop commercial incentive opportunities for ZEE. In October, you, the Board, approved the fiscal year 2018-19 funding plan for clean transportation incentives, and through that, the Clean Mobility in Schools Pilot Project.

In that plan, zero-emission lawn and garden equipment is one of several eligible components. The Carl Moyer Program provides an existing framework for incentives to convert to ZEE. Currently, the only eligible category of landscaping equipment is lawn mowers with maximum funding of $145 per mower.

We are exploring ways to expand this framework to
include commercial equipment and equipment types beyond lawn mowers, including blowers, trimmers, and chainsaws.

Additionally, AB 617 has funding to help achieve emissions reductions in identified communities, with a focus on zero-emission technologies where feasible. We are working to develop methods to utilize this funding for zero-emission lawn and garden equipment.

Lastly, since the passage of AB 1071, Supplemental Environmental Projects, or SEPs, have an increased focus on benefits to disadvantaged communities. Staff is working to inform communities about the opportunity to apply for SEPs, and that they can be used to fund conversion to ZEE. These programs, combined with new incentive approaches, can help the State transition to ZEE.

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AIR RESOURCES ENGINEER FIBIGER: To be able to penetrate the market more broadly, we need to address the needs of small businesses for whom the transition may prove costly. That could be accomplished with a targeted incentive approach. Small businesses, with one to ten employees, make up over one-third of all landscaping companies in California. To offer a 50 percent incentive on ZEE, these companies would require 20 to 30 million dollars in funding, which could be allocated over several
This relatively small investment can accelerate the use of ZEE by a sector traditionally populated with older higher emission equipment. State and municipal groups may also require help getting over the initial cost of conversion to ZEE, which could be provided through incentives.

Staff are working to identify additional funding sources to provide the necessary incentives to help transition these businesses and organizations to the use of zero-emission equipment.

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AIR RESOURCES ENGINEER FIBIGER: One hundred percent ZEE is achievable, but getting there will require action on multiple fronts. Significantly lower emission standards for SORE will drive manufacturers to produce and sell more ZEE in the state. With robust allowances for ZEE credits, manufacturers can achieve reductions through engine modification or production of ZEE.

Additionally, category-specific ZEE requirements could be implemented quickly. Hedge trimmers and string trimmers are both available in ZEE that is at least equal to their gas-powered equivalents.

Finally, incentivizing purchases of ZEE can help overcome the high upfront cost.
AIR RESOURCES ENGINEER FIBIGER: Going forward, staff believes a transition to quiet zero-emission equipment, like that in the showcase outside, is a essential component of meeting the emission reduction goals of the Mobile Source Strategy. Staff will return to the Board in 2020 with a proposal to lower emission standards for SORE.

We will also continue promoting ZEE throughout the state with an initial focus on communities identified through AB 617. The ZEE roadshow and collaboration with manufacturers of ZEE will allow municipal grounds crews to try equipment and determine what works for them before investing.

Staff will also continue to identify and implement further incentive programs to help small businesses, municipal organizations, schools, and other landscaping groups eliminate the use of gas-powered lawn and garden equipment. The showcase outside has many examples of the equipment available for this transition.

Thank you for the time -- for your time.

I would now like to introduce Matt Henigan, Deputy Secretary of Sustainability with Government Operations. Matt will be speaking in more detail about the updates to the State Administrative Manual and the
collaborative effort to require use of electric lawn and
garden equipment when possible.

MR. HENIGAN: Thank you, Dorothy.

I appreciate the opportunity to address the
Board. My name is Matt Henigan. I serve as Deputy
Secretary for Sustainability in the Government Operations
Agency. And the goal of our sustainability programs at
GovOps, and DGS, and State agencies is to reduce the
environmental impact of State operations.

This administration feels that it's essential
that State operations model best practices and lead the
way towards a sustainable future for the entire State of
California. We've made enormous progress in reducing
emissions from our state vehicle fleet. And our petroleum
reduction goals have largely been met on time and on
target.

But noise and pollution from landscape equipment
remains a problem that we have not made progress on.
That's why I was pleased to enter into a partnership with
the Air Resources Board Laboratory and Monitoring Division
and DGS to try out electric equipment in Capitol Park.

The outcome of this test proved that commercial
equipment is ready for prime time, and is suitable for our
uses in Capitol Park and other State facilities. And as a
result of the successful outcome of this test, Department
of General Services has drafted rules requiring the use of manual and electric equipment at State facilities.

Our State Administrative Manual Chapter 1821.6 is being updated to require sweeping and raking as the preferred method of clearing debris, allowing blowing only when specifically necessary, and even then requiring those blowers to be electrically powered.

We are also requiring departments to replace gas-powered chainsaws, hedge trimmers, lawn mowers, string trimmers, leaf blowers, and chainsaws with electric equipment as the -- as equipment is replaced on its normal replacement schedule. However, cost will be a major barrier to implementation and could push out the date of that equipment replacement. Rebates and incentives targeted at public agencies would certainly accelerate our progress at reducing smog-forming emissions from State operations.

So I'm pleased that State operations can play a role in transitioning the state of California to zero-emission landscaping equipment. And I thank Air Resources Board and Department of General Services for their partnership.

Thank you.

BOARD MEMBER GIOIA: I have a question. Can I ask --
VICE CHAIR BERG: We have a question for you.

BOARD MEMBER GIOIA: Can I ask you to send over
to us your current policies and the policies you're
drafting. That would be useful, because one of the things
I'm sure we'll talk about at the end is the -- how we
encourage -- there's some of us in local government -- to
get local agencies, cities and counties, to do the same.
And I know we'll hear from South Pasadena and Ojai, which
have programs.

So it would be useful to see what the Department
is doing and to see your program -- and to see your
policy. If can send that over, that would be great.

MR. HENIGAN: I'd be happy to. And it will be
posted to the State Administrative Manual Website.

BOARD MEMBER GIOIA: Great. Great. Thank you.
MR. HENIGAN: Thank you.
VICE CHAIR BERG: Thank you.

Well, we do have ten witnesses, so we'll go ahead
and hear the witness list and then finish up with Board
comments. If you could please see where your place is on
the list, and if you're the next speaker, please come on
down. And you can help us keep your time at three
minutes, but we'll reduce the in-between time.

And welcome Mr. Moss.

MR. MOSS: Thank you. Good evening now almost,
Madam Chair and honorable Board members. My name is Jacob Moss on behalf of the South Coast Air Quality Management District. Thank you for the opportunity to comment on CARB's informational update on reducing emissions from small off-road engines. We appreciate the efforts by CARB staff in generating the updated information, and we fully support the development of more stringent exhaust and evaporative standards, and the accelerated move towards zero-emission equipment.

As many you know, I'm sure, the South Coast Air Basin is facing a major challenge in meeting the eight-hour ozone standards requiring significant levels of NOx reductions in the range of 45 and 55 percent by 2023 and 2031 respectively. Both NOx and VOC reductions are also needed to meet the one-hour ozone standard by 2022.

The SORE category represents a substantial source of NOx and VOC emissions in the basin, surpassing passenger vehicle emissions by 2020, as also highlighted in your staff presentation. The 2016 State SIP strategy includes specific emission reductions commitments for the SORE category, which are critical for our ozone attainment demonstrations.

We fully support your staff's recommendation to develop stricter exhaust and evaporative standards by 2020, in order to achieve and even exceed the commitments
in the 2016 AQMP. Implementation of these standards will not only reduce criteria pollutant emissions, but they will also reduce air toxics exposure associated with the use of this equipment.

According to our latest multiple air toxics exposure study, benzene and 1,3-butadiene, two of the key components of gasoline emissions account for about 16 percent of the total cancer risk in the basin. Therefore, CARB's goal to move towards zero-emission lawn and garden equipment would be critical for reducing air toxic exposure, as well as to help meeting our 2023 ozone attainment deadline.

We also believe that continuous implementation and expansion of existing complementary incentive programs is essential to maximize the potential emission benefits for this source category. South Coast has been administering an incentive program for accelerating the use of zero-emission lawn and garden equipment since 2003, which has successfully retired almost 57,000 high polluting lawn mowers and 900 leaf blowers since then.

In summary, we strongly support the findings presented in today's informational update, and we urge CARB to proceed expeditiously in amending and adopting the existing SORE regulation, and we are fully committed to working collaboratively with CARB staff to that end.
Thank you.

MR. COLOME: Good afternoon, Vice Chair Berg and members of the Board. My name is Steven Colome, a pro bono consultant to the City of Ojai. And I actually thought our Mayor was going to speak first, so I was going to follow up with some thoughts.

We were able to completely convert all of our public works lawn and garden equipment to battery electric from a grant received by the Ventura County Air Pollution Control District. And as a condition of that grant, we're expected at the end of this trial year to completely scrap all of the gasoline equipment, thereby taking it and its CO2 emissions and everything else out of circulation forever.

I want to leave you with several thoughts about what makes this successful. This would not have happened -- our city council would not have voted to expend this money without the grant from the APCD. It was that grant money that really made this possible.

The other part that helped us in enormously is that we had contracted with the American Green Zone Alliance. Even though we have a very good city engineer and public works staff, the intricacies of putting in battery charging facilities, selecting what ensemble of equipment would be used that would be appropriate to the
city required that outside expertise.

So I would encourage you to find ways in terms of accelerating this to help monetize those who are going to accelerate the penetration of that -- this equipment.

One thing I'd like to stress is this really does appear, from the staff presentation and everything else, to be extremely low-hanging fruit for CARB right now as a source of emission reduction. We have alternatives to the gasoline equipment. And I would -- I would encourage that that be accelerated as quickly as possible.

I think we don't need to fine-tune exposure assessment or emission numbers to have just the obvious fact in front us that this is an emissions source that today, with alternate equipment, can be fully retired.

I also think it's unlikely that emission reduction plans going forward are going to be sufficient. We're still -- this -- there's a matter of physics, there's going to be emission from the gasoline equipment.

And I'd also like to leave you with a fact that there's truly an environmental justice issue here. Think of the Peanuts cartoon Pig-Pen. Unfortunately, these workers are exposed to a cloud of toxic emissions and air pollutants. And it's a class of worker that often gets short shrift in our regulatory world. While I know that occupational health is not your responsibility, it
definitely is a benefit to the worker when those emissions are not in their nose.

Thank you.

VICE CHAIR BERG: Thank you for bringing -- making trip up to see us.

MR. JOHNSTON: Good afternoon. My name is Johnny Johnston. I am the Mayor of the famous, or infamous, City of Ojai, California, and I come in peace.

(Laughter.)

MR. JOHNSTON: I want to thank your Board, the staff, and particularly the Ventura APCD, along with Dr. Colome who brought this idea to me that we had to overcome what was a circumstance that gave different meaning to the word "sustainability". We use that frequently in our town. But what we have sustained was a 20-year debate over leaf blowers. We became almost the laughing stock of the county, but there was a reason for it.

And in the end, with the partnership with APCD, this incentive -- we have been able to successfully implement a program that is projected to reduce the amount of pollution, just from what the city does, by 40 tons in one year.

So what Dr. Colome is saying, I mean, this is a high return on the investment, and we would strongly encourage you to try to perpetuate this idea with other
communities. And we would be more than happy to go around
and talk to them and tell them how important it is.

So thank you.

VICE CHAIR BERG: Thank you very much. Ojai is
one of my favorite places.

BOARD MEMBER GIOIA: Can I make a comment?
VICE CHAIR BERG: Yes, please.
BOARD MEMBER GIOIA: Let me just acknowledge that
effort, because, you know, I'm in local government as
well. I serve on a board of supervisors up in the Bay
Area. And what I have found in my many years on the board
is that it's always easier to get one's own agency to move
when you can point to the success of another municipality.

And so with what you've done in Ojai and what
South Pasadena has done, I think it makes it -- at least
we have a place to point to. So when we talk to our own
public works directors and say, see, it can be done. They
did it. Because as you know, you went through this, being
the first isn't easy, right? You have to break new
ground, under -- you know, change the old way of doing
things, change the old psychology.

And so I think it's really important to
acknowledge those who are first in a field, because you
then make it easier for others to follow. And I -- so I
just want to acknowledge that. And I've already been sort
of noting and -- it would be great if you could send us
any policies that your city has put in place, if there's
any written policies about this, or whether it's just a
practice, because I think part of what we can do is share
best practices.

And when -- again, when your practices are shared
with others, there's a greater chance of their adoption.
So if you can send us anything, that would be great.

MR. JOHNSTON: Thank you. We'd be happy to do
that.

MR. KUJAWSKI: Good afternoon. My name is Ted
Kujawski. I'm the sales manager for Pacific Stihl.
Pacific Stihl is a division of Stihl Incorporated, and we
are located in Visalia, just three short hours to the
south of us. We're a wholesale distributor serving the
region of Arizona, Nevada, California, Hawaii, Guam, and
America Samoa. We serve the end users in these region by
selling through independently owned full service
retailers, our dealers.

In the state of California, we have about 500
dealers. And these dealers each bring their own
personalities and expertise to the selling process. Each
dealer has been trained and is continuously updated on the
most efficient methods of trouble shooting and repairing
our products.
Each year we conduct Stihl Universities to keep our dealers up-to-date regarding new products and their applications. Authorized Stihl dealers have the expertise to help Californians make the proper buying decisions for their needs. This buying experience cannot be duplicated at the big box stores or on the Internet.

Battery power made by Stihl. A short two years ago at this expo, I remember very clearly we had about nine pieces of equipment and about three batteries. It was on one table. And today, we have four tables, plus a couple other displays. So it's pretty incredible how fast we've been able to add to the battery offering.

Currently, Stihl produces battery-powered equipment for most every Californian, light-duty equipment for homeowners with small needs, medium-duty for homeowners with more needs, and, of course, the commercial professional products.

Pacific Stihl has worked closely with the South Coast Air Quality Management District down in Los Angeles for about 11 years now, helping to introduce low-emission, low-noise products to commercial gardeners and landscapers. And for the past two years or so, we've worked closely to introduce zero-emission commercial battery products, also down in L.A., to gardeners and landscapers.
For several years, we worked with the Bay Area AQMD to replace gas-powered equipment on and around school campuses. And we've also worked with the San Joaquin Valley Air Pollution Control District to help introduce battery-powered lawn mowers to the Central Valley.

We've learned that it takes awhile for commercial gardeners to get used to the different type of power that battery brings. Buying the wrong product, or a less quality battery-powered product, especially by commercial gardeners, will only mean a quicker trip to the landfill. So that enforces the importance of our servicing dealers.

Those that are using Stihl equipment now like Stihl equipment.

SO in closing, Stihl battery-powered products are already getting the job done throughout California. Thanks to the quality of the product and our servicing dealers. I hope you all had a chance to stop by the booth and we really appreciate being here.

Thank you.

MR. GAULT: Good afternoon. My name is Roger Gault. I'm here today representing the EMA. EMA member companies produce small spark-ignition engines that are used in ground-supported equipment, such as lawn mowers, garden tractors, pressure washers, and generators.

EMA and its members have been working with CARB
staff on the development of its plans for a possible future small SI rulemaking. We appreciate the staff's providing the Board with an information update on those plans. We are committed to continuing to work with CARB on that development effort.

In that spirit, we want to make sure that the Board and its staff have the most up to date information concerning the small SI market, and, of course, have the most accurate information on which to base their proposal.

As such, I'd like to note a few things for your information. As you know, the SORE fact sheet is based on the off-road 2007 inventory model. And that model should be updated to reflect major factors that have influenced both population annual use of small spark-ignition engines, including the Great Recession, California droughts, and California user demographics.

EMA member companies believe that factors significantly impact the inventory contribution from SORE. And as such, we encourage staff to update those models. We are working on developing data that will help access that process.

We also need to work together to determine the actual and potential future penetration of zero-emission equipment in California. That data also has an impact on the inventory and, of course, the feasibility and possible
market penetration of zero-emission equipment as part of the future rule.

I should also note that we should make sure that we have the most accurate and up-to-date information on evaporative emissions and operator exposure data. We stand ready to work with all of those issues.

We also want to remind the Board that EMA ground-supported SI manufacturers have previously worked cooperatively with CARB through a series of three rulemakings to significantly reduce emissions from our products by approximately 90 percent from unregulated levels.

We also want to remind the Board that any future regulatory programs must take into account the needs of the marketplace. And that marketplace and those needs encompass both consumers and residential products and commercial users, including large numbers of small businesses who invest capital and equipment powered in a manner to get the job done, and enable them to earn a living.

EMA's small SI manufacturers are committed once again to working cooperatively with the staff to develop a next tier rule. We hope you'll encourage the staff to work with us to make sure any future proposal is practical and implementable, based on the most accurate information...
Thank you.

MR. KNOTT: Good evening, Board members. My name is Greg Knott. I'm with the Outdoor Power Equipment Institute. I'm the Vice President of Standards and Regulatory Affairs.

OPEI is an international trade association representing more than 100 manufacturers and their suppliers of gas-, battery-, and electric-powered outdoor power equipment. As manufacturers of small off-road engines and SORE-powered equipment, OPEI and its members have led significant emissions reductions in this category for more than 20 years.

We will again be working closely with staff to develop what we hope are solutions that will help achieve State and federal goals as well as serve our customers and businesses who depend on our products.

OPEI wants to emphasize the importance of industry and agency collaboration, openness, transparency throughout the rulemaking process. The SORE equipment sector is diverse and includes a wide range of unique equipment applications for uses from residential lawn and garden equipment used infrequently around the yards of millions of homeowners, to generators and chainsaws used to battle or recover from natural disasters, such as
California's wildfires, to commercial landscape, construction, and industrial applications used daily by thousands of working professionals.

The diverse use and types of equipment will require collaborative rulemaking activities, and an emissions reduction solutions that will assure safe, efficient, and productive products.

In addition to ongoing rulemaking collaboration efforts, OPEI would like to offer our support for updating a ARB off-road model. An updated an accurate model is pivotal to understanding the reductions needed for the state to achieve attainment with federal air quality goals.

OPEI and EMA have been working together for two years to understand the existing ARB model. We believe our strong understanding for the lawn and garden market, supported -- excuse me, supported by member data affords us valuable information that should be put to use to develop an updated model that accurately represents the volume and contribution of emissions from the source sector.

For example, through our work, we have updated the ARN model to reflect OPEI growth, fallout in sales as a result of the mid-2000s housing crash, the recession, California's decades long drought, and the rapid growth of
electric products in the recent years. In coming months, OPEI and EMA will meet with ARB staff to discuss our inventory work and the resulting SORE emissions reduction trajectory.

We remain optimistic our comments and discussion points will be considered objectively and contribute to achievable goals that reflect the advancements and diversity of products needed by the SORE category for the foreseeable future.

In closing, as industry representative for gas-, battery- and electric-powered equipment, I want to note that OPEI members are working hard to develop products of the future, regardless of power source. This is clear from the impressive demonstration of equipment in the lobby. However, significant questions and concerns remain regarding the ability of alternative power sources to meet the cost, safety, and performance need of all today's SORE applications. There is no one-size-fits-all solution.

Thank you.

VICE CHAIR BERG: Thank you.

MS. BANKS: Good afternoon, members of the Board, and thank you for the opportunity to speak. My name is Jamie Banks. I'm the Executive Director of a non-profit organization, Quiet Communities. We're located in Massachusetts.
I was just at the American Public Health Association presenting on this topic, so there was a timely opportunity to join you today. That meeting was in San Diego.

We do research, education, and outreach to help industry, communities, and so forth transition to zero-emissions, low-noise equipment. Our capabilities are enhanced by a collaboration with the American Green Zone Alliance to help bring on-the-ground solutions and provide meaningful and positive impact data to encourage others to do the same.

I wanted to make a couple comments. First, just to thank the state of California and CARB for really leading by example. We're trying hard to do the same in the northeast and other regions of the country, and they are looking -- they will be looking to you as an example of how to do this.

The second thing is that I want to thank Dorothy and her research staff for doing this important research and going down to the American Public Health Association. There's not a lot of data in this field. There's very few publications. And because of the size of the problem, it's really something that deserves more public attention and more awareness. And I think the work here is helping to do that, and hopefully, the work that we do is doing
the same with our research and education.

And lastly, I just want to say that not only is there a worker issues, there's certainly a public health issue here in the way that a lot of the gas machinery has been affecting communities. And we hear -- we hear this from many, many communities around the United States.

We focus today -- we've heard a lot on emissions. There is also the issue of noise. And I just thought I would briefly say that we have done research in this area, first a pilot project with Harvard School of Public Health, looking at blowers. What is it about that sound that makes it so distressing to so many people.

What we found is that there was a strong low frequency component that's carrying that sound over distance. We followed up recently with a study. We just submitted a manuscript to the literature comparing leading models of gas to leading models of electric. Basically, found the same thing, that that low frequency component in the gas equipment is carrying the loudness of the equipment.

And interestingly, we had a nested comparison that compared a 65 decibel gas blower, the sound, to a 65 decibel electric blower - 65 decibels at 50 feet that it is - and found that at further distances the loudness noise over 55 decibels, which is a community outdoor
standard, was carried about double the distance, even
those machines are rated the same.

And so in terms of community impact, if you
created a circle around a neighborhood, you're squaring
that distance and you're affecting a much greater portion
of the community. So we think that that's a very
important point to make and something you could applaud,
if, in fact, you were able to reduce that impact. So
thank you.

VICE CHAIR BERG: Thank you.

MR. MASSMAN-JOHNSON: Hi. Thank you, Vice Chair
Berg, CARB Board scientists and staff. I'm Luke
Massman-Johnson with the American Green Zone Alliance, and
we deeply appreciate all your studies on SOREs over the
years, in particular this emissions impact for the
workers.

I'm here to encourage you simply and emphatically
to put an expiration date on gas-powered lawn and garden
equipment in California. CARB and AGZA are walking the
same path to create healthy and sustainable communities,
study, educate, change minds, and change behavior.

And our work supports each other. CARB's
eye-opening 2020 study helps AGZA convince cities,
schools, and hospitals that transitioning large scale
operations to electric is important and urgent. And the
success of AGZA certification and accreditation programs, some of which you've heard today, give CARB proof that your zero-emission goals are not only achievable, but being done today at scale.

As you all know, the risks of inaction are obvious. One, air pollution is among the deadliest health threats to communities around the world. And the primary cause is, of course, man-made combustion.

Two, climate change is fast becoming an existential threat to all life on earth, and its primary cause is man-made combustion. And last, most people are unaware that gas-powered lawn care contributes significantly to both problems, as well as to user health, and they don't know that zero-emission alternatives are available.

Happily, the solutions are also obvious. One, civilizations must rid ourselves of fossil fuels with an urgency and commitment not seen since World War II. Two, CARB is mandated to protect the public from the harmful effects of air pollution and climate change, and you have the tools to do so.

And three, as you can see in the showcase, battery electric equipment has improved dramatically in just the past three years, and it is now viable for all-day commercial use.
What is not obvious, and what lies at the heart of CARB's future decision on this topic, is whether we collectively will be brave enough and fast enough to make the changes that are absolutely necessary to make immediately.

To this end, and with great respect and support for CARB, AGZA strongly encourages CARB to establish a target date of 2025 to prohibit the sale of new gas lawn and garden equipment throughout California.

AGZA is in a unique position to support any CARB initiative, and to help us get there by shepherding cities, schools, hospitals, commercial crews, and homeowners to make this transition safely, effectively, and profitably.

If this target feels too ambitious, we must remember that air pollution and climate change don't respect borders, and they don't care about our opinions or our politics. The science and math are cold facts, unrelenting and accelerating, and only are fast and sweeping actions can make a difference in time.

Thank you for your attention today and for your very important and ongoing work.

VICE CHAIR BERG: Thank you.

BOARD MEMBER GIOIA: I have a question.

VICE CHAIR BERG: Oh, we have a question for you,
sir.

MR. MASSMAN-JOHNSON: Oh, that's great news.

Thank you.

(Laughter.)

BOARD MEMBER GIOIA: Great. So you're -- I was just looking at your website the American -- that's your website, American Green Zone Alliance?

MR. MASSMAN-JOHNSON: That's right, yes.

BOARD MEMBER GIOIA: So -- and just in reading some materials online as I was sitting here, so you provide -- your organization provides some support -- it sounds like you provided support to Ojai --

MR. MASSMAN-JOHNSON: Yes.

BOARD MEMBER GIOIA: -- as they thought about moving forward.

MR. MASSMAN-JOHNSON: Sure.

BOARD MEMBER GIOIA: Is your organization available to provide support generally to municipal agencies?

MR. MASSMAN-JOHNSON: Yes. That's actually become the core of our work.

BOARD MEMBER GIOIA: Uh-huh.

MR. MASSMAN-JOHNSON: We started by helping homeowners and small crews transition from electric to gas. And it became clear that to do this at scale, we
needed to be able to support large-scale operations and full commercial operations. Municipalities have turned out, as the mayor and Mr. Colome -- Dr. Colome here can attest, working with municipalities inspires an entire community.

BOARD MEMBER GIOIA: Um-hmm.

MR. MASSMAN-JOHNSON: You can have a small-ish discussion with a finite budget, with a handful of decisions makers, and affect an entire community at once. So it's a powerful tool. And as they both attested, having support from CARB and the air districts financially to buy down the initial cost of these has turned out to be kind of the turning point of this.

All of us can do as many studies and talk as much as we want about the advantages of electric. That's all fairly obvious. The health and environmental benefits are a slam dunk. The question is can crews or large or small scale afford to make the leap, and do they believe that when they get there, they're going to get their ROI?

BOARD MEMBER GIOIA: Great. Thank you.

MR. MASSMAN-JOHNSON: So, yes, consulting is our -- the core of our business.

BOARD MEMBER GIOIA: Thank you.

MR. MASSMAN-JOHNSON: Thank you.

MR. MAGAVERN: Bill Magavern with the Coalition
for Clean Air. And I think I have to say this is a sore
subject.

(Laughter.)

MR. MAGAVERN: Sorry. It's five o'clock humor.

But I do appreciate the fact that CARB has
continued to focus on this large and growing source of
emissions. And I remember two years ago the last time it
was on the agenda, I raised concerns about worker
exposure. So I appreciate the fact that staff have come
forward with a study. Unfortunately, it shows that we
have reasons to be concerned about worker exposure. And,
of course, we know there are also community impacts at the
local level, and also regional smog problems that are
caused by the VOCs that are emitted by this equipment.

So we need a regulatory approach to continue
ratcheting down on emissions and make that transition to
zero-emission equipment. And it's great to see the array
of products right out here in the lobby. And we also need
to continue the incentives to hasten the turnover from the
dirty equipment.

And also really appreciate what GovOps has done.
It's so refreshing to hear the State of California has
said that sweeping and raking are the preferred
alternatives. I would love to see that implemented in my
neighborhood, I have to tell you, because it seems like
people have just kind of often abandoned those very simple alternatives of sweeping and raking, even when they're very feasible.

So I look forward to being back here in two years when the regulations are updated, and seeing that pathway towards Transition to fully zero-emission equipment.

Thank you.

MS. GARCIA: Hello. I'm Kathryn Garcia from Sierra Club California. Kathryn Phillips was not able to stay this afternoon, so I'm here in her place.

On behalf of Sierra Club California and our nearly 180,000 members statewide, thank you to the staff for preparing this comprehensive report on the impacts of small offshore -- excuse me, small off-road engines. We have submitted a letter on this issue to the docket signed by Earthjustice, the Natural Resources Defense Council, and Sierra Club California. And I want to add that the Lung Association also supports this research.

As the report reveals, these engines are an important and dangerous source of air pollution. Moreover, without new action, the projection is that smog-forming emissions from these small engines will remain steady, and even slightly increase in the future. It is time that CARB take action.

Fortunately, zero-emission plug-in electric
alternatives are available, and commercial, and
affordable. This makes action now possible. The Board
can and should help transition the fleet of off-road
ingines to zero-emissions equipment. Priority should be
focused on commercial users, particularly in disadvantaged
communities.

We urge the Board to direct staff to develop
stronger emission standards for small engines. Some
categories of small off-road engines deserve standards
that encourage a rapid transition to electric engines.

Additionally, CARB should also increase
opportunities for distribution of incentives to encourage
small engine users to replace gas-powered equipment with
battery-elect equipment.

Thanks again to staff for the report, and we look
forward to working with CARB as it moves forward to cut
emissions from small off-road engines.

Thank you.

VICE CHAIR BERG: Thank you.
That concludes our witness list.
There -- this is an informational item only, so
there's no need to close the record. Really appreciate
Supervisor Gioia's comments throughout the testimony, so
thank you for that.

Is there any other comments?
Please, Ms. Mitchell.

BOARD MEMBER MITCHELL: So I wanted to comment that the South Coast District has, for quite a few years, had a program where you bring in your old lawn mower and you change it out for a newer cleaner emitting lawn mower. And then recently we added leaf blowers to that mix. What's pretty remarkable here, I think, is the amount of equipment out there in the lobby. As was mentioned, just a few years ago, there was only one table, and now there is just all kinds of things out there.

And I know that AQMD has a program coming up -- the South Coast District, I should say, AQMD, but it's the South District, where they are partnering with the manufacturers and CARB, I believe, and the District and money is going in there, so that you can get a reduced rate on purchasing that equipment. Maybe Mike can comment on that.

But one of the hurdles when I look at this is the huge price differential between the gas-powered and the electric. It's like more than double. And that is the hurdle for now. I think we can get there, but, you know, that -- we're going to need to work on that price differential. Mike, may you can comment.

MLD QUALITY MANAGEMENT BRANCH CHIEF MIGUEL:

Yeah, just one additional comment on it, we are
working with the South Coast AQMD on that program. And what we're doing is we're tapping into the folks that participate buy submitting a questionnaire to them to get their experiences on operating the equipment, both positive and negative, so that we can bring that back to the manufacturers to help improve the equipment going forward, as well as help develop a program that the State is pursuing.

BOARD MEMBER MITCHELL: Great. Thank you for all the work you're doing on that, because it's -- like we said, it's low-hanging fruit. I mean, it is a huge source of emissions, but it's a vast opportunity out there for us to change that landscape. Good, pun. Okay. Thank you.

BOARD MEMBER GIOIA: I have another comment, question.

VICE CHAIR BERG: Thank you.

BOARD MEMBER GIOIA: So in our staff presentation, there was a slide that indicated at least for one piece of equipment that if you incorporated the life-cycle cost, the payback was three years. I can tell you, being in local government, that is a really important piece of information to convey. And I think we can serve a valuable role, if we do some analysis on other equipment and have that available, because what gets agencies to move towards that, and as it was indicated, while the
upfront costs may be greater, they will factor in the life-cycle cost.

    I know this is what our general services and public works folks do in counties. They'll look at what's the initial cost, what's the lifecycle cost. And so if we can show that after a certain year, it -- you know, it pays back the original investment, that will help move them to adopt this -- adopt this new technology.

    So can we -- can we do some of that quantification? You did it on some equipment. I mean, it would play a valuable role.

        MLD QUALITY MANAGEMENT BRANCH CHIEF MIGUEL:

        Yeah. Absolutely. When we come back to the Board in 2020, that will be part of our cost effective analysis just to show the viability of this equipment, and the return on investment. I was excited to meet with Luke today -- earlier today and kind of hear about some of the programs that they've done to do those calculations on return on investment. And I plan on reaching out and hopefully get some input on what we can do to have similar analyses done in -- when we come back to the Board in 2020.

        BOARD MEMBER GIOIA: So though are you saying then we won't have this analysis of life-cycle cost until 2020?
MLD QUALITY MANAGEMENT BRANCH CHIEF MIGUEL:
We're -- we'll be working on it up until that point.

BOARD MEMBER GIOIA: Right. It would be useful as we work on it to get that information out, so -- because that's -- yeah, I get that's a little over year away.

MLD QUALITY MANAGEMENT BRANCH CHIEF MIGUEL: I see what you're going for. Something similar to maybe publishing that in a fact sheet.

BOARD MEMBER GIOIA: Like a clearinghouse. So we're like a clearinghouse just to -- yeah, that's a great idea, a fact sheet as a clearinghouse, so that those who were interested in understanding that more could look for our analysis --

MLD QUALITY MANAGEMENT BRANCH CHIEF MIGUEL: Absolutely, we can do that.

BOARD MEMBER GIOIA: -- rather than try to search and find it. And believe me, it helps.

MLD QUALITY MANAGEMENT BRANCH CHIEF MIGUEL: We have the information to do that now, so we can absolutely create a fact sheet. In fact, you know, we just released that webpage that would be a great placeholder for that type of information.

BOARD MEMBER GIOIA: Great. Thank you.
VICE CHAIR BERG: Any other comments?

Also, coming back in 2020, if we come back with a regulation, of course, that is going to then make it a compliance obligation. So funding -- incentive funding will be much different. So it might be interesting to give some thought about what we might be able to get out to people in 2019 that the regulation is coming, especially to the districts, that can then promote their incentive programs as well. So we might give that some thought.

So I do have my brochures now. And I can talk to my gardeners. And I would really encourage everybody to start letting people know that this great equipment is on the way.

So thank you very much, staff. Thanks for your patience for being here, second to the last.

BOARD MEMBER TAKVORIAN: It could make a great holiday gift.

VICE CHAIR BERG: I'm sorry?

BOARD MEMBER TAKVORIAN: It could make a great holiday gift.

VICE CHAIR BERG: It would be a great holiday gift. I think I'm going to get one of these leaf blowers.

BOARD MEMBER TAKVORIAN: I think you should.

VICE CHAIR BERG: As long as they'll use it at my
BOARD MEMBER TAKVORIAN: That's right.

(Laughter.)

VICE CHAIR BERG: So we have one last item, and that is a 2018 legislative summary. As we change up staff, I'm going to go ahead and introduce this item. Our legislature continues to show considerable interest in all of our programs. And in 2018, it was a very successful legislative session for CARB. A list of the positive bill outcomes is quite long, including AB 2381 by Assembly Member Carrillo, which helps strengthen our motor vehicle program in light of the VW scandal; AB 2453 by Assembly Member and Board Member Eduardo Garcia, which helped mitigate air pollution at schools; and SB 1403 by Senator and Board Member Lara, which will provide useful insight on investing in heavy-duty vehicle technology just to mention a few.

Overall, California continues to be the leader in climate arena. Earlier this year, Governor Brown set a goal of five million zero-emission vehicles on California roads by 2030. The legislature recognizes the challenge of this goal and presents and passed multiple bills on deployment of zero-emission vehicles.

The legislature also expanded its efforts to encourage zero-emission vehicles in new sectors and modes.
For example, in AB 193, by Assembly Member Cervantes, created the zero-emission assurance project, which provides reassurance for people who buy used ZEVs, that if something goes wrong with a battery or fuel cell, there will be help in getting it fixed.

In addition, SB 1014 by Senator Skinner requires CARB to establish an annual target for reducing greenhouse gas emissions for vehicles used in rideshare. As many of you know, rideshare services, like Uber and Lyft, have seen explosive growth over the past several years. And this bill will help ensure we reduce greenhouse gas from a growing transportation mode in many cities. I'm really looking forward to this presentation.

And so, Mr. Corey, will you please introduce this item?

EXECUTIVE OFFICER COREY: Yes. Thanks Vice Chair Berg. As you noted, the legislature this year showed that California will continue to demonstrate leadership in air quality climate, and clean vehicle policy. In looking at the bills passed this year, we're headed into a very transformative period in terms of zero-emission vehicle deployment in all sectors really.

In addition to the Executive Order mentioned by Vice Chair Berg, Governor Brown has also directed us to do more work on public and private fleet conversion to
zero-emission vehicles. And note the legislative
direction this year is consistent with that directive, in
particular as Vice Berg -- Chair Berg noted, Senator
Skinner's SB 1014 on rideshare services.

It's an exciting time to be part of CARB, as the
legislature continues to pursue new and enhanced climate,
air quality, and clean vehicle policies that will take
California to the next level and strengthen our leadership
in this space.

I'll now ask Dominic Bulone of the Office of
Legislative Affairs to give the staff presentation.

Dominic

(Thereupon an overhead presentation was
presented as follows.)

LEGISLATIVE ANALYST BULONE: Thank you, Vice
Chair and members. Good afternoon, Chair and Members.
Given that we are at the end of Governor Brown's last
term, we thought it would be appropriate to change things
up a little bit and take a look back at all the key
legislation over the past eight years of his tenure.
After that, we will take a look at the 2018 legislative
session.

The legislative developments on the climate
change front over the past eight years have been
monumental. With the full implementation of the
Cap-and-Trade program in 2013, the Legislature took action to create the framework to invest auction proceeds. SB 1018, AB 1532, and SB 862 created the Greenhouse Gas Reduction Fund, specified how funds must be used, and created the framework for the expenditure of funds.

As we moved closer to our 2020 goal, the Legislature looked ahead and codified greenhouse gas reduction targets for 2030 and clarified CARB's authority to pursue that target with the Cap-and-Trade program with AB 398.

The Legislature also expanded beyond carbon dioxide to focus on short-lived climate pollutants. And several bills authored Senator and Board member Lara are worth mentioning.

SB 605 required CARB to develop a short-lived climate pollutant reduction strategy, SB 1383 required CARB to adopt 2030 short-lived climate pollutant reduction goals, and as we'll discuss later, SB 1013 codified a key federal program on hydrofluorocarbons.

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LEGISLATIVE ANALYST BULONE: The past eight years have also seen numerous legislative developments on environmental justice. SB 535 and AB 1550 created and expanded the minimum required GGRF investment in disadvantaged communities and low-income households.
AB 197, authored by Assembly Member and Board Member Garcia, added two Legislative members to the Board and required CARB to focus on protecting disadvantaged communities when pursuing greenhouse gas reductions.

AB 617 requires CARB to establish a community air monitoring program, requires CARB to prepare a strategy to reduce air pollution in communities with a high exposure burden, and creates new control technology requirements for facilities subject to the Cap-and-Trade regulation.

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LEGISLATIVE ANALYST BULONE: The Renewables Portfolio Standard has been a major focus of the Legislature over the last eight years as well. SB X1-2 increased the 2020 Renewables Portfolio Standard goal from 20 percent to 33 percent.

SB 350 created a 50 percent 2030 Renewables Portfolio Standard goal.

And SB 100, which we'll discuss later, increased it to 60 percent.

SB 100 also created a 100 percent renewable and zero carbon energy goal for 2045.

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LEGISLATIVE ANALYST BULONE: Cleaner vehicles have also been an area of legislative focus. SB 1275 created the Charge Ahead Initiative to achieve one million
ZEVs by 2023, and increase disadvantaged, low income, and moderate income access to cleaner vehicles. As we'll discuss later, SB 1014 focused on reducing emissions from rideshare vehicles.

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LEGISLATIVE ANALYST BULONE: CARB also saw legislative support for the Carl Moyer Program and the Air Quality Improvement Program during Governor Brown's tenure. AB 8 re-authorized funding sources for both programs until 2024. And AB 1274 delayed smog check requirements for another two years and directed the additional smog abatement fee revenue to the Carl Moyer program.

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LEGISLATIVE ANALYST BULONE: Finally, the Legislature took action to reduce emissions from heavy-duty vehicles. SB 1204 created the California Clean Truck, Bus, and Off-Road Vehicle and Equipment Technology Program. SB 1 required the Department of Motor Vehicles to withhold registration from trucks that are not compliant with CARB's Truck and Bus Regulation.

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LEGISLATIVE ANALYST BULONE: Now, turning to the 2018 legislative year. Overall, members of the Legislature introduced 2,637 pieces of legislation and
resolutions. 1,217 bills made it to Governor Brown's desk, and 1,012 of those were signed.

The Legislature has taken an increasing interest in CARB's programs and 2018 was no exception. CARB's Office of Legislative Affairs tracked 455 bills and resolutions related to air quality and climate, and analyzed 122 of those bills. Of those, 48 made it to the Governor's office and he signed 40. Of those 40, 33 had specific requirements for CARB. The 2018 Annual Summary of Air Quality and Climate Legislation, which is included in your packet, summarizes each bill that we tracked and includes a section that summarizes CARB's new responsibilities.

Beyond tracking and analyzing legislation, CARB participated in multiple hearings and special events at the local, State, and federal levels on topics such as the Scoping Plan, Cap-and-Trade, the electric grid, and urban forestry.

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LEGISLATIVE ANALYST BULONE: This slide provides a visual representation of the Legislature's increasing interest in CARB programs. While there is some up-and-down movement on legislation we track and analyze due to the two-year legislative session, you can see from the trend line that the number of bills continues to
increase.

    In the past seven years, CARB's Office of Legislative Affairs has gone from tracking and analyzing over 200 pieces of legislation per year to over 450.

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    LEGISLATIVE ANALYST BULONE: There were several key areas of legislative interest this year related to CARB, including climate change and energy, zero-emission vehicles, heavy-duty vehicles, funding, and stationary air pollution.

    In the next several slides, I'll discuss the critical bills in each of these issue areas.

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    LEGISLATIVE ANALYST BULONE: Climate change and energy policy continue to be major areas of legislative interest this year.

    Only two short years ago, SB 350 by Senator De León set a 50 percent Renewables Portfolio Standard goal for 2030. And this year, SB 100, also by Senator De León, increased the 2030 target from 50 percent to 60 percent, and set a policy of 100 percent renewable and zero carbon electricity by December 31, 2045. This is an ambitious target, but it speaks to the success California has had in decarbonizing its electric grid that the Legislature has continually pursued more challenging renewable energy
targets.

SB 1013 by Senator and Board Member Lara was a key bill this year. The Significant New Alternatives Policy Program, operated by the U.S. EPA had one of its key rules vacated due to an industry lawsuit. This rule restricted the use of high-global warming potential gases, primarily hydrofluorocarbons, that have an outsized impact on climate change, and its loss posed an obstacle to the State meeting its short-lived climate pollutant reduction goals.

However, SB 1013 codifies the vacated restrictions in State law, authorizes CARB to restrict other substances, and creates an incentive program for the replacement of high-global warming potential gases with lower impact alternatives. This bill also builds upon the High-Global Warming Potential Refrigerant Emissions Reductions Regulation adopted by CARB earlier this year.

SB 1440 by Senator Hueso requires the California Public Utilities Commission, in consultation with CARB, to consider adopting biomethane procurement targets. For several years, a variety of bills have proposed a renewable natural gas standard, or procurement requirement, but failed.

However, this year, the Legislature succeeded. Over the 2017-2018 two-year session, and as a result of
extensive negotiations between a variety of stakeholders, SB 1440 passed by both houses of the Legislature and was signed by Governor Brown.

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LEGISLATIVE ANALYST BULONE: Governor Brown's Executive Order this year set a goal of five million zero-emission vehicles in California by 2030 and the Legislature passed several bills related to enabling zero-emission vehicle deployment.

AB 193 by Assembly Member Cervantes created the Zero-Emission Assurance Project to provide rebates for replacing or servicing batteries, fuel cells, or related components for used ZEVs. Lack of consumer confidence in used ZEVs can be a barrier to acceptance of these vehicles by low-income consumers. And this bill is key to making ZEVs more appealing to these consumers by reassuring them that reliability will not be an issue.

AB 2885 by Assembly Member Rodriguez requires CARB to provide outreach to low-income households and communities on the Clean Vehicle Rebate Project, and to prioritize rebate payments to low-income participants.

SB 1014 by Senator Skinner requires CARB to establish a baseline for greenhouse gas emissions from vehicles used in rideshare services and establish annual targets for reducing those emissions beginning in 2023.
Rideshare vehicles represent a meaningful and growing element of California's transportation sector and this bill represents an important and proactive step in addressing their environmental impact.

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LEGISLATIVE ANALYST BULONE: Moving to heavy-duty vehicles, AB 2127 by Assembly Member Ting requires the California Energy Commission, working with CARB, to prepare an assessment of the charging infrastructure necessary to meet Governor Brown's goal of deploying five million ZEVs by 2030, and the State's goal of reducing greenhouse gas emissions 40 percent below 1990 levels by 2030.

Notably, the bill requires this assessment to include off-road and heavy-duty vehicle infrastructure needs, which previously had not been accounted for in California Energy Commission projections of needed infrastructure.

This bill, along with the preceding bills on zero-emission vehicles, are representative of the Legislature's innovating on ZEV policy, and focusing on expanding ZEV incentives and deployment into new sectors, transportation modes, and vehicle types.

AB 2564 by Assembly Member Rodriguez imposes penalties for operating a glider vehicle in violation of
emission standards. Glider vehicles are those with an older, higher-emitting, heavy-duty engine installed in a newer heavy-duty truck chassis. While the federal government had required glider vehicles to meet emission standards applicable to the calendar year the vehicles were assembled, the federal EPA has proposed revising this requirement.

SB 1403 by Senator Lara requires CARB to include a three-year investment strategy for zero- and near-zero emission heavy-duty vehicles in the annual Funding Plan for Low Carbon Transportation Investments and the Air Quality Improvement Program.

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LEGISLATIVE ANALYST BULONE: Turning to funding. AB 2381 by Assembly Member Carrillo authorizes CARB to collect up to $5 million in new fees from vehicle manufacturers to enhance certification, audit, and compliance activities for new motor vehicles. This bill comes out of the 2015 Volkswagen scandal and will help support CARB's certification and testing efforts.

In addition, CARB continues to receive legislative appropriations from the Greenhouse Gas Reduction Fund. SB 856, a follow-up to the main 2018 budget bill, appropriated $845 million to CARB, including $200 million for the Clean Vehicle Rebate Project.
LEGISLATIVE ANALYST BULONE: Much of the Legislature's work this legislative session focused on stationary air pollution and AB 617 -- last year's AB 617 by Assembly Member Cristina Garcia and the recent catastrophic wildfires.

AB 2453 by Assembly Member and Board Member Eduardo Garcia makes a school or school district in a community identified by AB 617 as having high pollution exposure eligible for a grant to implement air quality mitigations. It also allows existing Leroy F. Greene school modernization grants to be used for updating air filters.

SB 901 by Senator Dodd is one of two bills aimed at dealing with the severe wildfires California has experienced over the past several years. Relevant to CARB, the bill requires CARB to develop a report assessing greenhouse gas emissions from wildfire and forest management activities every five years to help better inform the public.

Between this bill and SB 856, $160 million in funding for fiscal year '18-'19 and $200 million in continuously appropriated funding through fiscal years 2023-2024 has been appropriated for CalFire for forest health and fire prevention from the Greenhouse Gas
Reduction Fund.

SB 1260 by Senator Jackson is an omnibus fire prevention and forestry management bill. Among other provisions, the bill requires CARB and the Department of Forestry and Fire Protection, in coordination with air districts, to develop and fund a program to enhance air quality and smoke monitoring. It also requires CARB and CalFIRE to provide a public awareness campaign regarding prescribed burns. This supports implementation of the Governor's Executive Order on improving forest health and preventing wildfires.

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LEGISLATIVE ANALYST BULONE: Last week's statewide election will bring new faces to the Legislature, although a few races are still too close to call. The Assembly will see five to new -- five to six new assembly members, depending on whether Assembly Members Baker, Cervantes, and Harper keep their seats.

The new members in the Assembly represent Huntington Beach, Oakland, Oceanside, Rancho Cucamonga, and Salinas.

The Senate will see seven new Senators representing Bakersfield, Cerritos, El Cajon, Fresno, Los Angeles, Salinas, and West Covina.

Notably, the Democrats maintained their
two-thirds majority in the Assembly and will start next year with a two-thirds majority in the Senate.

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LEGISLATIVE ANALYST BULONE: Turning towards the future, I'd like to highlight some broad themes that we may see in the 2019-2020 legislative session.

Community health will likely be of interest to the Legislature as members continue to focus on how to address impacts of toxic air contaminants and criteria air pollution on local communities.

Similar to this year, the Legislature will likely continue to focus on accelerated ZEV deployment across multiple modes, sectors, and vehicle types.

We expect to see continued interest in developing some form of heavy-duty inspection and maintenance program, similar to the Smog Check program that already exists for light-duty vehicles.

And finally, while there was focus on wildfires this year, partly due to the ongoing catastrophic wildfires in Butte County and Los Angeles County, we expect there to be continued legislative interest in the prevention of wildfires and the quantification of their impacts.

We will also expect to continue attending hearings and special events in the Legislature.
LEGISLATIVE ANALYST BULONE: The Office of Legislative Affairs relies on close coordination by a dedicated team, as well as assistance from nearly every division and office within CARB.

This year, I would like to highlight Marci Nystrom, our Deputy Director for Legislative Affairs. For the past four years, Marci has been a calm, steady presence in the office keeping everything and everyone organized. However, this year was Marci's last with the Legislative Office and she is off to a well-deserved retirement. We thank her for everything she's done for us and wish her well on the next phase of her life.

This year also brought us two new staff members. Ashley Arax is our specialist in federal issues and implementation of AB 617. And she jumped right into the position at a time when both areas have been extremely busy.

Andrew Tsiu is a new analyst in our office who covers many of the numerous Greenhouse Gas Reduction Fund bills, as well as legislation on the California Environmental Quality Act and forestry.

This concludes my presentation, and I am happy to answer any questions.
know the lege department is often behind the scenes, because you only come and speak with us once a year, but the work you do is invaluable, and I know it's never quiet.

So we certainly -- and for those of us that might need a little light night reading, if you're having a little bit difficulty sleeping, great read here.

(Laughter.)

VICE CHAIR BERG: Does anybody have any questions or comments before we say --

BOARD MEMBER GIOIA: There will be test after we read this, right?

(Laughter.)

LEGISLATIVE ANALYST BULONE: Right.

(Laughter.)

VICE CHAIR BERG: Right. Truly --

BOARD MEMBER MITCHELL: I just want to say thank you to the staff, because they -- we really don't see you often enough. But thank you very much for all the work you do. It's really valuable to us, so -- and we're saying goodbye to one of your members, so we want to wish her well.

VICE CHAIR BERG: Yeah, absolutely. You are the face across the street for us. And we know that, and that isn't always easy. And so truly, truly appreciate all of
your hard work. Thank you.

We do have one comment.

BOARD MEMBER TAKVORIAN: Sorry.

VICE CHAIR BERG: Oh, I'm sorry. Oh, please.

Thank you.

BOARD MEMBER TAKVORIAN: I was just -- I had told
Sydney I -- that this is a really useful guide, and that
we really wanted it. And we were disappointed when we
didn't see it. So thank you for that, and for all your
work all year long. This is really all your work and all
the write-ups that you do. And then this summary at the
end of the year has been a really useful reference guide,
when we're trying to look -- remember, what was that bill
and what did it end up being?

So thank you so much for all of the work that you
do. I know it's not always easy.

INTERIM LEGISLATIVE DIRECTOR VERGIS: Thank you
so much for your kind words. The team works really hard,
so it means a lot. Thank you.

VICE CHAIR BERG: You're welcome. We do have one
public comment. So I'll ask Mark to come up.

MR. RIECHERS: How do I turn this on?

VICE CHAIR BERG: I think you're on.

MR. RIECHERS: I'm on. Okay.

VICE CHAIR BERG: Yes.
MR. RIECHERS: Great. Thank you for giving me the time to address the Board. You should have been provided with two things. This book and my testimony, which I'm not going to read.

I am the general manager for North America for a company called Microvast. What we do is really quite simple, we make batteries for electric vehicles. Great timing, because half of the talk today was about electric vehicles.

Our primary focus is on EVs and hybrid electric vehicles, and primarily transit buses and medium-duty trucks right now. Okay. There's two issues with electric vehicles. We all know them, range, charge time. That's -- and then, of course, there's one that comes up occasionally called safety.

Okay. So the reason range is so focused on is because everybody thinks you've got to charge an electric vehicle overnight. Well what would happen if you could charge a full-sized transit bus in 15 minutes?

Guess what? We can.

Not only can we do it, we've got 27,000 vehicles running around the world with our battery technology in it, 8,000 of them are straight electric. It works. They're just not here. They're in China. They're in Europe. They're -- we just launched some in New Zealand.
It's time to launch them here.

    All I'm trying to do is make you aware this technology exists. It really does. It really works. And we've got the documentation to back it up. And you know how many of those 27,000 vehicles have had a safety incident? Zero. We've figured it out.

    So I ask you to look through the book, read my testimony, and my business card is stapled on the front. We are ready go in California, and rest of the country. And we're working with the bus companies, but we also want to work with you, drive this thing both sides, and let's get it going.

VICE CHAIR BERG: Well, thank you very much for coming and for staying at the late hour. We love these new game-changer technology, because this absolutely would be a game changer. We really encourage you to work with our staff --

MR. RIECHERS: Yes.

VICE CHAIR BERG: -- and especially on the technology details.

MR. RIECHERS: Yes.

VICE CHAIR BERG: And so we'll really look forward to that. Appreciate the information you've left for us. And, you know, we'd be very excited that this works.
MR. RIECHERS: Well, here's what it does is if you've got a bus out on a route, and the driver's got to stop for lunch, he plugs it in, bus is ready to go for the rest of the day.

VICE CHAIR BERG: That will be very exciting. Well, thank you very much. Very nice to meet you.

MR. RIECHERS: Very nice to present to you.

Thank you.

VICE CHAIR BERG: Thank you.

So that is our agenda for today. We will reconvene tomorrow morning. We start at 8:30, and so please we need a quorum at 8:30. Set your alarms and have a great evening. Be careful walking back to your cars, and stay inside tonight.

Thanks.

(Thereupon the Air Resources Board meeting adjourned at 5:41 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 26th day of November, 2018.

[Signature]

JAMES F. PETERS, CSR
Certified Shorthand Reporter
License No. 10063