BOARD MEMBERS:
Ms. Mary Nichols, Chair
Ms. Sandra Berg, Vice Chair
Dr. John Balmes
Hector De La Torre
Mr. John Eisenhut
Supervisor Nathan Fletcher
Senator Dean Florez
Supervisor John Gioia
Ms. Judy Mitchell
Senator Bill Monning
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
A P P E A R A N C E S  C O N T I N U E D

STAFF:

Ms. Annette Hebert, Assistant Executive Officer
Ms. La Ronda Bowen, Ombudsman
Mr. Mike Carter, Assistant Division Chief, Mobile Source Control Division (MSCD)
Mr. Ian Cecere, Attorney, Legal Office
Mr. David Chen, Manager, Advanced Emission Control Strategies Section, MSCD
Ms. Heather Choi, Air Pollution Specialist, Climate Action and Research Planning Section, Research Division
Ms. Mary Jane Coombs, Branch Chief, Program Assessment Branch, Industrial Strategies Division (ISD)
Ms. Nicole Dolney, Branch Chief, Transportation Planning Branch, Sustainable Communities and Transportation Division
Mr. David Eiges, Air Resources Engineer, Advanced Emission Control Strategies, MSCD
Ms. Maureen Hand, Air Resources Engineer, Climate Change Planning Section, ISD
Ms. Stephanie Kato, Staff Air Pollution Specialist, Energy Section, ISD
Mr. Jack Kitowski, Division Chief, MSCD
Ms. Abigail May, Attorney, Legal Division
Mr. Gabriel Monroe, Attorney, Legal Office
Mr. Femi Olaluwoye, Manager, Incentives Development Section, MSCD
Mr. Anthony Poggi, Air Pollution Specialist, Alternative Strategies Section, MSCD
APPEARANCES CONTINUED

STAFF:
Mr. Scott Rowland, Branch Chief, Incentives and Technology Advancement Branch, MSCD
Ms. Rajinder Sahota, Assistant Division Chief, ISD
Ms. Tess Sicat, Branch Chief, Heavy-Duty Off-Road Strategies Branch, MSCD
Mr. Floyd Vergara, Division Chief, ISD

HAAGEN-SMIT CLEAN-AIR AWARD WINNERS:
Dr. Paul Crutzen, (not present)
Dr. Anne Douglass, represented by Ms. Allison Rapp
Mr. Hal Harvey
Dr. Barry Wallerstein
Dr. John Watson

ALSO PRESENT:
Mr. Alan Abbs, Bay Area Air Quality Management District
Dr. Alberto Ayala, Sacramento Metropolitan Air Quality Management District
Mr. William Barrett, American Lung Association
Mr. Keith Bloom, Mutual Housing California
Mr. Timothy Blubaugh, Engine Manufacturers Association
Mr. Michael Boccadoro, West Coast Advisors
Ms. Debbie Ferrari, California DMV MCP Holders
Ms. Susan Fizzel, Port of Oakland
Mr. Ryan Flaherty, Sustainable Conservation
APPEARANCES CONTINUED

ALSO PRESENT:

Mr. Don Gilbert, San Francisco International Airport
Mr. Joshua Golden, TransPower
Ms. Hannah Goldsmith, California Electric Transportation Coalition
Mr. Kevin Hamilton, Central California Asthma Collaborative
Mr. Richard Harris, San Diego International Airport
Mr. Sam Jammal, BYD
Ms. Sarah Johnson, California Airports Council
Dr. David Kayes, Daimler Trucks
Mr. Ryan Kenny, Clean Energy
Mr. Kirin Kumar, WALKSacramento
Mr. Hui Le
Mr. Jim Lites, California Airports Council
Mr. Bill Magavern, Coalition for Clean Air
Ms. Tamara McCrossen-Orr, Los Angeles World Airports
Ms. Lisa McGhee, San Diego Airport Parking Company
Ms. Urvi Nagrani, Motiv Power Systems
Mr. Michael Neuenburg, Sacramento Metropolitan Air Quality Management District
Mr. Ray Pingle, Sierra Club
Mr. Zorik Pirvelyans, South Coast Air Quality Management District
Ms. Erin Rodriguez, Union of Concerned Scientists
Mr. Ryan Schuchard, CALSTART
APPEARANCES CONTINUED

ALSO PRESENT:

Ms. Phoebe Seaton, Leadership Counsel for Justice and Accountability

Mr. Cory Shumaker, California Hydrogen Business Council

Mr. Aidan Smith, Leadership Counsel for Justice and Accountability

Ms. Sarah Van Cleve, Tesla

Mr. Charles Watson, Proterra
# Index

<table>
<thead>
<tr>
<th>Call to Order</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pledge of Allegiance</td>
<td>1</td>
</tr>
<tr>
<td>Roll Call</td>
<td>1</td>
</tr>
<tr>
<td>Opening remarks by Chair Nichols</td>
<td>3</td>
</tr>
<tr>
<td>Item 19-2-1</td>
<td></td>
</tr>
<tr>
<td>Chair Nichols</td>
<td>8</td>
</tr>
<tr>
<td>Motion</td>
<td>9</td>
</tr>
<tr>
<td>Vote</td>
<td>9</td>
</tr>
<tr>
<td>Item 19-2-3</td>
<td></td>
</tr>
<tr>
<td>Chair Nichols</td>
<td>9</td>
</tr>
<tr>
<td>Motion</td>
<td>10</td>
</tr>
<tr>
<td>Vote</td>
<td>10</td>
</tr>
<tr>
<td>Item 19-2-4</td>
<td></td>
</tr>
<tr>
<td>Chair Nichols</td>
<td>10</td>
</tr>
<tr>
<td>Executive Officer Corey</td>
<td>12</td>
</tr>
<tr>
<td>Board Member Balmes</td>
<td>13</td>
</tr>
<tr>
<td>Board Member De La Torre</td>
<td>16</td>
</tr>
<tr>
<td>Ms. Rapp for Dr. Anne Douglass</td>
<td>18</td>
</tr>
<tr>
<td>Board Member Sperling</td>
<td>22</td>
</tr>
<tr>
<td>Mr. Harvey</td>
<td>25</td>
</tr>
<tr>
<td>Board Member Mitchell</td>
<td>29</td>
</tr>
<tr>
<td>Dr. Wallerstein</td>
<td>31</td>
</tr>
<tr>
<td>Board Member Riordan</td>
<td>33</td>
</tr>
<tr>
<td>Dr. Watson</td>
<td>35</td>
</tr>
<tr>
<td>Item 19-2-5</td>
<td></td>
</tr>
<tr>
<td>Chair Nichols</td>
<td>37</td>
</tr>
<tr>
<td>Executive Officer Corey</td>
<td>39</td>
</tr>
<tr>
<td>Staff Presentation</td>
<td>40</td>
</tr>
<tr>
<td>Mr. Goldman</td>
<td>53</td>
</tr>
<tr>
<td>Ms. Van Cleve</td>
<td>56</td>
</tr>
<tr>
<td>Ms. Goldsmith</td>
<td>59</td>
</tr>
<tr>
<td>Mr. Barrett</td>
<td>61</td>
</tr>
<tr>
<td>Ms. Nagrani</td>
<td>63</td>
</tr>
<tr>
<td>Mr. Blubaugh</td>
<td>66</td>
</tr>
<tr>
<td>Dr. Kayes</td>
<td>68</td>
</tr>
<tr>
<td>Mr. Le</td>
<td>70</td>
</tr>
<tr>
<td>Mr. Schuchard</td>
<td>73</td>
</tr>
<tr>
<td>Ms. McGhee</td>
<td>74</td>
</tr>
<tr>
<td>Mr. Shumaker</td>
<td>76</td>
</tr>
<tr>
<td>Item 19-2-5 (continued)</td>
<td></td>
</tr>
<tr>
<td>--------------------------</td>
<td>---</td>
</tr>
<tr>
<td>Board Discussion and Q&amp;A</td>
<td>78</td>
</tr>
<tr>
<td>Motion</td>
<td>89</td>
</tr>
<tr>
<td>Vote</td>
<td>92</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Item 19-2-6</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Chair Nichols</td>
<td>96</td>
</tr>
<tr>
<td>Executive Officer Corey</td>
<td>97</td>
</tr>
<tr>
<td>Staff Presentation</td>
<td>98</td>
</tr>
<tr>
<td>Mr. Abbs</td>
<td>110</td>
</tr>
<tr>
<td>Mr. Neuenberg</td>
<td>112</td>
</tr>
<tr>
<td>Mr. Pirveysian</td>
<td>113</td>
</tr>
<tr>
<td>Mr. Shumaker</td>
<td>116</td>
</tr>
<tr>
<td>Ms. Goldsmith</td>
<td>118</td>
</tr>
<tr>
<td>Ms. Rodriguez</td>
<td>119</td>
</tr>
<tr>
<td>Mr. Barrett</td>
<td>121</td>
</tr>
<tr>
<td>Mr. Gilbert</td>
<td>122</td>
</tr>
<tr>
<td>Ms. Johnson</td>
<td>125</td>
</tr>
<tr>
<td>Ms. McCrossen-Orr</td>
<td>128</td>
</tr>
<tr>
<td>Ms. Fizzell</td>
<td>131</td>
</tr>
<tr>
<td>Mr. Harris</td>
<td>133</td>
</tr>
<tr>
<td>Mr. Lites</td>
<td>137</td>
</tr>
<tr>
<td>Ms. Nagrani</td>
<td>139</td>
</tr>
<tr>
<td>Mr. Kenny</td>
<td>140</td>
</tr>
<tr>
<td>Mr. Watson</td>
<td>141</td>
</tr>
<tr>
<td>Mr. Jammal</td>
<td>142</td>
</tr>
<tr>
<td>Mr. Magavern</td>
<td>144</td>
</tr>
<tr>
<td>Ms. McGhee</td>
<td>145</td>
</tr>
<tr>
<td>Mr. Pingle</td>
<td>147</td>
</tr>
<tr>
<td>Board Discussion and Q&amp;A</td>
<td>149</td>
</tr>
<tr>
<td>Motion</td>
<td>170</td>
</tr>
<tr>
<td>Vote</td>
<td>170</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Afternoon Session</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Item 19-2-8</td>
<td></td>
</tr>
<tr>
<td>Chair Nichols</td>
<td>172</td>
</tr>
<tr>
<td>Executive Officer Corey</td>
<td>173</td>
</tr>
<tr>
<td>Staff Presentation</td>
<td>175</td>
</tr>
<tr>
<td>Mr. Schuchard</td>
<td>197</td>
</tr>
<tr>
<td>Mr. Magavern</td>
<td>198</td>
</tr>
<tr>
<td>Mr. Boccadoro</td>
<td>200</td>
</tr>
<tr>
<td>Mr. Flaherty</td>
<td>202</td>
</tr>
<tr>
<td>Mr. Hamilton</td>
<td>204</td>
</tr>
<tr>
<td>Mr. Smith</td>
<td>207</td>
</tr>
<tr>
<td>Ms. McGhee</td>
<td>209</td>
</tr>
<tr>
<td>INDEX CONTINUED</td>
<td>PAGE</td>
</tr>
<tr>
<td>----------------</td>
<td>------</td>
</tr>
<tr>
<td>Item 19-2-8 (continued)</td>
<td></td>
</tr>
<tr>
<td>Ms. Seaton</td>
<td>211</td>
</tr>
<tr>
<td>Board Discussion and Q&amp;A</td>
<td>213</td>
</tr>
<tr>
<td>Item 19-2-9</td>
<td></td>
</tr>
<tr>
<td>Chair Nichols</td>
<td>237</td>
</tr>
<tr>
<td>Board Member Serna</td>
<td>237</td>
</tr>
<tr>
<td>Mr. Corless</td>
<td>238</td>
</tr>
<tr>
<td>Board Discussion and Q&amp;A</td>
<td>253</td>
</tr>
<tr>
<td>Dr. Ayala</td>
<td>256</td>
</tr>
<tr>
<td>Mr. Kumar</td>
<td>258</td>
</tr>
<tr>
<td>Mr. Bloom</td>
<td>260</td>
</tr>
<tr>
<td>Board Discussion and Q&amp;A</td>
<td>262</td>
</tr>
<tr>
<td>Public Comment</td>
<td></td>
</tr>
<tr>
<td>Ms. Ferrari</td>
<td>265</td>
</tr>
<tr>
<td>Ms. Seaton</td>
<td>271</td>
</tr>
<tr>
<td>Adjournment</td>
<td>275</td>
</tr>
<tr>
<td>Reporter's Certificate</td>
<td>276</td>
</tr>
</tbody>
</table>
PROCEDINGS

CHAIR NICHOLS: Good morning, ladies and gentlemen. If I could get people to take their seats. We're ready to get started.

I'm speaking to you from the concrete bunker at the top of the Byron Sher Auditorium. I want to paint a mural. And if you come in here some morning and you find spray painting along the front of the cement wall here, I'm just saying it might happen.

(Laughter.)

BOARD MEMBER RIORDAN: I think that's a good idea. We need to do something.

CHAIR NICHOLS: We need to do something with it. This is just really not a good arrangement.

But I would like to welcome everybody to the February 21st, 2019 public meeting of the California Air Resources Board. Please come to order, which you already have.

And let's begin with the Pledge of Allegiance.

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

CHAIR NICHOLS: The clerk will please call the roll.

BOARD CLERK DAVIS: Dr. Balmes?

BOARD MEMBER BALMES: Here.
BOARD CLERK DAVIS: Mr. De La Torre?
BOARD MEMBER DE LA TORRE: Here.
BOARD CLERK DAVIS: Mr. Eisenhut?
BOARD MEMBER EISENHUT: Here.
BOARD CLERK DAVIS: Supervisor Fletcher?
BOARD MEMBER FLETCHER: Here.
BOARD CLERK DAVIS: Senator Florez?
Assembly Member Garcia?
Supervisor Gioia?
BOARD MEMBER GIOIA: Here.
BOARD CLERK DAVIS: Ms. Mitchell?
BOARD MEMBER MITCHELL: Here.
BOARD CLERK DAVIS: Senator Monning?
Mrs. Riordan?
BOARD MEMBER RIORDAN: Here.
BOARD CLERK DAVIS: Supervisor Serna?
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
CHAIR NICHOLS: Thank you very much.

I'm going to make a couple of announcements before we get started. This morning, first of all, as we always do, we remind people that they should check out where the emergency exits are. And in the event of a fire alarm, we're required to evacuate this room immediately using the stairs to go down to the first floor and assemble outside in the park across the street.

Anyone who wishes to testify either on one of the items on the agenda or during the public comment period at the end, would -- we would request that you please fill out a request to speak card. They're in the lobby or available from the clerk. And we appreciate it if you could do this before the item you want to speak on, so that we can have a sense of how many people are going to be speaking, and plan our time accordingly. The Board will impose a three minute time limit, unless we get to the point where there's so many people, which I don't think we will today, but we have been known to shorten that time when we get to the point where people have already covered most of the points.

Now, we have two new Board members who will be joining us today. One of them Senator Monning, who is the Senator who is an ex officio appointee will be coming
after floor session in Senate. Our other new Board member, Supervisor Nathan Fletcher is here. And we welcome here as the San Diego representative. He is in the seat that was formerly occupied by Supervisor Ron Roberts. And Supervisor Roberts was termed out of office and retired. And we were very fortunate that a brand new supervisor was willing to join us. So thank you very much, and look forward to having you with us for a long time to come.

I also have a couple of personnel announcements that I wanted to make this morning. One is that we have a new executive team member who is also sitting with us at the front table today. And that is Annette Hebert who is the Assistant Executive Officer for our Southern California Headquarters. I say those words with great enthusiasm. Southern California Headquarters. And she is the Assistant Executive Officer and Annette is known already as the go-to person for all things that are related to vehicle and engine emissions, on-board diagnostics, and vehicle certification. And she has the respect and trust of the staff, as well as the Board and our stakeholders.

Our programs and our presence in Southern California have expanded and diversified over the 50 years of the Board's existence. And as a result, we realized
that there was a need to have representation of the
Executive Office in Southern California to oversee the
issues of importance to the entire organization.

And as we prepare to occupy new headquarters
moving from El Monte to Riverside, we need more focus on
staff recruitment, retention, succession planning, and
mentorship to assure a smooth transition.

While it's important to get this started now,
this is going to be an ongoing need into the future as
Southern California continues to grow.

So creating a new position for Southern
California was part of the commitment that the
organization is making to strengthen our Southern
California operation.

She'll be overseeing the headquarters operations,
as well as certification and compliance. And she'll be
working with Steve Cliff.

So, Annette, welcome. Do you want to say any
words at all? You weren't asked to, but you could say a
word. Oh, there's a little technical problem here this
morning. Yeah. So the Board members mics are all
working, but the microphones for the staff are not.

(Laughter.)

CHAIR NICHOLS: So this could be a recipe for
mischief. But what we're going to do is pass a microphone
back and forth among the staff who are speaking. So you
now have a mic.

ASSISTANT EXECUTIVE OFFICER HEBERT: Thank you.
I just.

Here, go we.

I'll make it quick since we only have one mic.
But thank you very much. I look very forward to
continuing to work with the staff, and the Executive
Office and the Board on our very, very important programs.
And especially being a representative of the Southern
California Headquarters, I think it's a very good step.
And we do have a lot of work to do in the next couple
years. It's only two years away now, before we move into
our new Southern California headquarters. So there's a
lot of prep work there, but we're all very excited about
it. So thank you.

CHAIR NICHOLS: Thanks.

And also, before we get started, I want to
recognize one of our long-time colleagues who's going to
be leaving us at the end of this month, that is this is
her last Board meeting, after nearly a decade of service
at ARB. She's one of the first people that I recruited
when I came back to ARB. And that's La Ronda Bowen who's
served with distinction as our Ombudsman since 2009.

Her work has helped us to create a new level of
engagement with small businesses throughout the state. And through the Small Business Opportunities Advisory Panel that she created, La Ronda and her team have worked to engage small business stakeholders in our policy process, and helped them to take advantage of many of the incentive programs to save energy, cut emissions, and become more efficient and profitable in the process.

Since 2009, La Ronda has overseen ARB's annual CoolCalifornia Small Business Awards Program, and has recognized -- helped to recognize more than 130 businesses and organizations for exemplary environmental leadership.

In recognition of her outstanding work, in 2017, La Ronda -- 2017, La Ronda was awarded the National Small Business Environmental Assistant Program's highest award for sustained and outstanding service.

So I hope you will all join me in thanking La Ronda for her very notable services to the State, and to the people of California.

La Ronda, thank you.

(Applause.)

CHAIR NICHOLS: And if you have any parting words of advice, you're invited to give them to us at this time.

OMBUDSMAN BOWEN: Thank you, Mary and thank you to the Board members who have been so supportive and to the staff who have been so gracious and supportive and
encompassing of small business concerns.

So I just want to say to our new Board members, this is a wonderful team that you're inheriting and that you'll be able to be a part of. Small business issues continue to be critical. They're a critical part of our economy, as well as our implementation of our regulations.

I just want to thank you, Mary, especially and former Governors Schwarzenegger and Brown for allowing me to serve. It's been an honor to work with you, and I've learned so much more than I imagined, which is part of why I stayed so much longer than I thought I would. Thank you all. I appreciate you.

CHAIR NICHOLS: Thank you.

OMBUDSMAN BOWEN: Continued success and I'll just keep you in mind forever.

Thank you.

CHAIR NICHOLS: Thank you. Blessings and good luck in your future ventures.

All right. We now actually have some work to do. But fortunately this morning's agenda is not too onerous. It's all good.

So we can begin with our consent calendar. We have one research proposal, and -- before us. And it is on consent, unless anybody wishes to take it off of consent. Are there any people who have asked to comment?
BOARD CLERK DAVIS: (Shakes head.)

CHAIR NICHOLS: All right. Hearing none. Then we'll close the record on this item and ask if all the members have had an opportunity to review resolution, and if so, would you give me a motion and a second?

BOARD MEMBER RIORDAN: I would move that we adopt the Resolution 19-3, Madam Chairman.

BOARD MEMBER BALMES: Second.

CHAIR NICHOLS: All in favor please say aye?

(Unanimous aye vote.)

(Board Member Serna was not present.)

CHAIR NICHOLS: Any opposition?

Any abstentions?

Okay. It's approved. Thank you very much.

And we have one other item on consent, and that is -- excuse me -- Proposed 2018 Amendments to the Area Designation for State Ambient Air Quality Standards. We did receive a comment on this item during the public comment period, and it has been reviewed and considered. And I believe that we can determine that it is not substantive, and are therefore able to proceed with this item as a consent matter.

There is a copy of the comment at the table outside the room, if anybody wants to see it. But I need to ask the clerk if anybody has signed up to testify?
BOARD CLERK DAVIS: (Shakes head.)
CHAIR NICHOLS: No witness have asked to speak.
Okay. Are there any Board members who want this item to be removed for discussion?
Seeing none, then let's go ahead also, and I'll close the record on that, and again ask for a resolution.
VICE CHAIR BERG: I move resolution 19-5.
CHAIR NICHOLS: Okay. Do we have a second?
BOARD MEMBER EISENHUT: Second.
CHAIR NICHOLS: A second from Mr. Eisenhut.
Excuse me.
All in favor, please say aye?
(Unanimous aye vote.)
(Supervisor Serna was not present.)
CHAIR NICHOLS: Opposed?
None. Okay. It carries. Thank you.
(Thereupon an overhead presentation was Presented as follows.)
CHAIR NICHOLS: All right. Now, we move to the most important item of our morning, and that is the Haagen-Smit awards.
Over the last 50 years, many major milestones have been realized in the pursuit of clean air, scientific discoveries, groundbreaking policies, like the Clean Air Act, and numerous other achievements have helped
us to tackle air pollution and climate change. Since 2001, the Air Board has given annually the distinguished Haagen-Smit Clean Air Awards to extraordinary individuals, whose career accomplishments in air quality and now climate change have been fundamental to the progress that we've achieved.

The awards are named in honor of Professor Arie Haagen-Smit, because of his important contributions to air pollution science, as well as the significance of the fact that he left his laboratory and became the first Chairman of ARB.

Arie Haagen-Smit was a native of the Netherlands. He was a bioorganic chemistry professor at Caltech in Pasadena for 16 years, studying natural products like rubber and pineapples. In 1948, he embarked on air pollution research when we was asked by the County of Los Angeles to investigate the chemical nature of what we now call smog.

His research found that most of California's smog resulted from photochemistry, when exhaust from motor vehicles and industrial facilities react with sunlight to create ozone. This breakthrough provided the scientific foundation for the development of California's, and the nation's, earliest air pollution control programs.

Leaving his studies behind, he continued working
in the field of air pollution research and control and took the smog problem in Los Angeles head on. He became CARB's first Chairman in 1968. In 1973, in recognition of his contributions, Dr. Haagen-Smit received the National Medal of Science, this country's highest scientific honor. He passed away in 1977, but his legacy continues to inspire both scientists and policymakers alike.

--o0o--

CHAIR NICHOLS: Over the last 18 years, more than 50 acclaimed scientists and policymakers have received this award for their contributions. Five recipients are being added to that list today.

And so I would now ask Richard Corey to introduce the Board members who in turn will be announcing the awards.

EXECUTIVE OFFICER COREY: Yes. Thanks, Chair Nichols. So we're pleased to honor the recipients of the 2018 Haagen-Smit Clean Air Awards. Each of the winners, as you noted, will be introduced by a Board member. After their introduction, the winners who are in attendance will come down to the podium. They'll be handed the award -- their award and the winner will have an opportunity to provide a few remarks.

We'll also take a group photo with the Board at the end of the presentation.
EXECUTIVE OFFICER COREY: And with that, the first winner today is Paul Crutzen in the category of International Air Pollution Research. This award acknowledges his work identifying the causes of, and ultimately curbing the depletion of stratospheric ozone, as well as expanding the scientific understanding of human cause climate change. Professor Crutzen, could not be here today, but Board Member John Balmes -- Dr. John Balmes will share more information about Dr. Crutzen.

BOARD MEMBER BALMES: Thank you, Mr. Corey.

I'm honored to share the pathbreaking achievements of Professor Paul Crutzen with the audience here today. Professor Crutzen played a fundamental role in establishing the link between human activities and ozone in the atmosphere. In the late 1960s and early 1970s, Crutzen exposed the power of nitrogen oxides to destroy ozone. His work was an essential step toward discovering the ozone hole and identifying its causes.

Now, that's the good ozone, stratospheric ozone, which protects us from ultraviolet radiation. It's the tropospheric ozone that we're busy trying to reduce.

Crutzen's findings help galvanize a global political response to the threat of ozone depletion, leading ultimately to the 1987 signing of the Montreal
protocol for global protection of the stratospheric ozone layer. Probably the most successful international environmental agreement.

In 1995, Crutzen shared the Nobel Prize in Chemistry for advancing our understanding of the ozone layer, with co-recipients Mario Molina and Sherwood Rowland. I've had the opportunity to meet both Professor Molina and Professor Rowland. And it's an honor to be able to speak about their co-recipient of the Nobel Prize, Paul Crutzen.

So closer to earth, Crutzen also explored the effects of agriculture, biomass burning, and industrial processes on ozone formation, which can damage human health and food production. Yeah, we often forget, because we're busy dealing with the public health impacts of ozone, that it also has devastating effects on agriculture.

His deep understanding of the interaction between earth's upper and lower atmosphere, lead Crutzen to conceive of the theory of nuclear winter, underlying the catastrophic environmental consequences of nuclear war.

Crutzen's publication record is one of the most prolific in the geosciences. He has held appointments at universities Germany, San Diego, Georgia, Stockholm, the Netherlands, and South Korea.
"Meteorology is very much an intuitive science", Crutzen has said, "And you need intuition to focus on the right questions". Crutzen's questions consistently traced the theoretical arc connecting human activities to their environmental consequences. And his answers revealed the means to mitigate these impacts.

For all of his questions and answers which helped define and confront a profound existential challenge to our planet, the California Air Resources Board is honored to bestow Professor Paul Crutzen with a 2018 Haagen-Smit Clean Air Award.

Professor Crutzen could not be here with us today, but he sends his deepest gratitude.

(Applause.)

CHAIR NICHOLS: Thank you.

(Theerupon a phone rang.)

EXECUTIVE OFFICER COREY: Music. Accompanying music.

--o0o--

EXECUTIVE OFFICER COREY: Next is us Dr. Anne Douglass in the category of Atmospheric Research. This award recognizes her innovative research on stratospheric ozone and her lifelong dedication to improving climate and atmospheric chemistry analytical tools. Dr. Douglass could not be here today, but her friend Allison Rapp is
here to accept her award.

Board Member Hector De La Torre will present more information to us.

Hector

BOARD MEMBER DE LA TORRE: Thank you, Mr. Corey. It is my privilege to recount the many reasons that Dr. Anne Douglass is receiving this award.

One of the world's leading scientists who studies the earth's ozone layer, her stellar research and influential publications reset the scientific paradigm on atmospheric mixing and its contribution to ozone pollution.

As project scientists at NASA's Goddard Space Flight Center, Douglass led a large and diverse international team of scientists responsible for launching the Aura satellite in 2004. For more than a decade, Douglass also managed the day-to-day twists and turns of Aura's operation, ensuring the uninterrupted flow of data from the satellite's instruments. To this day, Aura's measurements provide an array of useful information for hundreds of scientists and local and national policymakers. Yet, another example of federal and State collaboration. Truly constructive federalism.

Known for her scientific acuity, objectivity, honesty, and community building, Douglass has shown a
remarkable talent for improving atmospheric models. Atmospheric chemistry and climate models have benefited immensely from her creative exploration of the interplay among atmospheric observations, conceptual models, and their numerical implementation.

While serving on the leadership team for the Goddard's Earth Observing System Chemistry Climate Model -- they really like wordy titles to their things. (Laughter.)

BOARD MEMBER DE LA TORRE: -- Douglass continues to support the incoming Aura satellite project scientist, and to foster communications among the many groups at NASA with a stake in the honor -- Aura program.

In short, even working half-time in phased retirement, Douglass continues to exceed the expectations for a full-time scientist.

Today, for her years of leadership studying atmospheric chemistry and strengthening its toolbox, for her inclusive nurturing of young scientists, and for her incisive communication of ozone science to policymakers, which is never easy, and the broader public, CARB is honored to bestow Dr. Anne Douglass with the 2018 Haagen-Smit Clean Air Award.

We now ask Allison Rapp to join Mr. Corey at the podium to accept Dr. Douglass award and share her words.
(Applause.)

MS. RAPP: Thank you for your kind introduction and to the California Air Resources Board. My name is Allison Rapp not Anne Douglass. And if you knew Anne, you would know that she's taller, has strawberry blond hair, and actually understands everything that's being said here today.

(Laughter.)

MS. RAPP: That's a regret not being -- but I have to tell you there are a couple of things I'd like to say before I read the words that Anne asked me to say. And one thing is that Anne and I have been friends. Because of an alphabetical situation in college, we got put in the same room in 1967. And we talk an hour every week. And Anne is so self-effacing that the things are in this booklet I didn't know.

(Laughter.)

MS. RAPP: So I just want you to know, if you haven't read this, please read it. She's won more awards than I can count, and she doesn't talk about them to her friends.

So what she wanted me to tell you is that we start -- we started at Trinity College in 1967, which is a -- was, at that time, a small liberal arts college in
Washington D.C. And that was a very extremely important part of her formation as a scientist, because she, at that time, developed a broad background in all of the arts, the sciences, the history, philosophy, everything that's important to being able to talk with people.

We had an international community at school and her ability to get along with people has carried her, as you can see from these awards and why you're honoring her today, very much into the scientific community in a way that has made it possible for people to talk to each another all around the world.

In graduate school in the 1970s, Anne began her scientific talents direction by pointing toward environmental issues that were related to stratospheric ozone to composition and to climate. And in 1981, she went the Goddard Space Flight Center in the Atmospheric Chemistry and Dynamics Branch, where she learned photochemistry from Rich Solarski. She was working in one-, two-, and three-dimensional models along the way to developing an interactive chemistry climate model.

Working at Goddard puts you in daily with measurements. The instruments can be on the ground, in the air, on a balloon, in the stratosphere on an aircraft, or on a satellite. And one of the most important things
to understand is that the models and the modelers learn
the most if they develop a deep respect for the data, no
matter how it's obtained.

She was part of the project science team for the
upper atmospheric research satellite that made
observations from 1991 to 2005, and then from the
Earth-observing system Aura satellite launched in 2004,
which is still taking data.

The goals of the team sound simple. Basically,
it's about building strong links between teams taking
validation data and the satellite instrument teams, and
then building strong links between the data teams and the
modelers who are charged with projecting the state of our
protective ozone layer, even as composition and climate
change.

The challenge comes from interacting with
literally hundreds of scientists who were trained as
independent thinkers, and encouraging them to really
listen to each other and to prioritize the goals of the
enterprise over the goals of the individual.

People like to call it herding cats. But the
truth is that there's tremendous energy and cooperation
toward the goal of understanding and protecting the earth.
The Montreal Protocol and its amendments halted production
of chlorofluorocarbons, the man-made gases, known as CFCs,
that had many industrial uses, including refrigeration and air conditioning, and threatened the ozone layer by releasing chlorine and bromine into the stratosphere.

CFCs are also important greenhouse gases, because they absorb infrared radiation at different wavelengths than carbon dioxide and water vapor. Now, that CFC production is banned, attention has focused on the new man-made gases that are being used to do refrigeration and air conditioning.

And the Kigali amendment to the Montreal Protocol that entered into force this year will reduce the use of the refrigerant compounds HFCs to -- that don't contain chlorine or bromine, but still are going to contribute nearly half a degree of global warming in the coming century.

There are a few broad lessons that follow the ozone story and the Montreal Protocol. One is that the nations of the world continue to act together to be successful in protecting the ozone layer. Another is that earth sciences are interconnected. Ozone-destroying substances play a role in climate change. Aerosols play roles in air quality and climate change, and the list goes on and is very long.

Anne felt fortunate to be involved with UARS and with Aura at the same time as working to develop
full-coupled three-dimension models. This satellite data have opened our eyes showing both long and -- both local and long-range impacts of natural and human emissions.

Anne is proud and humbled to have been part of the community that has developed the scientific understanding of the ozone layer, recognizing that she is only one of a group that has devoted their careers to this worldwide environmental problem.

She hopes that observations, models, scientists, earth system interactions, policymakers, and the international community will build on the success of the international effort to protect the ozone layer and find pathways to protect air quality and climate worldwide.

Again, on her behalf, thank you.

(Applause.)

EXECUTIVE OFFICER COREY: Next is Mr. Hal Harvey, in the category of Climate Policy.

--o0o--

EXECUTIVE OFFICER COREY: This award recognizes his leadership on energy and climate philanthropy that has catalyzed national climate policy efforts and inspired international action. He'll be introduced by Board Member Daniel Sperling.

BOARD MEMBER SPERLING: Thank you, Mr. Corey.

It is indeed my great pleasure to introduce Hal
Harvey right here. And he has truly been -- and I say this with full sincerity and sincereness, that he has been one of the most important leaders in advancing climate policies in the U.S. and around the world. Perhaps his most important and long-lasting contribution has been to elevate the practice of strategic philanthropy on behalf of environmental issues.

I've seen that firsthand for the two plus decades I've known and observed Hal. He founded the Energy Foundation in the 1990s, the ClimateWorks Foundation in 2008, both of which continue to be hugely influential in supporting research and advocacy for climate policy, and both, I would note, are located, headquartered in California.

He also headed the Environmental Program at the William and Flora Hewlett Foundation. And more recently, has been leading a San Francisco based energy and environmental policy firm called Energy Innovation, which continues his commitment to influencing energy investments and energy, and climate policy.

And I would note he's done all this and he's still so young.

(Laughter.)

BOARD MEMBER SPERLING: He's also written two books. His first, *Money Well Spent: A Strategic Plan for*
Smart Philanthropy, was especially important in laying out strategies to enhance environmental protection. That book highlights Hal's most important contribution, at least as -- from my perspective, and that is to pioneer the aggregation of philanthropic dollars for the design and adoption of impactful climate policies.

And I think I would ad-lib that in this time -- day and time, it's -- that role of philanthropy has become especially important.

--o0o--

BOARD MEMBER SPERLING: And so he's accomplished this by the founding of Energy and Climate Work Foundation and his leadership at the Hewlett Foundation. At those foundations, he orchestrated campaigns to spur climate action on everything from California Building Codes to Chinese emissions standards.

His second book released this past year, Designing Climate Solutions: A Policy Guide for Low-Carbon Energy, highlights the other major contribution in his career, and that is designing and advocating strategies and policies to solve climate change.

One of the most notable qualities of Hal is that he's always focused on actions that are impactful. He always focuses on opportunities that are really going to make big changes.
And I would note he's also, no big surprise here, a true believer of the cause of climate environment. I recall earlier in his career he was designing and building solar homes. And this, I recall very clearly, retrofitting an electric car for his commute. And this was before -- this was the old days. I did say he's young, but electric cars are recent.

So he's received the 2006 Heinz Award for the Environment, the 2018 United Nations Clean Air and Climate Change Award, in recognition of his accomplishments. So we are here today to affirm his huge impact.

CARB is honored to bestow Hal Harvey with a 2018 Haagen-Smit Clean Air Award for his many efforts in supporting the design and adoption of impactful climate policies.

Please --

(Applause.)

(Laughter.)

MR. HARVEY: Well, this is indeed an honor. Sometimes I feel like I'm a full-time PR representative for the California Air Resources Board.

It turns out, of course, that significantly reducing air pollution or climate change gases is complex, and it begins with science. And the very idea of the Haagen-Smit Awards is how science can contribute to the
future of humanity.

There is no agency in the world as sophisticated and capable at controlling air pollution as the Air Resources Board. This is an amazing gift to the citizens of California, and increasingly to the citizens of the world. Everything from the core science -- and this is very hard science, because you cannot do it in a lab. You have to do it in the real world -- from the core science, to the evaluation of science, to its understanding on human health exposure, to the beginnings of inventories, to the policymaking that can control those inventories, to the socializing of that policymaking, to the permitting, to the monitoring, to the enforcement.

This is an enormous job with enormous consequences. I have worked in a dozen countries on air quality and climate change policy. And all the time, I come back to the methods pioneered by the California Air Resources Board. It's really amazing work. And I've been able to watch the Air Board migrate from just conventional pollutants into the climate change world full force to begin to take the leadership nationally with fuel efficiency standards for cars. Never called that of course. They are climate change and emissions standards.

And then with the advent of the carbon cap in California -- by the way, it's the most successful one in
the world -- to begin to understand how to control CO2 emissions at scale. A very complicated business.

And then it's becoming a funding agency because of the proceeds from that. And it's become an engine of equity in this state on top of everything else.

In the spirit of no good deed goes unpunished, however, I want to invoke for you some further duties.

(Laughter.)

MR. HARVEY: When I started work in China more than 20 years ago, they had 250 people in their EPA for a country of 1.4 billion with unspeakable pollution problems. There were five people in charge of mobile sources in the entire Chinese government. They need advice and help. And they need it from a technical perspective. It's not a political question. It's a question of designing and building systems that work.

What Dan mentioned before, we need first-order decisions made to create large-scale change in climate change gases and air pollution. This is the same the world over. We hosted a breakfast years ago with Jim Lents who ran the South Coast Air Quality Management District and officials from Brazil. And Jim Lents, amazing man, sat there and typed up the Brazil Clean Air Act over breakfast. And it became law in Sao Paulo, which is a state with a population and GDP of Argentina and the
size of France. So this is the kind of influence that the Air Board has in the world.

So my request for you all, since no good deed goes unpunished, is to open the doors wider, to become a home not on an ad hoc basis, but on a permanent basis for air quality experts around the world to come and learn on both climate change and conventional pollutants how to produce the human health -- human health outcomes and how to reduce the threat of climate change.

There is simply no substitute for the kind of work that you are doing, but it is unfortunately N equals 1. We don't have enough of it in the world.

So thank you for your work. Thank you for this incredible honor. Thank you for your leadership. And get -- get ready for a lot more.

(Laughter.)

(Applause.)

MR. HARVEY: Books for each of you will be signed and delivered.

(Laughter.)

EXECUTIVE OFFICER COREY: The next recipient, Dr. Barry Wallerstein in the category of Environmental Policy. The award acknowledges his life-long dedication to improving air quality and protecting public health in Southern California communities. He'll be introduced by
Board Member Judy Mitchell.

BOARD MEMBER MITCHELL: Thank you, Mr. Corey.

It's a great honor to have Dr. Barry Wallerstein here today. And it is a particular pleasure for me, as a member of the Governing Board for the South Coast Air Quality Management District. I had the distinct pleasure of working with Dr. Wallerstein for a number of years. And he's a great instructor, I will say that about him. He has a good way of taking complicated subjects and distilling them into an understandable form.

In the early days of his career, Dr. Wallerstein worked right here at California Air Resources Board. He was assigned to develop tailpipe regulations for motorcycles. And during his employment at CARB, he sharpened his expertise for developing sound policy design and for handling the regulatory process.

In 1984, he moved to the South Coast Air Quality Management District, where he faced very challenging situations, as the District worked to address severe non-attainment with the National Air Quality Standards for ozone and fine particle pollution.

In 1997, Dr. Wallerstein succeeded James Lents, the gentleman mentioned by Mr. Harvey, as Executive Officer of the District. And he remained in that position for 19 years, striking a balance between the agency's...
mission to improve public health, and the realities of political, economic, and environmental pressures in this four-county, 10,000-square mile region.

--o0o--

BOARD MEMBER MITCHELL: Under Dr. Wallerstein's leadership, the South Coast Air Quality Management District identified diesel engine exhaust as the primary source of community cancer risk from air toxics. In response, the District developed the nation's first local Air Toxics Control Plan, which reduced exposure to air toxics by more than 50 percent between 2005 and 2012.

Dr. Wallerstein also spearheaded the agency's Clean Fleet Vehicle rules to help clean the air in impacted neighborhoods close to railyards, ports, freeways, and warehouses, and, at the same time, still supporting the region's thriving goods movement industry.

In 2016, Dr. Wallerstein was appointed Senior Policy Fellow at UC Riverside School of Public Policy. Dr. Wallerstein has held senior policy positions on many advisory boards, including the U.S. EPA, the National Research Council, CARB, and CalEPA.

For a lifetime of service and commitment to clean, healthful air for all of Southern California, CARB is honored to recognize Dr. Barry Wallerstein with the 2018 Haagen-Smit Clean Air Award.
Dr. Wallerstein, please join Mr. Corey at the podium.

(Applause.)

DR. WALLERSTEIN: Good morning. This is in -- really indeed a pleasure, and I'm very honored, and quite honestly it's quite humbling, especially when you look at the list of past award winners. And so this really means a lot to me personally. And so I want to thank the Board, the staff, and also your outside advisory committee members that worked on this for you.

I have to also thank my family that was very giving of its time to allow me to do the work that I've done over the years. And, of course, I also have to thank the South Coast District Board and staff for all of their efforts and support over the years.

You know, as Board members, you're really mentors for those of us that are the staff people, much like our college professors were mentors and prepared us for our careers. And that role is very important. And one of the things that I'd like to say this morning is there are times when we have interactions with our colleagues, or those that we're working with, and we might just think it's a routine event.

But, in fact, for the person that you're interacting with, it helps to form the person that they
are and what their life will be in whatever that
particular area is, or what we're discussing here this
morning, cleaning the air, protecting the public health,
and doing the many good things that we do in our
profession of clean air.

So Chair Nichols, I don't know how well you
remember the first time we met. And it was on the
motorcycle issue in your El Monte office. And as a
relatively green staffer, a year and a half out of
college, I'm sitting with the chair of the Board, and I
won't tell everyone the details this morning of what you
said to me --

(Laughter.)

DR. WALLERSTEIN: -- but it's -- it's something
that I've carried with me the rest of my career. And it
was wise and sage advice. And this is -- recanting this
is just me saying to all of you on the Board, and all of
the staff members how much you've touched others and
prepared others to do the good work that we do.

I also want to thank my colleagues at the
California Air Pollution Control Officers Association, the
kind of fraternity that exists -- well, it's a fraternity
and sorority that exists there. It has really helped also
to formulate my views on a lot of issues, as has the
National Association of Clean Air Agencies.
But a special thank you to the community members, the business owners, and other stakeholders that I've had the privilege of working with over the years. The input and information that they have provided really has helped us do good policy work.

And, of course, it is just being part of a clean air team and being able to work on so many interesting and important ideas, and strategies, and policies is just an incredible, you know, life's work for me. And I am so thankful that I've been blessed to be able to do that.

So again, I'd like to just thank the Board for this recognition today.

(Applause.)

--o0o--

EXECUTIVE OFFICER COREY: And lastly, Dr. John Watson in the category of Air Pollution Research. This award acknowledges his contribution to transforming the scientific understanding of atmospheric aerosols, and their sources in California and around the world. He'll be introduced by Board Member Barbara Riordan.

BOARD MEMBER RIORDAN: Today, we recognize Dr. John Watson for over four decades of innovation in air quality science. Dr. Watson spurred numerous advances in aerosol measurement, source apportionment, and assessment of air pollution's impacts on visibility, ecosystems, and
cultural heritage. He developed technology used by U.S. EPA and by scientists throughout the world to estimate contributions to airborne particulates and volatile organic compounds. A prolific researcher, author, and editor, Dr. Watson served as a principal investigator for over 120 air quality studies and produced hundreds of peer-reviewed journals -- publications.

A research professor at Nevada's Desert Research Institute since 1982, Dr. Watson guided the development of real-world multi-pollutant measurement technologies, and played a key role in advancing methods to measure black carbon and organic carbon.

In the 1990s, he guided measurement and modeling for the San Joaquin Valley Air Quality Study. It confirmed the regional connection between the Bay Area emissions and summertime air quality in the San Joaquin Valley.

Later, Dr. Watson worked on several CARB projects, during which he developed source apportionment software, and directed the California Acid Deposition Monitoring Program.

--o0o--

BOARD MEMBER RIORDAN: Two years as a physics instructor for the Peace Corps in Peru opened Dr. Watson's
eyes to air quality issues abroad. He initiated decades
of work mentoring students, professors, and regulators
from countries throughout Asia, Africa, and Latin America.
As an adjunct professor at the Chinese Academy of
Sciences, Dr. Watson has collaborated with Chinese
scientists on more than 60 publications on topics
ranging — ranging from spatial or temporal distribution
of pollutants in Chinese cities to adverse impacts on
China's cultural heritage, like the terracotta warriors.

For his extraordinary contributions to science
and technology of air pollution measurement and
management, and for sustained leadership of collaborative
research that has benefited the public health around the
world, CARB is honored to bestow Dr. John Watson with the
2018 Haagen-Smit Clean Air Award.

If you would join Mr. Corey, please, and accept
your award and share some thoughts.

(Applause.)

(Laughter.)

CHAIR NICHOLS: You wouldn't think it would be so
hard.

DR. WATSON: Well, of course, it's a great honor.
I appreciate it, not only accepting it on behalf of
myself, but on behalf of many of the other people I worked
with on this studies throughout the state.
I'm most grateful to the Air Resources Board for the better part of my education. And I don't want to tell you how much that cost over the last 40 years or so. It's taken me all over the state from Calexico to Gasquet in the north, from Bodega Bay out to Shoshone, Tacoma Hot Springs and Olancha along the Owens Lake.

I've spent countless -- fortunately countless weeks in Fresno, California in the heat of the summer and in the cold of the winter as well. And in that part, I'd come to appreciate how much this state represents a laboratory, where we have discovered things that are applicable throughout the world. And so I found many parallels that I think we've discovered here that are helping other people in more polluted situations to make progress.

I also appreciate the fact that the ARB has such a good scientific staff. I've really enjoyed working with the people in the past. And it's also a place where several of our graduates that have gotten degrees at University of Nevada, some of our post-doctoral candidates, and even some of our assistant professors are now trying to serve. And I hope that this is a place where we can send more of our graduates, and we'll try to continue some of these important research studies in the future.
Again, thanks for this great honor, and it's a pleasure to be here.

Thank you.

(Applause.)

EXECUTIVE OFFICER COREY: Now, if the Board members and award recipients will meet in front of the dais here for a group photo.

(Thereupon photos were taken.)

(Off record: 9:59 a.m.)

(Thereupon a recess was taken.)

(On record 10:07 a.m.)

CHAIR NICHOLS: I'm sorry to say we have to get back to work or perhaps get to work. Mr. Corey, you're in your seat. Good for you. Is the sound system working?

Sound?

Can you hear me in the audience?

Hello.

It's not working.

Can I be -- yes, it's working. Okay. Great. I was afraid my sound had gone out. That would be tragic.

Thanks everybody. That was -- that was really fun.

The next item on our agenda this morning is the Proposed Alternative Certification Requirements and Test Procedures for Heavy-Duty Electric and Fuel-Cell Vehicles
and Proposed Standards and Test Procedures for Zero-Emission Power Trains.

As we move forward in the transition to zero-emission technology in the transportation sector, it's important to ensure that vehicles deployed as a result of the State's regulatory efforts and investments are not only reliable, but capable of serving the needs of California fleets.

At the same time, it's equally important to maintain an environment that continues to encourage our industry partners to invest in and improve heavy-duty zero-emissions technologies.

To that end, the staff is proposing to establish a new optional certification framework for heavy-duty electric and fuel-cell vehicles that would both encourage industry best practices and promote continued zero-emission technology innovation.

So this is a voluntary certification process that we're working on. This is the first of two Board hearings for anyone who has been -- is new to this process. So after today's hearing, there will be further action, but this is an important time for the Board to become familiar with the proposal and to give input to the staff, as well as to hear from those who are affected by and interested in the proposal.
So on that note, Mr. Corey, would you please introduce this item?

EXECUTIVE OFFICER COREY: Yes. Thanks, Chair Nichols. The proposed requirements before you today would place an important role, as you noted, in complementing CARB's other efforts, including both regulatory measures and incentive programs geared towards increasing deployment of market ready zero-emission technology.

Several of CARB's planned technology-forcing measures will target heavy-duty vehicle applications in which zero-emission technology is already deemed ready for broader deployment. For these heavy-duty applications, it's important that safeguards are put in place to establish and ensure a long-term sustained zero-emissions market.

To address this, we'll be proposing a measure that would build upon the existing certification process for establishing a new alternative certification process aimed at market-ready heavy-duty electric and fuel-cell vehicles and address some of the key barriers to broader market adoption.

Staff believes the proposal would establish a balanced certification framework that supports California's efforts to accelerate zero-emission technology deployment in market-ready applications, while
still promoting technology innovation in more cutting-edge technology applications.

I'll now ask David Eiges of the Mobile Source Control Division to begin the staff presentation.

David.

(Thereupon an overhead presentation was presented as follows.)

AIR RESOURCES ENGINEER EIGES: Thank you, Mr. Corey.

Good morning, Chair Nichols and members of the Board. I'll begin this presentation with some background on the goals for the proposed Zero-Emission Powertrain Certification Regulation, which I'll be referring to as ZEPCert.

--o0o--

AIR RESOURCES ENGINEER EIGES: The proposed ZEPCert is intended to promote the development of effective and reliable heavy-duty, electric, and fuel-cell vehicles. It would assist in the transformation of the heavy-duty sector by protecting consumers purchasing vehicles as part of future technology-forcing zero-emission measures and incentive programs.

Although we have seen tremendous growth in the deployment of heavy-duty zero-emission vehicles over the past few years, many of the fleets that have adopted such
vehicles have had less than perfect experiences. Some
fleets receive products with poor workmanship, some
experienced extended downtime, while others did not have
the access to consistent product support. These bumps in
the road, however, were not unexpected as this was and
still is a new and emerging market.

That said, the technology itself is ready for
greater deployment, and as such, staff is moving towards
fleet rules that require the purchase of zero-emission
vehicles as well as greater investments in heavy-duty
zero-emission technology. But new-market issues are still
a concern. So additional safeguards are now appropriate
to continue providing good stewardship over public funds
and to protect fleets from purchasing products that could
poison the well, and could possibly lead to reduced demand
for ZEVs.

Ultimately, fleets need these vehicles to work.
If they don't, fleets will return to using fossil fuel
vehicles instead.

--o0o--

AIR RESOURCES ENGINEER EIGES: In December 2018,
the Board approved the Innovative Clean Transit
Regulation, which represents the first regulatory step in
a broader statewide strategy to transition the heavy-duty
sector to zero-emission technology.
Addition measures to support the continued growth of the heavy-duty zero-emission industry are just around the corner. The first of these measures is the Zero-Emission Airport Shuttle Proposal, which will be presented to the Board for consideration later today.

A number of other items are slated to be brought before the Board in the next few years. The growth and successful adoption of heavy-duty ZEVs, which will lead to reductions in mobile sources emissions, is critical to California meeting its air quality standards and GHG reduction goals.

--o0o--

AIR RESOURCES ENGINEER EIGES: To date, ARB as administered over 500 million dollars to fund heavy-duty zero-emission vehicles. And that number is expected to continue to grow. This money has come from sources designated to provide cleaner transportation, such as Cap-and-Trade, and the Goods Movement Emission Reduction Program.

Funding has gone towards commercially available heavy-duty zero-emission vehicles through first-come first-served programs, as well as a variety of other projects designed to fund zero-emission trucks and buses in their pre-commercial stages through pilot and demonstration programs.
The State is at a point now where it is appropriate to have a process such as ZEPCert to ensure that investments prioritize well-supported zero-emission vehicles.

---

AIR RESOURCES ENGINEER EIGES: Current certification requirements for heavy-duty vehicles with zero-emission technology are minimal, and provide little assurance that manufacturers will provide adequate support for their product. The proposed ZEPCert would modify the existing certification process for heavy-duty vehicles and establish certification conditions consisting of expected industry best practices for battery-electric and fuel-cell heavy-duty powertrains and vehicles.

Although the ZEPCert proposal would be an optional process, upcoming zero-emission regulations and future incentive programs could make it mandatory as part of their specific measures.

In addition, as an optional process, some manufacturers may voluntarily choose to certify through ZEPCert as a selling point to instill more confidence in consumers looking to purchase their product.

---

AIR RESOURCES ENGINEER EIGES: The requirements in the proposed ZEPCert are designed to provide great...
transparency and consistency in the information provided to fleets, and ensure effective product support for the vehicles they purchase.

In addition, the proposed ZEPCert would create a balanced certification framework that includes robust requirements that help strengthen the market for more mature applications, while still allowing cutting-edge, newer applications to continue to be certified through the less-stringent certification process that currently applies today.

---

AIR RESOURCES ENGINEER EIGES: The ZEPCert proposal would establish separate processes for certifying powertrains and vehicles. Certifying a vehicle to the proposed ZEPCert would require the use of a ZEPCert powertrain. Each ZEPCert powertrain would be subject to the requirements in the ZEPCert Powertrain Procedure.

Each vehicle would be subject to the requirements in the ZEPCert Vehicle Procedure, which would be an alternative process included in the Heavy-Duty Phase 2 Greenhouse Gas Certification Program. This program's structure mirrors the existing certification paradigm for heavy-duty internal combustion engines and vehicles, and would allow manufacturers to certify a single zero-emission powertrain that could be installed in
multiple different ZEPCert vehicle configurations.

---

AIR RESOURCES ENGINEER EIGES: The powertrain certification would cover the electrified portions of the power system. This includes the components and ancillary systems that store energy and manage the energy source, and convert the electrical energy to mechanical energy.

More specifically, a powertrain would include the battery, the motor, and other components such as those listed here.

---

AIR RESOURCES ENGINEER EIGES: The vehicle certification, on the other hand, would cover the mechanical components found in a typical internal combustion vehicle downstream of the powertrain. These components, collectively referred to as "vehicle integration components", include the driveshaft, transmission, and axles.

---

AIR RESOURCES ENGINEER EIGES: Now, I'll be going over the proposed requirements for the optional zero-emission powertrain certification process.

---

AIR RESOURCES ENGINEER EIGES: The ZEPCert powertrain requirements are designed to ensure that
manufacturers are providing consumers with consistent, transparent information in order to assist in informing fleet purchase decisions, assessing operating efficiency, and evaluating the condition of the battery.

In addition, ZEPCert would require manufacturers to provide sufficient product support, including making available repair and diagnostic information and tools to third-party repair facilities, providing vehicles with a minimum warranty, and recalling vehicle models in which pervasive and severe problems have been identified.

--o0o--

AIR RESOURCES ENGINEER EIGES: All manufacturers perform a battery capacity test today, but ZEPCert would require all applicable zero-emission powertrains to be tested using a standardized SAE protocol.

This is a simple test that would provide battery capacity information that is consistent and useful to fleets when comparing vehicles for purchase, and establish a baseline that can be used later to assess the battery state of health.

--o0o--

AIR RESOURCES ENGINEER EIGES: Complementing the battery capacity test would be the requirement to design powertrains to provide users with battery capacity and throughput information on board the vehicle. Battery
capacity information would be useful to fleets for determining energy usage when evaluating the impact of different roots or payloads.

In addition, both capacity and throughput information would be useful for sales on the secondary market, as the battery state of health could be assessed prior to the transaction.

The information would also support any battery capacity warranties a manufacturer provides.

--o0o--

AIR RESOURCES ENGINEER EIGES: Because the zero-emission market is still new, the limited repair network has made it difficult for some fleets to quickly and effectively receive vehicle repairs. A key element of ZEPCert would ensure that repair and diagnostic information is well documented and made available along with repair tools to third-party repair facilities, and fleets who wish to do their own repairs.

This aligns with the Right-to-Repair MOU, which is an agreement between all of the major manufacturers and the repair industry applicable to the repair of heavy-duty internal combustion engines and vehicles. In addition, information on battery voltage and fault codes must be made communicable through a generic scan tool, a common and widely available device used to retrieve diagnostic
information from engines and vehicles.

--o0o--

AIR RESOURCES ENGINEER EIGES: Under ZEPCert, manufacturers would be required to provide a warranty that covers basic powertrain component failures for three years or 50,000 miles. Manufacturers could also be subject to a recall during the required warranty period for failures that render a vehicle inoperable. Recall would be required if the number of failures of a certain powertrain component meets or exceeds the greater a four percent of all powertrains sold within a certification family, or 25 total failures. If this threshold is reached, the manufacturer would be required to notify fleets and offer a free -- a repair free of charge. The recall provisions would ensure that manufacturers are proactive rather than reactive in handling powertrain failures.

This is a significant benefit, especially in a market where repair options are limited, because it would allow fleets to plan for anticipated downtime, rather than being caught off-guard when the vehicles actually fail.

--o0o--

AIR RESOURCES ENGINEER EIGES: I'm now going to go over the proposed requirements that manufacturers seeking an optional ZEPCert vehicle certification would be required to meet.
AIR RESOURCES ENGINEER EIGES: The proposed requirements for vehicle certification largely share the same object—objectives as those being proposed for zero-emission powertrain certification. They are designed to ensure that information regarding vehicle performance and warranty is clearly and consistently communicated to fleet purchasers, and to facilitate greater product support for electric and fuel-cell vehicles.

AIR RESOURCES ENGINEER EIGES: Manufacturers would be required to make certain disclosures, both at the point of sale and in the vehicle owner's manual. This disclosures are intended to ensure purchasers understand the scope and limitations of the warranty, whether the warranty covers operating range, the process of initiating vehicle repairs, and performance considerations of which fleets should be aware when transi—when transitioning from internal combustion to zero-emission vehicles.

In addition, the manufacturers would be required to make battery capacity and vehicle efficiency information available to fleet users, which is expected to help fleets maximize the utility of their vehicles.

Because these requirements would result in better-informed fleet purchasers, they are expected to
increase the likelihood of a successful transition to zero-emission technology.

--o0o--

AIR RESOURCES ENGINEER EIGES: The repairable --
repairability requirements for the vehicle would be similar to those for the powertrain. Again, the requirements to make repair information and tools available to third-party repair facilities align with the Right-to-Repair MOU and would be useful for issues that arise when vehicle components, such as axles or transmissions, fail due to poor or improper integration of a zero-emission powertrain into a vehicle.

--o0o--

AIR RESOURCES ENGINEER EIGES: While being proposed as an optional process, staff chose to complete a conservative cost analysis using the assumption that all vehicles in HVIP, the Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project, a program designed for commercially ready zero-emission products would certify through the ZEPCert process.

The cost for reporting, testing, labeling, and preparation of certification applications were included in the analysis under the assumption that these were requirements above and beyond common industry practice.

However, tasks like developing an owner's manual
or diagnostic and repair manual were considered actions manufacturers would already be taking to produce a robust product, so those costs were not included in the ZEPCert cost analysis.

In total, the estimated cost ZEPCert would be $720 per vehicle and would cost California businesses approximately $250,000 during the first five years of the program.

--o0o--

AIR RESOURCES ENGINEER EIGES: The ZEPCert Regulation was included in a Joint Environmental Analysis with the Zero-Emission Airport Shuttle Regulation. It concludes that ZEPCert would not result in potentially significant adverse environmental impacts.

However, staff will present the final Environmental Analysis and written response to comments to the Board at the next hearing anticipated in May 2019.

--o0o--

AIR RESOURCES ENGINEER EIGES: Staff has continued to work with stakeholders subsequent to the release of the 45-day package, and if so directed by the Board, will continue to work with stakeholders to address outstanding technical issues as part of the 15-day change process. These proposed changes would include changes intended to clarify the intent and streamline the
regulatory requirements, as well as add additional flexibility to specific provisions that will still achieve the intended goals of the regulation.

This would include clarifying that manufacturers would not be required to bring in a specific number of powertrains for repair. Other than making the repairs, their obligation would be to notify all affected fleets. And to emphasize that only failures that render vehicles inoperable are used to determine if the recall thresholds have been met.

Staff would also propose to streamline recall requirements by removing redundant provisions simplify warranty reporting requirements by aligning warranty reporting thresholds with recall thresholds, and add flexibility in how the diagnostic information is obtained from the vehicles.

Lastly, staff is proposing to make other small editorial updates to add clarity and eliminate redundancy.

--o0o--

AIR RESOURCES ENGINEER EIGES: In summary, the proposed ZEPCert would create a certification framework for heavy-duty, electric, and fuel-cell vehicles and their powertrains that would assist in California's transition towards a successful self-sustaining zero-emission market. It's part of a balanced approach that would provide
important safeguards that protect California's incentive investments, as well as the fleets that would be mandated to purchase zero-emission technology without hindering continued in the -- innovation.

Therefore, staff recommends the Board adopt the resolution directing staff to evaluate and respond to any public comments, modify the regulatory language with any appropriate 15-day changes, and return with a final proposed regulation.

The 15-day changes are expected to be released for public comment in March or April 2019, and we are anticipating bringing back the item for a second hearing in May 2019 to finalize Board adoption.

This concludes my presentation. Thank you for your consideration.

CHAIR NICHOLS: Thank you. I -- we have a list of witnesses, which has now been posted on the Board behind me. I think if it's okay with the Board, we'll just proceed to hear from those who have signed up, and then we can move it to discussion by the Board.

So let's begin with Joshua Goldman, and we'll just have to continue to pass the microphone back and forth, until we can get the sound system fixed.

MR. GOLDMAN: Hello. Good morning.

CHAIR NICHOLS: Good morning.
MR. GOLDMAN: My name is Joshua Goldman. I am Vice President of sales and marketing for TransPower. TransPower is a start-up based in Escondido, California, in San Diego County.

Hi, Supervisor Fletcher.

And we are a powertrain kit manufacturer to support truck and bus OEMs in the electrification of medium- and heavy-duty vehicles. We've developed vehicles such as semi trucks, yard tractors, refuse trucks, school buses, heavy forklifts, and final mile delivery box trucks.

Over the past eight years, TransPower and our project partners at ARB, the California Energy Commission, South Coast Air Quality Management District, San Joaquin APCD, Bay Area AQMD, San Diego APCD, the Port of L.A., Port of Long Beach, Port of San Diego, Port of Oakland, and many truck OEMs, such as Peterbilt and Kalmar; global commercialization partners TransPower, the truck axle and brake manufacturer, Meritor; and our -- most notably, our growing lists of fleets, such as Ikea, Dole, Harris Ranch, Grimmway Farms, Raley's, Torrance Unified School District, Sacramento County Department of Waste Management, TTSI, Biagi Brothers and many, many more all signing up to demonstrate these next generation zero-emission trucks.

We thank the ARB and your staff for all your
efforts in this early prototype development, and in commercialization of zero-emission trucks and buses. Having personally been working in this space starting in engineering, and now in sales and marketing, for the past 20 years, I have seen the advancements, thanks to your efforts, in commercialized advanced heavy-duty zero- and near zero-emission trucks and buses. And these efforts will continue through this powertrain regulation to commercialize the future of off-the-shelf trucks and buses.

We support the efforts of ARB and staff in this proposed Alternative Certification Requirements and Test Procedures for these heavy-duty electric and fuel-cell vehicles, and the standards for zero-emission powertrains. TransPower recognizes that this modern commercialization of these trucks and buses is still in the early stages. And we thank all of our project partners for their efforts in going from the bleeding edge of technology into vehicles that will work and displace diesel in the marketplace.

As that, we also recognize that we are still learning from all these trucks and buses. And all the data that we collect and provide to ARB, and the federal government, and the air districts, and the ports, and our project partners is all of us learning about where this
future is going and how we can support all your efforts. So, in summary, I support this program, but we will continue to work with staff and ARB to ensure that these systems are robust and reliable, and able to meet the market demands through early incentives, and eventually as a low-cost solution so that the zero-emission future can be realized helping the state, and the nation's, and the global clean air requirements.

Thank you.

CHAIR NICHOLS: Thank you.

MS. VAN CLEVE: Good morning, Chair Nichols and members of the Board. My name is Sarah Van Cleve. And I'm here with Tesla with some comments on the ZEPCert. First off, obviously, we agree that zero-emission trucks will play a critical role in helping California achieve its public health and climate goals. But as the Chair alluded to earlier, it is important to balance the sometimes competing objectives of growth, durability, and innovation.

As currently drafted, the ZEP Certification provides transparency to purchasers, but also includes provisions that may have a negative effect on the growth of zero-emission trucks with limited additional benefit to the purchasers.

Tesla greatly appreciates staff efforts to date
to work with stakeholders, to ensure that the proposed ZEP Certification continues to enable the growth of heavy-duty ZEVs in California. Modifications have been made on many of the initial proposals that better reflect the current state of the industry. One such positive change was the change to maintain the certification as voluntary at this point.

Unfortunately, however, we have one remaining concern, and that's related to the mandatory recall provision. We certainly recognize that there is a need to ensure that vehicles are compliant with emissions requirements and why emission recalls are important. But it's not clear why heavy-duty zero-emission vehicles, which, by definition, produce no emissions should be subject to similar recall requirements.

We expect that this provision will require unnecessary and expensive recalls amongst many of the heavy-duty EV manufacturers, where otherwise these vehicles could continue to operate safely and produce no emissions. And this would also add some nuisances for the fleet managers operating these vehicles.

Given the potential 15-day language changes outlined in staff's proposal today, we are optimistic that staff is moving in the right direction, and that staff is going to continue their evaluation of alternatives to a
mandatory recall provision.

As outlined, staff plans to remove the influenced recall section, simplify the voluntary recall language, and limit the recall language to specifically apply to failures that render the vehicle inoperable. These changes are positive, specifically in that they focus on the recall provision around failures that will render the vehicle inoperable.

We've also heard that there is some consideration of replacing the term "recall" with a concept that's more in line of a maintenance plan. And we really support this change, particularly given that staff has indicated that they are envisioning this process as more of a notification process that doesn't require repair completion rates that would be binding on the vehicle owner. In essence, it's a recall in notification only.

Therefore, we recommend that staff continue working with stakeholders to develop alternatives to a mandatory recall provision, such as a notification based maintenance plan concept.

Tesla looks forward to continuing to engage in these discussions and helping grow heavy-duty vehicles in California.

CHAIR NICHOLS: Thank you.

MS. GOLDSMITH: Good morning. My name is Hannah
Goldsmith. I'm the Deputy Executive Director the
California Electric Transportation Coalition. We've been
coordinating an internal working group of around 20
manufacturers, including CalETC members and others to
review and provide feedback on the Zero-Emission
Powertrain Certification Proposal over the last year or
so. We also submitted detailed comments on the 45-day
regulatory language.

CARB staff have put in a lot of time to work with
us on this proposal, and we appreciate staff's commitment
to taking our feedback seriously and willingness to work
with us on amendments. We look forward to continuing to
refine the regulations with staff during the amendment
process that was laid out today.

The proposed regulations would require many
changes to current engineering, manufacturing, warranty,
recall, documentation, and reporting practices from
medium- and heavy-duty zero-emission vehicles. A
particularly challenging ZEV market segment and one CalETC
believes is essential to meet the state's clean air,
climate change, and economic goals.

The proposed regulations will add costs to the
final zero-emission product. CARB staff have shared a
proposal for amendments to address most of our concerns
with the ordered recall provision and other provisions of
the current regulations. With these anticipated
amendments, as well as other amendments we're working on
with staff, we believe that the regulations will become
workable. We recognize that a balance must be struck
between the objectives of this certification program and
promoting and accelerating zero-emission vehicle
deployment.

With the amendments we have seen and will
continue on work on with staff, and with careful tracking
as the regulation is voluntarily implemented, we believe
the regulations will strike the right balance. Because
the regulations will still result in substantive changes
to current manufacturing practices and add significant
costs to the manufacturing of zero-emission vehicles, we
have worked with CARB staff to recommend that the
certification process remain voluntary until at least
2023.

We believe that keeping certification optional
for an appropriate amount of time will allow for
manufacturers, fleets, stakeholders, and CARB staff to
work together to implement the certification process and
refine the regulations, if necessary, to ensure they
support the objectives of the regulation and accelerate
and promote ZEV deployment.

We also recommend that staff report back to the
Board on implementation of the regulations, once adopted and implemented, and before the regulations are made mandatory through a funding program or a regulatory action.

This review could be similar to what was included in the resolution for the Innovative Clean Transit Regulation.

Thank you.

CHAIR NICHOLS: Thank you.

MR. BARRETT: Good morning. I'm Will Barrett with the American Lung Association. I was having a conversation with my youngest daughter about penmanship and the importance of it. And I certainly didn't do a good job on have my card earlier with getting my name spelled wrong on this.

(Laughter.)

MR. BARRETT: She'll be delighted.

So the American Lung Association strongly supports the strong ZEV requirements that ARB is moving forward to improve air quality and public health. We strongly support the goals and efforts of the Board and staff to develop the strongest possible regulations to really spur the transitions to zero-emission transportation.

Zero-emission technologies are a critical
component to meeting our clean air and climate change
goals and to protecting public health. So with all of
that, we -- we do appreciate the intention to provide
consumer and fleet confidence in zero-emission
technologies. Boosting consumer confidence and comfort
with zero-emission vehicles is a key step forward for
expanding the market to accelerate clean air and climate
benefits that we're all trying to achieve.

The certification process supports growing
consumer confidence and growing the market. We do
appreciate the responsiveness of CARB and the staff -- or
Board and staff to the manufacturers' concerns that have
come up throughout the process. We appreciate that the
staff have been working closely with zero-emission
manufacturers to adjust the proposals in a way that builds
the confidence and allows continued progress to strong --
to strengthening the market and building those clean-air
benefits.

So we do also encourage the ongoing work on the
remaining issues, some of which have been mentioned, and
clarifications that I know staff is looking at through the
15-day changes.

As the discussion continues, we encourage the
continued focus on building and accelerating the market.
We think that this program can be a strong part of that,
and think that the clear zero-emission targets across the heavy-duty sector, consumer acceptance, coordination with the market leaders who are building these vehicles, are really all critical pieces of moving to that clean air future. So we urge you to move forward, continue working with the stakeholders on these improvements and clarifications in the program, and really setting the course forward.

So thank you very much.

CHAIR NICHOLS: Thank you.

MS. NAGRANI: Good morning. I'd first like to thank staff. You know, this has been a very long road and there have been substantive changes, which I appreciate. However, I'm here on behalf Motiv Power Systems to actually oppose this measure, as it is currently written, because as the summary and impacts begins, there are no quantifiable emission benefits associated with this proposal.

Fundamentally, Motiv as a company is here with a mission statement to free fleets from fossil fuels. We believe the best way to do that is developing a product line that can go into numerous applications, enabling more and more fleets to move away from the diesel engines that they currently use.

The challenge with this is the cost analysis
assumes a single product line and a large base for which
to spread your cost basis across. If, for example, you
are a transit bus and you are building one type of bus,
that is one manual that you will use for your entire
product line. If, however, you are a powertrain like
ours, where you can serve a flatbed truck, a book mobile,
a blood mobile, delivery vehicle, a box truck, school
buses of different weight classes, it quickly balloons
where your component costs might be one component, but
your end-use application could be seven or eight vehicles.

In doing that, you are going to end up having a
scenario in which every new end-application, while
technically feasible and innovatively possible as a new
market, is financially prohibitive. Every time you
increase the cost of a new application, you are reducing
consumer choice to move away from diesel. This is
something that is unique to the medium- and heavy-duty
marketplace.

Whereas, on consumer vehicles, if you buy a
Nissan Leaf, for example, you can select the seats and the
trim, but fundamentally your emissions system is the same
across the product line. When you're looking at a
long-haul vehicle, you've got a medium basis of similarly
configured vehicles that are just hauling goods.

But for medium- and heavy-duty trucks in that
intermediate space, the difference between a bucket truck
a volume-dependent, truck a weight-dependent truck, are
all very different. And so when you think about things
like displaying in increments of five percent what your
battery capacity is, that's actually misleading for a
driver. Because if you go out with an empty truck, fill
it up, and come back, and think you have 30 miles left and
you actually have 15, because your weight load has
derived, you're giving somebody inaccurate information.

And so while the intent is good, the amount of
predictive algorithms needed to quantify what that batter
means to any specific end-use application is much more
software intensive than staff gives credit for.

The complexity of medium- and heavy-duty
applications has been a theme in various incentive work
groups, as well as in discussions of the medium- and
heavy-duty truck rule manufacturer requirements. But in
this powertrain rule that has been insignificantly
analyzed.

Specifically, within the ISOR package, the cost
effectiveness of this and the linked shuttle bus measure,
on one hand, suggests that maintenance costs will go down
to the end user. But even in the Shuttle Bus Rule, it
does not reflect that for the end customer.

Given these issues --
CHAIR NICHOLS: Your time is up.

MS. NAGRANI: -- I strongly urge the Board --

CHAIR NICHOLS: Thank you. Thank you.

MR. BLUBAUGH: Good morning. I am Tim Blubaugh with Truck and Engine Manufacturers Association. Today's proposed rule would impose a broad and complex set of certification requirements for zero-emission powertrains, and the medium- and heavy-duty commercial vehicles in which they are installed.

Although the extensive list of proposed certification requirements are stated as optional, that is misleading. These certification requirements become mandatory with the Airport Shuttle Regulation, and they will be adopted even sooner as a mandatory element of essential ZEV incentive programs. We have submitted extensive written comments outlining multiple significant concerns with today's proposed rule.

In briefest summary, the proposed ZEP Certification requirements exceed ARB's legal authority, impose significant excessive costs on manufacturers, which, among other things, will impede the market acceptance of ZEV products, will cause manufacturers to divert limited technical experts away from developing and improving ZEV products, and may require expensive and counterproductive recall campaigns.
We recognize ARB's goals in adopting the ZEP Certification requirements. However, we feel that the current proposal will serve as an impediment to the successful roll-out and customer acceptance of zero-emission commercial vehicles.

Rather than enhance the marketability of ZEVs, the proposed ZEP Certification requirements likely will create an obstacle to growing the medium- and heavy-duty ZEV market.

We have been working very closely with staff since 2017 to provide input on the ZEP Certification Rule, and that constructive dialogue continues through today. We sincerely appreciate staff's willingness to listen and make changes to try to make -- to try accommodate our concerns.

In that spirit, we support the changes to the ZEP Certification Rule that staff is proposing to make with the 15-day notice. Those additional changes are crucial. And they will go a long way toward making the ZEP Certification Rule workable and implementable for manufacturers.

Further, EMA and its members look forward to continuing to work with you and your staff to make the ZEP Certification Rule as successful as possible for the zero-emission commercial vehicle market.
I'm happy to answer any questions.

CHAIR NICHOLS: Thank you.

DR. KAYES: Hello. My name is David Kayes. I'm an engineer at Daimler Trucks North America. My key comment today is in line with David Eiges' comment that the intention of the Board -- the staff, rather, and similarly the intention of manufacturers is to streamline and add flexibility to the ZEP Certification Regulations.

Daimler Trucks North America is headquartered in Portland, Oregon. And we manufacture under the brands Freightliner and Thomas Built, among others, including the electric Cascadia, the eM2, and the Juli electric bus.

We have extensive therefore concerns about the difficulty and resource burden of the ZEP Certification regulations. Without waiving the issue of the ARB's authority and some of the other concerns that were raised in our EMA comments before, I would like to say I appreciate that ARB staff is working with us. They've been very responsive on a number of topics, including for example minimizing the amount of extensive requirements placed on battery testing.

We still have, however, some concerns. For example, in the system monitoring and diagnostic requirements, there are requirements to make available, through the broadcasting, any voltage and temperature that
might be useful in repair of a vehicle.

There could be dozens, hundreds of battery cells and modules, each with different voltages and temperatures that might be easily readable through a thermometer temperature gun or through a volt meter. But adding the requirement to broadcast all the information about all of these things through communication protocol meant to broadcast simply diagnostic faults or other key information adds a lot of extensive burdens to us.

Similarly, requirements that we make available extensive documentation about any changes to the system monitoring and diagnostic requirement will force us to divert engineering resources from developing new diagnostics into documenting existing ones.

ARB staff has made clear the intention not to dictate monitoring diagnostic requirements, and just recently to streamline these provisions. And we greatly appreciate that. What we'd like to see is that in the upcoming work that we do that we can still further streamline the regulations and work on ways to improve the cost effectiveness.

We, and I believe that ARB, share the concern of speeding zero-emission vehicles to the market and we -- we want to minimize the impediments to that.

CHAIR NICHOLS: Thank you.
MR. LE: Good morning, Air Board members and Chairman. My name is Huy Le. I'm just actually a regular citizen of -- I'm an owner/operator, and I own my own truck. I have one truck only. And the reality of this is that you guys -- you know, initially you guys did the whole -- you know, the filter for our trucks. You know, it was a great idea. The only problem is that the maintenance was really high.

As an Air Board, you know, you guys gave us maybe 30 to 60 thousand to replace our trucks or to retrofit it. But if you think about it, for the first year when I bought my truck, you know, actually I bought a used one. It's 2012 -- 2012 truck I bought in 2014. It had about 300,000 miles. And within two years, I spent 30,000 on just the filter. And each -- every -- about every two months, I would drop my truck off at Peterbilt or Kenworth, and it would cost me about four to five thousand.

And over the course of two years, Peterbilt and Paccar decided to give me a brand new filter after 35,000 of truck repair. So I'm -- the reality, it's really hurting a lot of the regular owners and, you know, small business owners. A brand new truck would cost -- back then a brand new truck cost about 120,00. After the retrofit a brand new truck cost about 160,00.
240,000 on average. So whatever you guys gave us was actually -- was barely enough for us to buy a brand new truck.

As you know, there's about several hundred thousand -- millions of drivers out there, if you're trying to convert us all to electric, you have to think of the -- actually, I just got a solar for my home, but I didn't get the battery. Because I asked the guy why shouldn't I get battery? It cost me $6,000 more and 30 percent -- I could write of 30 percent on my faxes, you know, on the batter, whatever I bought.

I didn't do it, because he said the battery only lasts about 10 years. And I asked him how much would a battery cost? We don't know yet. You know, it could cost another seven, eight thousand. But then they wouldn't guaranty me that it would last 10 years on the battery.

Now, think about this, that new law you guys have was what, three years or 50,000 miles warranty, whichever comes first. An average truck driver would drive about 50 to 200,000 miles a year. A trip from Bay Area, San Francisco to L.A. is about over 1,000 miles. That's not -- you know, and if you bring -- okay. So we drive -- we've six months of warranty, if that. So when the truck breaks down, who pays for it? The driver, the owner.

I've dropped my truck off so many times, it's
ridiculous. You know, you think about, a repair for
Peterbilt, it's always backed up. So you're talking about
two weeks of unemployment. I can't work for two weeks,
and the repair is $5,000. I make about 10,000 a month, if
that before any, you know, fuel all that, costs.

So you -- if you implement these kind of rules,
do it on it -- like, just sit on it, like maybe a
California -- like -- like on the California like vehicles
first, before you do it on like a commercial vehicle. You
know, we're -- all we're trying to do is we're trying
build roads, homes, and businesses. And now with the new
law talking about business owner cannot -- cannot, you
know -- cannot work, you know what I'm saying.

VICE CHAIR BERG: Thank -- sir, we need you to
conclude because your time is up. Thank you so much

MR. LE: Okay. I just want to say that, you
know, any of these laws you guys make, just think about
the regular user first. It's very expensive. And that's
about it.

And last but not least, there's not a lot -- too
many laws against us. We just want to work. We're just
regular citizens, you know. So thank you, Board.

VICE CHAIR BERG: And thank you very much for
coming and testifying. We, appreciate.

MR. SCHUCHARD: Good morning, Vice Chair Berg,
Board members. I'm Ryan Schuchard with CALSTART. Mostly, we commend CARB for its portfolio of zero-emission vehicle programs and appreciate that the combination of very nuanced requirements and sticks is so important to moving the markets and the technology fast enough to meet -- to meet our very difficult climate change problem.

And we greatly appreciate staff's being so responsive to our feedback and others and incorporating into the feedback we've seen today -- or I should say the proposed plan we see today. The issue that we've been most focused on is improving the recall measure, which we -- we have heard from member companies and manufacturers does add costs and uncertainty. But based on the feedback that we've heard and seen in -- and seen incorporated, we do think things are headed in the right direction. We also do recognize that ongoing support and dialogue is happening in other areas as well.

But with respect to the recall issue specifically, we are -- we are -- we feel like things are going in the right direction, and we look forward to continuing to be engaged and thank staff for its -- its work with the measures shown today, which we do support.

Thanks.

VICE CHAIR BERG: Thank you very much.

We do have two additional people I think have
been listed.

MS. McGHEE: Good after -- good morning. My name is Lisa with San Diego Airport Parking Company. I really appreciate CARB's insight into understanding that fleets really need confidence. This is about reliability. This is about safety. And it's been long overdue.

The lessons learned are obvious and this is the reason for this measure. Complying to regulations is a part of moving and being on the roadways. That's never been any different with any other technology, except for a ZEV in the medium- and heavy-duty space.

The ZEP certification is long overdue and a voluntary is option not enough. Fleet -- facts are is that the taxpayers have spent over 37 million in the medium- and heavy-duty ZEV sales, 242 vehicles are on the road today with an additional 365 that are by extinct OEMs.

The reasons are based on lessons learned. SD -- SDAP has been subject long downtimes, and then procuring diesels over ZEVs due to this issue. So ZEVs, when down, do create emissions. Fleets need reliable safe product. These are 100 percent proprietary vehicles with no requirement for garage services. We've had over nine years to be very flexible and innovative.

But when adding thousands of pounds of battery
packs to base gasoline vehicles or chassis, it impacts the
performance, the wear and tear, and many existing ZEV OEMs
are new manufacturers in this space, as seen on the HVIP
OEM sales list. This is about safety. We are motor
carrier commercial operator drivers with strong
willingness to support the technology if CARB can provide
fleets with useful standards.

Warranties, recalls, and defects to correct the
issues. These standards are the same as any other vehicle
and technology that shares the roads with all other
light-duty, medium-duty, and heavy-duty vehicles. We are
moving thousands of pounds of passengers and freight.
Testings and standards are necessary to comply with
standard applicable government regulations that should be
no different for the ZEV technology.

Downtime creates emissions. Manufacturers should
be require to achieve high commitment to robust excellence
by ensuring product with quality standards. Additional,
the program should not only be mandatory, it should also
include Class 2B and Class 3 vehicles. This class has a
large market share. And SDAP has provided written
comments to support the facts on this segment.

Imagine vehicles that can only be repaired by one
OEM and commercial operators that run 24/7. Accelerated
adoption will only be achieved with robust product.
MR. SHUMAKER: Okay. Good morning, California Air Resources Board. The California Hydrogen Business Council and its members support the efforts of the California Air Resources Board and the proposed Zero-Emission Powertrain Certification Regulation. The CHBC commends the collaborative work that the staff members of CARB and the stakeholders in the zero-emissions technology have dedicated to refining this regulation over the past several months.

We are supportive of the spirit and intent of the proposed regulation to provide additional transparency, consistency, and stability to heavy-duty zero-emissions markets. These factors are critical for the consumers and users of these vehicles to give them the confidence they need to rapidly expand their adoption of these vehicles, leading to the achievement of California's zero-emission goals.

The proposed regulation can accomplish this, particularly with the following additional element to help ensure consumer protection and public confidence in State and private investments in these technologies.

A purchase guidance statement is recommended, which would be an additional requirement for a manufacturer specification of key performance parameters, such as power output across the operational temperature
range of the powertrain at both beginning of and at the end of the service of the powertrain.

Such reports must ensure data be aggregated and anonymized to sufficient degree as to prevent identification of particular manufacturers or fleets, while providing CARB decision-makers sufficient detail to assess incentive programs as they evolve.

The suggested addition provides a purchaser the information needed to discuss vehicle operation across the varied climates of California, and over the lifetime of the vehicle with the vehicle manufacturer, while leaving it to the discretion of the purchaser and the manufacturer as to how to ensure these claims are maintained contractually.

This reinforces the consistency of vehicle performance and adds stability to the market by clarifying consumer and manufacturer expectations over the varied operational environments of the vehicles.

This CHBC applauds CARB and its staff and its forward-looking efforts to rapidly advance the commercial markets for zero-emission heavy-duty powertrain technologies, and looks forward do assisting in this effort for the benefit of the citizens of California.

We appreciate your consideration of our comments and offer further discussions with your team to answer
potential questions.

Thank you.

VICE CHAIR BERG: Thank you. And with the last witness then, I'm going to turn back to staff and see if there's any final thoughts before I call on the Board members to see if anybody has any questions.

Mics are live.

(Laughter.)

MOBILE SOURCE CONTROL DIVISION ASSISTANT CHIEF CARTER: I can start. Mike Carter. You've heard a lot of testimony today from the witnesses. It's obvious there's been a lot of back and forth between staff and industry, especially in the last two or three weeks. We certainly recognize the concerns and that's why most of our time is spent primarily intending to clarify what staff's intent is all along. And so most of the 15-day changes that you'll eventually see, or hear about, basically do just that. They clarify what our intent is.

We tried to strike a balance -- a modest balance between protecting California's investments, making sure these vehicles are durable, they last, they don't -- they don't die after two or three months, especially after a regulatory measure that may come along that may require the purchase of these vehicles. We balance that versus not being overly burdensome to an industry that's
relatively new, because we agree we don't want to hinder
the acceleration of the heavy-duty market.

So just in closing, I think what you've heard
today reflects the fact that we did try to do a modest --
a modest balanced approach, so...

VICE CHAIR BERG: Well, thank you very much, Mr.
Carter. And I did hear from several stakeholders that
staff was very diligent in listening and learning. And we
are developing from a blank sheet of paper, once again,
brand new technology. And so I'm sure we'll hear from the
Board that we encourage you to continue to do that.

Supervisor Gioia.

BOARD MEMBER GIOIA: Thanks.

Yeah, my understanding is that there's been some
flexi -- more flexibility sort of incorporated into the --
into this after discussions with those out in the field.
The one question I still have is on this mandatory recall.
There have been comparisons made that, gee, there's no
mandatory recall with zero-emission light-duty vehicles,
so that the heavy-duty vehicles here are being treated
differently. And there were some comparisons, I think
in -- some of that was laid in out in the Tesla letter.
Can you talk a bit about that and explain? There does
seem to be a difference in treatment. So explain sort of
the rationale and your response to that comment.
CARTER: Sure. Sure. I think the one fundamental difference between the light-duty program and what we're proposing today in this particular category, with the light-duty program, the Teslas, for example, nobody is telling anybody they must buy a ZEV vehicle. This particular rulemaking, albeit optional and will set a framework, future regulatory measures will mandate that fleets or purchasers buy an electric vehicle.

And so if we, as the Board, are requiring that kind of a mandate for fleets to buy these vehicles, we think there should be some protection involved in that. It's -- we think it's our responsibility for that. So that's the big fundamental difference.

BOARD MEMBER GIOIA: And the issue is also -- in some cases, it's technically not recall. There's -- there's other steps that can be taken. Is the -- and there seems to be some concern over the use of the word "recall" that it -- that may sound worse than what actually will happen.

CARTER: Right. Well, a traditional recall on the -- on the internal combustion side, if you will, the main difference is the traditional recall requires a minimum capture rate. The manufacturers must bring in a certain
percentage of vehicles to get fixed. That may require the
manufacturer to provide incentive monies to have people
come in and get the thing fixed. The other main
difference is there's a DMV tie-in, which would deny
registration if the vehicles don't get fixed.

What we're proposing today, it does not include
any of that. The only responsibility that the
manufacturer would have, other than fixing the vehicle, of
course, is to properly notify the fleet owners that, hey,
there is a recall. Come in get your vehicle fixed. And
the responsibility for the manufacturer, other than fixing
the vehicle, as I said, ends at that point. So that's the
main difference.

And with regard to the comment about the word
"recall", frankly, staff used the word recall, it is what
it is, although, it may be a little bit different. The
recall has a very common understood meaning, what it
means. And we didn't feel it was necessary to dilute
that, and perhaps even confuse people, in terms of what it
is and what you can do to get your vehicle fixed. So in
staff's view, we don't -- we're not in favor of changing
that word.

BOARD MEMBER GIOIA: Thank you.

VICE CHAIR BERG: Thank you. Are there other
Board members that would -- Ms. Mitchell.
BOARD MEMBER MITCHELL: Thank you.
And I want to say also to staff that thank you very much for working with the stakeholders on this. I understand that a lot of work has been done and there's still more to be done apparently.
We heard some main themes from people today, recall one of them, battery testing, the documentary -- documenting the changes to the vehicle, the burden that might be imposed on OEMs, and an urgency to streamline the process. So we expect you to keep working on this, and we'll hear back from you as -- as this gets worked out.
And I think the Board would like to hear from you as the -- as the -- as the regulation as voluntary as this program is implemented. So we look forward to further work on the project and thank you, staff, for being flexible, working with our stakeholders. We appreciate that.

CHAIR NICHOLS: I take it -- I apologize. I had to leave the room. I've had a couple of calls this morning relating to the announcement that the White House put out today about closing off the discussions with California about the vehicle -- light-duty vehicle greenhouse gas emission standards and the CAFE rules, which I would be happy to report on to you in a moment, but we're kind of in the middle of things. And so I just
want to make sure that we are at the stage where the staff is responding to comments that they heard from the audience, and then I want to close the record so we can have a more robust conversation among the Board members.

So if your question or comment has been addressed, then -- okay. Then I'll just call on anybody else who may have a question for the staff this stage?

And if not, then I will close the record. I'm sorry. Excuse me, Dan.

BOARD MEMBER SPERLING: I guess I do have some clarification questions. I'm trying to get my head -- I guess I didn't fully understand this rule. Basically, we're doing this because -- for -- because we're mandating the purchase of electric trucks, is that right?

MOBILE SOURCE CONTROL DIVISION ASSISTANT CHIEF CARTER: Well, as I said earlier, this -- this is an optional measure that will set the foundation for future regulatory measures that want to use this procedure as part of their rulemaking. So as you'll hear in the next measure, the airport shuttle rule, they will reference this measure as a mandatory measure in subsequent years, in 2026. But you'll hear about that later.

BOARD MEMBER SPERLING: But it won't apply to purchases of trucks or buses that are not under some mandatory purchase requirement?
MOBILE SOURCE CONTROL DIVISION ASSISTANT CHIEF
CARTER: No. As I said, this is an optional rule as it --
by itself, it's an optional rule.

BOARD MEMBER SPERLING: Okay.

CHAIR NICHOLS: But it is pretty clear the
foundation for incorporated into some rules that will be
mandates, yeah.

BOARD MEMBER SPERLING: Okay. And I guess just
before we get into this discussion, just a clarification.
On one of the pages, it said there was a $720 cost per
vehicle. Is that per vehicle model or actual vehicle?
Because when I do the math, you say the total cost is
$250,000 over five years, which would imply there's only
300 vehicles going to be sold in five years. I guess, I
didn't understand.

MOBILE SOURCE CONTROL DIVISION ASSISTANT CHIEF
CARTER: Yeah. Well, I'm going to ask my staff to answer
that in details. But the $720 per vehicle, that is a per
vehicle price. That's correct. But just to clarify in
the general terms of the cost estimates this the staff
have or they estimated, those costs are what we view are
above and beyond what the manufacturers would be doing
anyway. And to be even more conservative, some of those
costs do include what the manufacturers do anyway. But we
included them just to be conservative. And maybe, David,
if you could add more detail.

MSCD ADVANCED EMISSION CONTROL STRATEGIES SECTION

MANAGER CHEN: Sure. This is David Chen.

So the actual $720 number comes from the impact on all companies that were in the analysis -- cost analysis that we'd be making that made zero-emission vehicles for HVIP. And so that -- what you see that 250,000 only includes the California businesses -- the cost to California businesses. And so you can't really get from that number directly to the $720.

BOARD MEMBER SPERLING: Okay. Okay. And I'll defer other --

CHAIR NICHOLS: Okay. Thanks.

I will officially close the record at this point and remind everybody that this is the first of two Board hearings. And that the record will be reopened when the 15-day notice of public availability is issued. Written or oral comments received after that date but before the 15-day notice is issued will not be accepted as part of the official record on this agenda item.

When the record is reopened for a 15-day comment period, then the public may submit written comments on the proposed changes, which will be considered and responded to in the Final Statement of Reasons.

So that's -- that is our process now. It's a
two-part process. So at this point, however, we do have a resolution in front of us, which instructs the staff to work on the 15-day changes and to return to the Board. So we have an opportunity, at this point, if the Board wishes to do so to give some explicit instructions to the staff about what we would like them to put into these 15-day changes.

And I know there's been a couple of issues raised about the recall provision. I think that's pretty much where it's at -- the only area of any real controversy at the moment.

And I have to say, there is a -- definitely a balance here between our desire to make sure that as we are in the business of promoting electric trucks and buses, that we be providing a level of assurance to the fleet owners that are going to be purchasing these things that they're going to have some recourse if they don't work as they were supposed to versus the fact that any requirement also has the potential to slow down or make people less willing to invest in these new technologies at additional cost to the people who are making them.

I feel like we probably will improve our ability to refine these provisions as time goes on. But I think having a recall provision is certainly useful. Frankly, I think making it applicable only when it's -- the thing is
inoperable may be asking for -- you know, almost asking for vehicles to become inoperable, which we certainly don't want to have happen.

So I -- I'm open to finding a better way, but I can't really think of one at the moment. That's -- that's not a very helpful statement, I realize. But anyway, I would ask any Board members who wish to comment on this point before we bring the resolution forward to do so.

BOARD MEMBER SPERLING: Yeah. Just a little bit of follow up on that, because I was a little confused, because the Tesla person -- I don't -- maybe they were referring to an earlier version, but they were saying that, you know, because it's -- this is different, there are no emissions, and that it should only apply if they're inoperable. But I thought that is what the rule says. Is that -- is that right? So was it Tesla -- okay, yeah.

MOBILE SOURCE CONTROL DIVISION ASSISTANT CHIEF CARTER: Actually, the existing -- the 45-day -- the original, no, it does not say that. So part of the 15-day, we are making it crystal clear that we're talking about inoperable. Yes, so it will be part of that.

CHAIR NICHOLS: So there's been conversations going on, I think, on an ongoing basis. But what's actually in front of us does not include that.

BOARD MEMBER SPERLING: Okay.
CHAIR NICHOLS: Yeah. Any other -- yes, Ms. Mitchell

BOARD MEMBER MITCHELL: I'll just follow up on that. Because right now, CARB and South Coast are doing some pilot programs that are involving electric trucks. And I think this is really critical that we're working on this and getting to -- eventually to a standard that people will know they have to meet. So I -- and as -- as -- these -- we've had these conversations with some of the stakeholders as your working on this. So understanding the confusion about what was in the original proposal that you put out, and what you're now proposing in the 15-day changes is much different.

So we look forward to when you come back and hopefully you will have worked out many of those differences. But I do think this is a critical program, because of things that are ongoing right now, and particularly in South Coast, but, you know, other places across the state with pilot programs.

Thank you.

CHAIR NICHOLS: So are we prepared to act on the resolution at this point then?

VICE CHAIR BERG: I'd just like make a comment.

CHAIR NICHOLS: Yes. Go ahead.

VICE CHAIR BERG: I just want to make sure that
staff feels that they have the direction from the Board to continue to work with stakeholders on all the things that you have been doing, because there has been tremendous progress, understanding one size doesn't fit all, looking at the various cost issues. So when you come back to us, that you feel we have the best product forward to start on this voluntary measure, understanding that we are setting a standard to go forward to become non-voluntary at some point. You're good to go?

CHAIR NICHOLS: I see heads nodding.

Say yes.

MOBILE SOURCE CONTROL DIVISION ASSISTANT CHIEF CARTER: Yes.

CHAIR NICHOLS: Okay.

VICE CHAIR BERG: Okay. Good. I'm ready, Madam Chair.

CHAIR NICHOLS: Are you now making a motion to approve the resolution.

VICE CHAIR BERG: I will make the motion to approve the resolution.

CHAIR NICHOLS: Okay. Thank you.

BOARD MEMBER MITCHELL: Second.

CHAIR NICHOLS: And Ms. Mitchell is seconding.

Any further comments?

If not --
BOARD MEMBER SPERLING: Yes. No, I would like to --

CHAIR NICHOLS: Yes.

BOARD MEMBER SPERLING: So I'd like to add to what Vice Chair Berg said that I think that we want to be cautious. This is a new product, one that we promote, that we want. And I think -- I would suggest that going forward we -- I mean, we can -- this is essentially a lemon law. And we should -- and we're protecting the consumer. But I think we should be a little light-handed going forward both in terms of the -- you know, any sense of onerousness or cost. That we do want to protect the consumer, but we want to be gentle in how we approach that. And I'm not going to quantify gentle, but --

(Laughter.)

BOARD MEMBER SPERLING: -- as has general guidance.

CHAIR NICHOLS: Yeah. Having -- let's just say I don't know that you were directly involved, but I think you were on the Board at the time, but when we were dealing with the complaints from the truck owners who were unhappy about the particulate filters that we mandated, there was nothing gentle about that process --

(Laughter.)

CHAIR NICHOLS: -- at any stage. So I think
people remember that. And frankly, you know, to the best extent we can, without impeding progress, we really want to try to make sure that we don't end up with a backlash on the part of the people who buy these things.

BOARD MEMBER RIORDAN: Yes. Madam Chairman, I do remember that, and -- very well. And so it's a delicate balance that we have to have here. And -- but I also remember that we had to do a lot -- an awful lot of work and -- to try to help those people who had purchased some of those filters. And I think, you know, there's -- there's -- it's important that staff go forward sort of again with your delicate balance that you have to somehow create there, but I -- I do remember the failures. And I remember that -- what we had to do to accommodate those. So thank you.

CHAIR NICHOLS: Well, you know, what this really means is that the cost of having to maintain responsibility over time will get built into the cost of the product. That's -- that's how it will actually end up.

Ms. Takvorian.

BOARD MEMBER TAKVORIAN: Yeah. Just -- I appreciate and agree with all the cautions and direction, in terms of the changes. But I just want to say, and I've talked about this with staff, that I think this is so
going to increase confidence for those that can be early adapters. And I think that we know that many of them are adjacent to or in environmental justice communities. So we're looking for those changes to happen more quickly, so we won't be hearing the lack of confidence come forward --

CHAIR NICHOLS: Right.

BOARD MEMBER TAKVORIAN: -- so -- so much. So I really appreciate the work that the staff has done. And I think that's really going to help us all to have more confidence, so that we can move more quickly. So thank you very much.

CHAIR NICHOLS: Thank you.

All Right. We have a motion on the table and a second. I think we can do this with a voice vote.

So would all who are in favor please say aye?

(Unanimous aye vote.)

(Board Members Serna and De La Torre were not present.)

CHAIR NICHOLS: Any opposed?

Any abstentions?

Okay. Great. Thank you. And we will look forward to hearing back again on this one. And I think we should be able to take up now the Airport Shuttle Regulation. Do we have a need to change staff or take a break here?
Okay. Just while the presenters are moving forward.

So while they're -- while they're moving, I think probably everybody knows by now that The White House issued a press release this morning - there had been rumors about this for days - saying that they were breaking off negotiations with California, because California had failed to present an alternative to their proposed so-called SAFE rule, which is the rollback of the emissions standards for light-duty trucks and cars from 2022 to 2025. This is a saga that's been going on since -- well, really, since 2012.

But since the Trump administration has been in office, they have been working very steadily in the direction of trying to get rid of these Obama era standards. And we're already in litigation with the administration over former administrator Pruitt's finding that these standards were no longer feasible or necessary.

And now we've got a new proposal out there which is going to be turned into a final. There have been several meetings, at least five meetings that I know of, between us and members of the Trump administration, as well as many meetings with the auto companies separately to try to find whether there was a way to give some relief to the companies who feel like they're having difficulties
complying, particularly with the CAFE requirements, given changes in their model mix, and what people are buying, and other cost-related issues, as well as the Administration, which has been threatening, from the very beginning, to try to override California's waiver and, you know, try to take away our authority to -- to adopt don't standards.

So the proposal that -- it's not a proposal. It's a press release that came out today, it doesn't talk about waivers or preemption. It only talks about the fact that they're not going to talk to California anymore, but are going to proceed to a final rule.

And so many people are now trying to figure out how to respond to this statement as you can imagine. But from our perspective, I think the important thing is that, you know, we're doing this not only for ourselves, but for other states and the people of all these states who follow our rules, and for the United States as a whole now, because this is the single most important climate protection measure that we have at this stage as a country.

And so eliminating it or drastically cutting back on it would really be a very bad thing for -- for the country as a whole. And even the auto companies, although they are trying hard to avoid getting caught in the middle
of this, have recognized publicly that the proposal that's coming out of the Trump administration is not good for them either. That it actually will hurt them with their consumers. It will hurt progress that they've made. So it's -- it's just a bad situation.

But unfortunately, in terms of, you know, crafting public comments on this, nothing has actually happened. You know, there's -- there is nothing new out there. We've been saying for a long time that there really weren't any negotiations going on, because that was true. And so now we just have to wait to see what will actually emerge from the federal process, which is now at the Office of Management and Budget, and drafting is going on with the DOT and EPA.

And eventually, sometime, potentially as early as April, but more likely later, because of the government shut down, as well as the volume of comments that they've received and that they have to respond to, more likely it will be May or even June, we will see a final rule. And at that point, we will have to be prepared to take action.

But we are -- we are prepared, so that's what's going on. But in the mean time, as usual, whenever there's any sign of some movement on this, lots of people get excited.

(Laughter.)
CHAIR NICHOLS: So I had to go take some phone calls in the midst of our morning's activities. I'm happy to give anybody more details if they want as we go forward.

But we are now ready to talk about airport shuttles, and zero-emission airport shuttles. So I think we should -- I'll just say briefly that these vehicles put a lot of miles on. And so anything we can do to help reduce emissions is going to important. These vehicles are typically owned and operated either by the airport itself or by other public and private business. And we can certainly see that there will be a benefit from an air quality perspective and a climate one as well.

And apparently, we've seen technology emerging that's quite workable for this, and some airports, in fact, already converting their fleets to zero-emissions operations. As we understand it, there's about 110 zero-emission shuttles, either in use or already on order. And this obviously -- our proposal that's before us today would accelerate the transition and expand the market for these kinds of vehicles.

So again, this is the first of a two-part Board action, and we can turn to the staff for a presentation.

Mr. Corey.

EXECUTIVE OFFICER COREY: Yes. Thanks, Chair.
And as part of the State Implementation Plan, this Board identified this sector as one that would help expand the implementation of zero-emitations medium- and heavy-duty vehicles.

A successful transition in this sector will contribute to CARB’s air quality and climate goals, while providing a bridge towards zero emission pathways and other sectors. Now, as you mentioned, airport shuttles frequently operate on fixed short routes, which make them excellent candidates for transitioning to zero-emission technologies.

The proposed regulation will require public and private airport shuttle fleets, including operators of parking facilities, rental car agencies and hotels to transition -- to transition to zero-emission vehicles by 2035. Staff proposals will encourage the conversion to cleaner technology, while ensuring that airports and other shuttle operators have a sustainable, economic path forward that will include the opportunity to compete for federal and State incentive funding.

In addition, the proposed regulation will be the first to take advantage of the Zero-Emission Powertrain Certification process that was just discussed for 2026 and later model years. Heavy-duty zero-emission airport shuttles will be required to certify to these
I'll now ask Anthony Poggi of the Mobile Source Control Division to give the staff present.

Anthony.

(Thereupon an overhead presentation was Presented as follows.)

AIR POLLUTION SPECIALIST POGGI: Thank you, Mr. Corey. Good morning, Chair Nichols and Board members.

Today, I will present for your consideration our proposed Zero-Emission Airport Shuttle Regulation. Staff has worked closely with airports, businesses, and environmental groups and other stakeholders over the past two and a half years to develop a zero-emission airport shuttle proposal that achieves criteria and greenhouse gas emission reductions and advances zero-emission technology, while remaining mindful of how airport shuttle operators plan, operate, and maintain their vehicles.

--o0o--

AIR POLLUTION SPECIALIST POGGI: In this presentation, I will describe why zero-emission vehicle, or ZEV, technology is a good match for the airport sector and present staff's Zero-Emission Airport Shuttle proposal, the economic and environmental impacts, and our next steps.

--o0o--
AIR POLLUTION SPECIALIST POGGI: Staff developed this proposal to fulfill a commitment to the 2016 State Implementation Plan, or SIP. The SIP called for an airport shuttle measure to complement existing programs to achieve NOx and greenhouse gas reductions through the use of zero-emission technology.

By transitioning airport shuttles to zero-emission technology, the regulation will help expand the reach of the first wave of this technology in the heavy-duty sector.

---o0o---

AIR POLLUTION SPECIALIST POGGI: In developing this proposal, we needed an approach that would work for stakeholders of varying sizes. California airports are a diverse group, categorized as small, medium, and large hubs, according to the annual number of passenger enplanements.

California contains two of the 10 busiest airports in the United States. And the airports listed on this slide represent 90 percent of all passenger traffic in California. These airports, along with large and small private businesses, utilize shuttles to transport passengers around airport property, as well as to and from private businesses, such as hotels and parking facilities.

---o0o---
AIR POLLUTION SPECIALIST POGGI: This transportation is provided by a variety of vehicle types, ranging from Class 2b and 3 typical 12-passenger vehicles and cutaways to low-floor transit style buses. These vehicles have an average useful life of 12 years.

On-airport shuttles are comprised mostly of low floor buses, while Class 4 16-passenger cutaways make up the majority of off-airport shuttles.

Nearly 80 percent of the total inventory is fueled by CNG, while gasoline, LPG, diesel, and battery-electric ZEVs make up the remaining 20 percent.

---o0o--

AIR POLLUTION SPECIALIST POGGI: In fact, ZEV shuttles are already operating throughout California. Four California airports, as well as private businesses serving eight airports have purchased ZEV airport shuttles. In addition to the 48 ZEVs currently operating, 62 additional zero-emission shuttles have been ordered and awarded incentive funding. These 110 shuttles represent over 10 percent of all the shuttles in California.

---o0o--

AIR POLLUTION SPECIALIST POGGI: The move to zero-emission shuttles is not limited to California. Airports across the United States are also adopting ZEVs. Seven airports across the United States currently operate
or have ordered ZEV shuttles.

Internationally, Schipol Airport in the Netherlands and Sydney Airport in Australia have a combined 81 ZEVs in operation or on order. Projects across the United States and the world further demonstrate the technological and market readiness of zero-emission shuttles for airport operations.

--o0o--

AIR POLLUTION SPECIALIST POGGI: The reason for the widespread adoption of ZEV shuttles is that they are a good fit for airport operation. They operate up to 200 miles per day on short, fixed routes with low average speeds and stop and go operation. ZEVs have an advantage over internal combustion vehicles in terms of energy and fuel efficiency, as well as maintenance costs in this type of duty cycle. Airport shuttles are essentially maintained and fueled, which presents opportunities for overnight and mid-day charging. As the technology evolves, costs and performance will continue to improve furthering the transition to ZEVs into the airport shuttle sector.

--o0o--

AIR POLLUTION SPECIALIST POGGI: The cornerstone of our proposal, which drives that transition is the in-use fleet ZEV requirement. In
addition to that, we are also providing -- we are also proposing reporting requirements and a no backsliding provision.

Beginning in 2022, fleets will be required to report the details of their zero-emission shuttles. Reporting will serve as a compliance check, and will be used by airports prior to granting access to airport property. Staff will work with stakeholders to improve -- improve efficient and practical enforcement through a registration process.

Starting in 2023, if fleets are replacing a ZEV shuttle, the replacement vehicle must also be a ZEV. This no backsliding provision provides assurances to funding programs that ZEV operation will be maintained.

To ensure fleets get reliable ZEV shuttles, the staff proposes that beginning with model year 2026, shuttles must comply with the Zero-Emission Powertrain Certification Regulation in order to be counted towards Compliance with the Zero-Emission Airport Shuttle Regulation.

The in-use -- the in-use fleet requirements are phased in beginning in 2027 as shown here. It allows for fleets consisting of less than three vehicles to have additional time prior to purchasing their first zero emission shuttles.
A fleet of two vehicles will not have to purchase their first ZEV until 2031, and a single shuttle fleet would have until 2035. This schedule is designed to allow fleets to remain eligible for incentive funding for several years, use their current shuttles for the remainder of their useful life, and provides adequate time for infrastructure planning and installation.

--o0o--

AIR POLLUTION SPECIALIST POGGI: In order to recognize the variable nature of airport operations, the proposal includes a number of compliance flexibilities that allow airports and businesses to transition zero-emission shuttles while maintaining their normal operation.

The proposal allows for fleets to maintain a low-mileage, combustion-fueled, reserve fleet. Reserve vehicles will be limited to 3,000 miles per year. As part of a 15-day change, staff will address the issue of emergency operation of these reserve vehicles.

The proposal also allows fleets to apply to the Executive Officer for compliance extensions, if infrastructure construction is delayed due to site restrictions or other circumstances outside of the fleet's control.

Finally, this proposal exempts all transit
vehicles that are already subject to the Innovative Clean Transit Regulation.

---o0o---

AIR POLLUTION SPECIALIST POGGI: Economically, the switch to zero-emission vehicles will result in long-term savings. Staff has prepared an economic analysis detailing potential economic impacts.

This analysis shows that zero-emission shuttles, like most new technologies, may have a higher upfront cost, but they have a lower operating cost than their internal combustion counterparts. Overall, our analysis estimates that the proposal will yield cost savings of $30 million to airport shuttle operators from 2020 to 2040.

Savings are due to reduced fuel and maintenance costs and include the use of Low Carbon Fuel Standard credits for electricity. Although each shuttle fleet is different, we found that zero-emission airport shuttles have a positive payback over their useful life and that overall savings begin to outweigh the overall costs during the 8th year of operation.

This payback occurs even in the absence of available incentive opportunities that can reduce or eliminate much of the upfront costs of ownership.

---o0o---

AIR POLLUTION SPECIALIST POGGI: This is an
example of the lifetime cost savings of a typical ZEV airport shuttle compared to a CNG shuttle. We feature a Class 4 cutaway in this example, because it is the most common airport shuttle type. The shuttle purchase takes place in 2027, which is the first year of the proposal's fleet composition requirements. Amortizing the vehicle and infrastructure clock -- costs, including fuel savings, maintenance savings, and LCFS credits results in an overall savings of over $80,000 throughout the 12-year life of the vehicle.

You'll note at the bottom, we included the Hybrid or Zero-Emission Voucher Incentive Program, or HVIP, amount. HVIP provides up to $90,000 in incentive funds for a Class 4 vehicle. Use of incentive funds like HVIP can drastically decrease the cost of the shuttle and the charging infrastructure causing the net savings of a ZEV purchase and operation to occur as early as the third year of operation.

--o0o--

AIR POLLUTION SPECIALIST POGGI: In addition to HVIP, there are several other State and federal programs that provide access to incentive funding for zero-emission buses, infrastructure, or credits for the usage of low-carbon fuels. These programs can drastically reduce the fleet owner's costs.
While we recognize the funds are not dedicated exclusively for airport shuttles, and that there are never enough funds to go around, we want to be clear that opportunities exist. The proposed regulation is designed to allow airport shuttle owners the opportunity to access these incentive funds, if they act early. Fleets of less than three vehicles will have more time to access incentives.

--o0o--

AIR POLLUTION SPECIALIST POGGI: As support for the proposal, staff also prepared a Draft Environmental Analysis or EA. The Draft EA was released for a 45-day comment period on January 4th of 2019.

The public comment period closed on February 19th, 2019 and staff will be preparing written responses to all the Draft EA comments received. Staff will present the Final EA and written response to comments on the Draft EA to the Board at a second hearing later in 2019.

--o0o--

AIR POLLUTION SPECIALIST POGGI: The analysis shows that the proposal will contribute to air quality improvement throughout the state, including low-income and disadvantaged communities, especially those in proximity to major airports. The results of the analysis included statewide emission reduction of 138 tons of NOx, and a 90
percent reduction in GHGs from the airport shuttle sector by 2040.

Although the total tons of reductions are not high, the proposal yields additional important benefits. The deployment of ZEVs will also reduce reliance on petroleum fuels and support job creation from the manufacturing of ZEVs, and the installation of fueling infrastructure. It will also support the SIP goal to increase adoption of ZEV technology in the heavy-duty sectors.

By requiring ZEP Certification, not only will shuttle purchasers benefit, but the proposal will also encourage increased manufacturing and support educational elements, like workforce training, as well as operations and maintenance expertise. We're committed to partnering with stakeholders to augment these processes, which will increase consumer confidence in zero-emission vehicles.

--o0o--

AIR POLLUTION SPECIALIST POGGI: As mentioned, a benefit of the proposal is that it would help serve some highly impacted communities. The majority of emission reductions from the proposed regulation will occur in the South Coast Air Basin and the San Francisco Bay Area Air Basin, shown in the maps on this slide.

Regulated airports are highlighted in red, and
disadvantaged communities are highlighted in orange. The shaded circles illustrate the 15-mile radius in which shuttles subject to the proposed regulation operate.

--o0o--

AIR POLLUTION SPECIALIST POGGI: I'd also like to note that this proposal is only one of several efforts to reduce emissions associated with airports. South Coast AQMD is working with their airports on memorandums of understanding to achieve additional emission reductions. They hope to finalize their process later this year.

Additionally, the recently approved Senate Bill 1014 will require transportation network companies to reduce greenhouse gases and transition to ZEVs. Staff is also developing a proposal that would achieve emission reductions by requiring zero-emission airport ground support equipment.

Finally, it should be recognized that airports have also implemented other efforts, such as electric rail and links to public transit that may reduce their reliance on airport shuttles.

--o0o--

AIR POLLUTION SPECIALIST POGGI: In conclusion, staff recommends that the Board adopt the resolution directing staff to return with a final version of the proposed regulation to ensure the transition to
zero-emission airport shuttles.

The proposed changes will be made available for public comments for an additional 15-day comment period, and those changes will be presented to the Board at a future hearing.

Staff will consider suggestions in the public comments for additional improvements, and expects to make changes available for public comments in the April time frame. The second hearing is anticipated in May of this year to finalize the Environmental Analysis and for the Board to vote on the updated proposal.

This concludes my presentation.

Thank you.

CHAIR NICHOLS: Thank you. Just for planning purposes, we have 20 witnesses who've signed up to speak on this item. So if each of them took three minutes and there was no time in between, that would be a full hour.

We could possibly break in the middle of all of this, which might be good for everybody, including the court reporter. I think maybe what we should do is just establish a time for a break now and then make it a short one, so that we keep moving forward without too much disruption of people's days.

But I think we'll just go down the list in order then beginning with Alan Abbs. Hi.
MR. ABBS: Good morning, Chair Nichols and members of the Board. I'm Alan Abbs with the Bay Area Air Quality Management District. I want to begin by thanking the Air Resources Board for the opportunity to comment on this process, and ARB staff for their work in developing the proposed Zero-Emission Airport Shuttle Regulation.

Overall, we strongly support the proposed regulation that would accelerate the adoption of zero-emission vehicle technology in airport shuttles, and transition these fleets to full ZEV adoption by 2035. Over the past two decades, the Bay Area AQMD has provided over $7 million to 21 projects, and has eliminated over 330 diesel-powered vehicles serving Bay Area airports, including new purchases of or retrofit to CNG vehicles when CNG was the best available clean-air vehicle technology.

The proposed regulation would move one step further and virtually eliminate tailpipe emissions from airport shuttles, including those operating at and around three Bay Area airports, San Francisco, Oakland, and San Jose, which are among the 13 largest California airports that will be regulated by the proposed regulation.

The accelerate transition of airport shuttles to zero is an important step to accelerate the use of advanced technologies in medium and heavy-duty vehicles to
meet the Bay Area's air quality climate and public health goals, including our district's newly establish Diesel Free by '33 initiative.

IN addition, along with other technology transformation regulations, such as the Innovative Clean Transit Regulation, the proposed regulation will contribute to technology advancement, deployment of charging and fueling infrastructure, increase of public visibility of zero-emission vehicle technologies, and the expansion of zero-emission technologies to other medium- and heavy-duty off-road and on-road sectors.

We appreciate CARB's consideration of this regulation. We look forward to continuing our partnership with CARB staff and support -- and to support the successful implementation of this regulation.

Thank you very much.

CHAIR NICHOLS: Thank you.

BOARD MEMBER BALMES: Madam Chair?

CHAIR NICHOLS: Yes.

BOARD MEMBER BALMES: May I make a quick comment?

CHAIR NICHOLS: Yeah.

BOARD MEMBER BALMES: So I just want to recognize that it's CAPCOA's loss and the Bay Area Air Quality Management's gain in terms of Alan's change in position.

BOARD MEMBER GIOIA: We're glad to have Alan in
the Bay Area.

    (Laughter.)

    MR. NEUENBURG: Good morning, Chair Nichols, CARB Board, and staff. I'm Mike Neuenburg and I'm representing the Sacramento Metropolitan Air Quality Management District today. It's a pleasure for me to speak to all of you today in support of the proposed Zero-Emission Air Shuttle Regulation.

    The Sacramento International Airport is a major source of emissions in the Sac Metro Air District's jurisdiction. And the use of zero-emission airport shuttle buses will reduce overall exposure to air pollution for airport workers and travelers. This regulation complements the strong regional efforts of the Sac Metro Air District, SACOG, and the City of Sacramento to promote zero-emission vehicles and mobility options.

    We are closely working with our transit partners, like Regional Transit, who is receiving a 2.2 million green region grant from SACOG, and another two million SECAT grant from our agency to provide many zero-emission buses. Some of them will be traveling between the airport and downtown Sacramento on a regular basis.

    Connecting zero-emission transit with zero-emission airport shuttles is clearly a priority for our region. Our local SECAT, Moyer, and Community Air
Protection Programs are already funding similar zero-emission vehicles throughout the Sacramento region, such as electric school buses, heavy-duty trucks and buses and microtransit vehicles as well.

Currently, the Sacramento International Airport shuttles are using CNG technology. With many airlines using zero-emission ground equipment, incorporating zero-emission parking shuttles will be a helpful and viable commitment -- visible commitment to clean vehicle technology.

Sacramento International Airport is also working with SMUD, our local utility provider, to support fast charging and upgrade the electrical service to support heavy-duty electric vehicles. Airport staff have already secured funding to help cover the cost of the technology. And the implementation timeline will allow the airport to incorporate the zero-emission purchases into their normal vehicle turnover. I just want to thank you for allowing our agency the opportunity to speak to you today.

CHAIR NICHOLS: Thank you.

MR. PIRVEYSIAN: Good morning, Madam Chair and Honorable Board members. My name is Zorik Pirveysian, Planning and Rules Manager with South Coast Air Quality Management District.

Thank you for the opportunity to comment on
CARB's proposed Zero-Emission Airport Shuttle Regulation. SCAQMD staff appreciates the efforts by CARB staff in developing this proposed regulation to transit airport shuttle fleets to zero-emission technology, implementing one of the key measures of CARB's 2016 SIP strategy, and SCAQMD's 2016 Air Quality Management Plan.

As you know, the South Coast Air Basin is facing a major challenge in meeting the 8-hour ozone standards, requiring significant -- significant levels of NOx reductions in the range of 45 and 50 percent by 2023 and 2031 respectively.

Transition to zero- and near zero-emission technologies will be absolutely essential for the South Coast Air Basin to meet these attainment goals.

The proposed regulation would require airport shuttle fleets to phase-in zero-emission shuttles starting with 33 percent implementation in 2027 to 100 percent ZEV fleets by 2035. We fully support the proposed regulation as it will accelerate the use of zero-emission technologies in airport shuttles, providing clean air and health benefits to air travelers as well as surrounding communities around airports.

In addition, the proposed regulation will further facilitate the development and deployment of zero-emission technologies for other heavy-duty vehicles sector. All of
this will help achieve much needed NOx and PM2.5 emission reductions for our basin, as well as reaching the State's GHG emission reduction goals.

We also believe that the continuous implementation and even expansion of incentive programs for airport shuttles will be critical in achieving emission benefits in the early years prior to 2027 compliance date. Finally, as you heard already, South Coast AQMD is currently in the process of developing MOUs with the commercial airports in our basin to achieve additional emission reductions from this sector.

These MOUs will further help achieve the emission reduction goals established for further deployment of clean technologies measures in AQMD's 2016 plan and the State SIP Strategy. We will work with the airports to develop MOUs that will complement the proposed regulation for airport shuttles.

In summary, AQMD staff strongly supports the adoption of the proposed emission -- Zero-Emission Airport Shuttle Regulation. We also urge CARB to proceed expeditiously in developing and adopting the remaining measures in AQMD's 2016 Air Quality Management Plan. We are fully committed to support and work collaboratively with CARB staff on these important efforts.

Thank you.
MR. SHUMAKER: It's still morning. Good morning again. California Air Resources Board. The California Hydrogen Business Council applauds the Air Resources Board's efforts in taking action to recognize the importance of powering airport shuttles with zero-emission technology, either battery or fuel cell.

The CHBC is encouraged by the support given by both electric charging infrastructure and to hydrogen refueling, infrastructure needed to implement both ZEV technologies.

These are all the essential -- all essential to California's climate and clean air efforts given that utility electricity and hydrogen fuel supplies are moving towards becoming zero -- 100 percent, not zero -- renewable and carbon free, both through SB 100 mandates and industry commitments, like the CHBC's and hydrogen council's.

We urge you to consider the inherent bias for one technology over another that funding preferences can create when feet operators evaluate the business cases. Those biases can skew adaptation towards a particular technology that may not be optimized for long-term sustainability.

Depending on the fleet deployment and operations requirements, fleet operators must be free to adopt the
ZEV technologies best suited for their application. BEVs and fuel-cell electric vehicles offer different value propositions due to the difference primarily in battery recharge time and hours versus hydrogen refueling time in minutes, but also in weight, range, and performance.

Increased adaptation of fuel-cell vehicles will enable ARB to address more total emissions than if it only encourages battery electric vehicles.

A funding parity policy will therefore be crucial to success of air quality improvement, initiatives, and will allow airport shuttle fleet operators to make the best ZEV technology choice based on their particular business and operational considerations over a broad time horizon.

CHBC offered a number of recommendations in our written comments and invite you to look over those, including some comparisons of costs between the battery electric and fuel-cell electric.

In sum, the choice of zero-emission vehicle technology is multi-faceted, time-phased, and dependent on actual usage. Only a thorough business case evaluation can determine the best technology choices for each fleet operator.

Those evaluations should be made with parity of incentive funding. We appreciate your consideration of
our comments and offer further discussions for your team to answer potential questions.

Thank you very much.

CHAIR NICHOLS: Thank you.

We need to get you the microphone or is it.

Oh, good. They're on.

MS. GOLDSMITH: Hi. Hannah Goldsmith again with the California Electric Transportation Coalition. We support the proposed Zero-Emission Airport Shuttle Regulation. However, I have to note that because the regulation would be the first to make the Zero-Emission Powertrain Certification rules mandatory in regulatory forum, that doesn't include through a funding program.

Our support is contingent upon seeing a number of changes to the certification proposal. And I just want to very briefly follow up on something that was said during the certification testimony about it applying existing safety rules to zero-emission vehicles. I just want to note that those types of requirements are already applied to zero-emission vehicles and that is not part of the proposal on Zero-Emission Powertrain Certification.

So anyway, we support the proposed Airport Shuttle Regulation achieving 100 percent zero-emission airport shuttle fleets in California by the end of 2035. This measure is an important step to transition our
state's fleets to zero-emission vehicles, and will help us meet our climate change and clean-air targets.

We believe the proposed regulatory timeline is appropriate and conservative. It allows for about seven years of planning time before the first regulatory purchase requirements kick-in at the end of 2027.

We hope that this timeline will encourage fleets to take advantage of both vehicle and infrastructure incentive opportunities in the interim from public entities, and utilities, and others. We appreciate staff's commitment to involve us and other stakeholders throughout the development of this proposed regulatory item.

Thank you.

CHAIR NICHOLS: Thank you.

MS. RODRIGUEZ: Good morning, Chair Nichols and members of the board. My name is Erin Rodriguez, and I'm a policy advocate at the Union of Concerned Scientists. We fully support the Zero-Emission Airport Shuttle Standard. This standard will help the state reduce air pollution and global warming emissions from the transportation sector. In addition to zero tailpipe emissions, battery-electric buses on today's grid in California have 75 percent lower lifecycle global warming emissions than diesel and natural gas buses.
Airport shuttle buses are well suited for today's electric vehicle technology. Shuttles operate on fixed short routes, have frequent stops and return to a home base when not in operation. In addition to their clean and quiet operation, electric shuttle buses offer the potential for significant savings on fuel and maintenance.

These characteristics, along with significant State fundings currently available, could lead to a faster transition to electric shuttle buses than the standard 100 percent 2035 target.

But the standard provides an important backstop and the market signal needed for fleets to make this transition. The Airport Shuttle Standard represents the first regulatory linkage to measures proposed under -- under the Zero-Emission Powertrain Certification item heard earlier. We support CARB's intent to ensure vehicle consistence and reliability, and urge CARB to continue working with zero-emission vehicle manufacturers to ensure a certification standard does not add unnecessary regulation or financial burden that impedes the rollout of zero-emission vehicles such as airport shuttles.

Thank you.

MR. BARRETT: Hello again. Will Barrett with the American Lung Association in California.

And first off, we strongly support moving forward
with this rule on the zero-emission airport shuttles and thank staff for all your work on this. The Airport Rule provides another example of the ongoing dedication to achieving clean air and climate goals through regulations targeted to specific transportation categories that are most ready to shift to zero emissions, and really pursuing that 100 percent target in those categories as quickly as possible.

The Zero-Emission Airport Shuttle Regulation is a commitment identified in the SIP to help California achieve health-protective air quality standards, and we must move forward with this commitment as quickly as possible to achieve clean air. The proposal provides a gradual pathway to 100 percent zero-emission fleet of airport shuttles for California, allows for flexibility and access to grant funds as noted in the presentation to support implementation and infrastructure needed in the early years. We believe that that is a critical element that -- of that and a solid design point of this regulation.

The transition to zero-emission transportation is a key health priority for clean air and a healthy environment. The Zero-Emission Airport Shuttle Program was included in the call to action on climate change, health, and equity recently endorsed by dozens of
California health organizations. Similarly, the airport shuttles were included in a letter signed by over 100 health professionals supporting this transition to zero-emission vehicles as quickly as possible across the transportation sector as a whole.

I included Links to both of those documents in the letter that I submitted to the Board. So, in closing, we encourage you to move forward with this rule with the continued transportation-electrification effort that the Board has taken on, and we look forward to working with you as you implement this policy and essentially move forward with the road to clean air.

So thank you very much.

MR. GILBERT: Madam Chair and Board members. I'm Don Gilbert. I represent San Francisco International Airport. SFO certainly shares CARB's overall goals for the State, and in particular the goals for this proposed regulation. We do have some comments that really pertain to practical issues involving airport operations and investments. And we've left detailed written comments with you. I'll just briefly summarize the four main points.

The first goes to the mileage threshold for a reserve fleet, which I believe is proposed at 3,000 miles annually per vehicle. We suggest that that be increased
to 5,000 miles annually, because the way our fleet works
is we need -- to ensure that the reserve fleet is in
proper working condition, we need to operate each vehicle
once every 10 days, and that translates into approximately
5,000 miles.

If we don't -- if we don't have that situation,
then we won't be able to reliably know that that back-up
fleet is available. And we believe that some other
airports are similarly situated.

We would also like to see an exemption for that
cap for emergency response circumstances, where some more
mileage might be added to a reserve vehicle under those
exigent circumstances. We don't think they -- that should
be counted.

And similarly for, our third comment is, an
exemption for a short-term condition where we need to
contract with a third-party provider who is unable to
provide -- we are unable to get anywhere electric -- I'm
sorry ZEV shuttles. And that circumstance we'd also like
an accommodation.

Finally, the major comment here is we want to
make sure that when it's time to purchase these products
that they're good reliable products, so we would encourage
the Board to specify reliability and longevity standards.
And our written comments go into great detail on this.
Really appreciate the opportunity to comment and
look forward to continuing to work with you and the staff.
Thank you.
CHAIR NICHOLS: Thank you.
BOARD MEMBER GIOIA: Can I just make a comment?
CHAIR NICHOLS: Yes.
BOARD MEMBER GIOIA: So I just wanted to note. I
no the airport is under different management than the --
than the -- than Muni, but Muni did come and -- and set a
goal of 2035 for -- for its whole fleet, as I understand,
and has been confident of moving that forward. So I don't
know if -- what discussions you've had with Muni sort of
under the same city government structure.
MR. GILBERT: Yeah. Supervisor, I'm sorry. I'm
not familiar. I don't represent Muni and I'm not --
BOARD MEMBER GIOIA: Right.
MR. GILBERT: Oh, but I have some help coming.
BOARD MEMBER GIOIA: Okay. Okay.
MR. GILBERT: Perfect.
BOARD MEMBER GIOIA: So I'd be interested to
hear, yeah, sort of the -- just trying to get the
differences between the different departments.
MS. JOHNSON: Yes. And SFO has committed to
transitioning their shuttle bus fleet to 100 percent
electric.
CHIEF COUNSEL PETER: Would you say your name?

BOARD MEMBER GIOIA: Yes.

MS. JOHNSON: Oh, sorry. My name is Sarah Johnson. I'm with the California Airports Council, which represents the 32 commercial service airports in the State.

And to answer your question, I was just going to State that SFO has committed to going 100 percent electric. They foresee this timeline by 2027. Thankfully, they have the AirTrain at the airport, so they're foreseeing reducing their shuttle operations to about, I believe, 12 full-time electric shuttle buses, but they still need to have a contingency fleet to respond to emergency situations when the rail service goes down.

So that's why they're asking for those additional mileages, so that they can have a fleet ready when the rail services isn't available to push into service to serve the entire airport.

BOARD MEMBER GIOIA: Thank you.

CHAIR NICHOLS: This were -- you were signed up next to testify.

MS. JOHNSON: Yes.

CHAIR NICHOLS: Do you want to just go ahead now?

MS. JOHNSON: Yeah, yeah.

CHAIR NICHOLS: All right.
MS. JOHNSON: I can go ahead and do it.

So again, I'm Sarah Johnson with the California Airports Council representing the commercial service airports in the state.

Over the past three years, much progress has been made on this measure. However, we the airports believe that there is still work to be done. We were urged that a productive and transparent -- transparent collaboration continues through the 15-day process. And our comments today are presented as a partner as we agree with implementing green policies that reduce greenhouse gas emissions. And you will find past precedent with the airports having strong environmental policy. You can see this with Los Angeles International Airport's Alternative Fuel Policy for all of their airport-owned fleets and for off-airport providers.

San Francisco has their AirTrainin service. Oakland International Airport has just installed 100 percent electrification for their ground support equipment at the airport, so we -- we agree with putting in green policies for the airports, but we do need some conditions to help with operational and applicability issues within this measure.

So first, as currently written, the proposal doesn't include any language for unplanned emergencies or
temporary operations at the airport. We appreciate staff agreeing to add some emergency language into this language as airports need to have a redundancy plan in place to handle unexpected circumstances, or high influxes of passengers due to local situations.

We would like to see, in addition, to have those temporary situations when airports have one-time events, such as the Olympics, the Super Bowl, Comic-Con, where they need to contract and have additional providers in to help with the additional number of passengers moving through the airport.

Second, as mentioned by SFO, we need to have an additional allowance for the reserve fleet at airports. Three thousand miles is not high enough for the readiness testing that they need at each airport to be able to respond to plan maintenance needs and also to past required inspections.

So we're suggesting that this mileage be raised to 5,000 miles. This is not for everyone. This is only for the largest -- largest airport-owned and contracted fleets in California. And we're projecting that's only about 35 buses of the over 950 airport operating shuttle buses in the state.

Third, airports do not want to be responsible for collecting and storing compliance certificates for
off-airport providers. This is onerous on staff and CARB has past precedent of allowing industries to confirm compliance through on-line databases. We urge that a similar format is implemented here through the TRUCRS database.

And finally, overall applicability of the measure was determined by the airport size. We do not believe that the small hub airport should be included in this regulation. No small hub airport owns or contracts shuttle bus operations due to the limited size of the airport footprint. So it doesn't make sense to have them in this regulation at this point.

But we hope to continue working with staff going forward. And we appreciate you taking the emergency language, but there's still items that need to be included to make this a workable an effective solution for airports.

Thank you.

MS. McCROSSEN-ORR: Good morning. I'm Tamara McCrossen-Orr from Los Angeles World Airports. LAWA, as we're known, we're the owner and operator of Los Angeles International Airport, and the Van Nuys General Aviation Airport in Los Angeles.

LAWA too shares CARB's commitment and the South Coast Air Quality Management District's commitment to
cleaning the air, especially from mobile sources. LAWA has been committed to cleaning up its mobile fleets since at least the 1990s and maybe before. We have one of the largest, if not the largest, alternatively fueled vehicle fleet of any airport in the nation. We start that transition in the 1990s.

We are now transitioning that fleet to zero-emission vehicles. We have an -- on order and we expect to be delivered 20 zero-emission buses, 60-foot articulating buses for our airfield. We expect those to be delivered this summer. Our board is committed to converting our shuttle bus fleet by 2030 to zero emission.

In addition to that, we don't just have requirements for our fleet. As Sarah mentioned, we have an alternative fuel vehicle requirement or a clean vehicle requirement for our third-party operators. We just updated that requirement last year, and we're having an amazing success with the new program.

In addition, we recently launched an incentive program for our third-party operators. So LAWA is using $500,000 of our own money to help our operators of heavy-duty vehicles convert to zero-emission vehicles.

It's not a lot of money. We're searching for more money to support this program, but I think it shows LAWA's commitment to cleaning -- to cleaning up the air,
especially in the shuttle bus sector.

I'm here today to ask the Board to consider adding exemptions from the proposed regulation requiring zero-emission vehicles for emergency situations for temporary operations, and in the situation of the unavailability of zero-emission vehicles.

Irregular emergency operations encompass situations that require airports to respond quickly and efficiently. That -- that would be incident security threats, terminal evacuations, or even the closure of an airport rail system.

Actually, I forgot to mention LAWA also has a $14 billion modernization program that includes connecting to the regional metro system, and consolidating our rental car facilities, and bringing zero-emission light rail that will connect those off-airport -- off-airport facilities to the airport.

It's a significant commitment. In the case, let's say, that rail goes down, LAWA would need to bring in a large number of shuttles and buses to continue to move passengers safely and effectively. In this situation, we need the flexibility to bring on the buses that we can get.

I'll just finish out.

We would -- there -- not only would we need the
ability, but we could lack the infrastructure to support charging of those vehicles, and we --

CHAIR NICHOLS: Okay. Your time has expired.

MS. McCROSSEN-ORR: -- excessive charge for those vehicles.

Thank you.

CHAIR NICHOLS: Okay. Thank you.

MS. FIZZELL: Good afternoon, Board. Thank you for the opportunity to make comments here today. My name is Susan Fizzell, and I'm with the Port of Oakland -- Oakland -- which owns and operates Oakland International Airport.

As other airports have mentioned, we also share CARB's and the Bay Area Air Quality Management District's commitment to cleaning the air. We have recently, as Sarah mentioned, installed 100 percent infrastructure at all of our gates to charge electric GSE. We also have preconditioned air at 100 percent of our gates as well as 400 hertz. So those aircraft do not have to turn on their engines while they're parked at gates and GSE can charge from our power.

So I wanted to mention that Oakland is a medium hub here in Northern California. We serve 13 plus million annual passengers and we have nine medium-duty CNG shuttles in our fleet. I want to make two comments
related to this proposed regulation.

As many of you can appreciate, reliability is our top priority at the airport and other California airports. The proposed regulation mandates the purchase of electric shuttles that are not yet widely available on the market. I'm talking about some of the medium-duty cutaway shuttles that we're not seeing too many of on the market yet. And I -- introducing unproven electric shuttles into our operations can cause significant disruptions to critical operations. So I would like to please encourage you to consider including flexibility in the language, so that the regulation doesn't force the purchase of unproven models or manufacturers.

And secondly, I would like to mention that Oakland permits one -- hundreds of GT, ground transportation, operators annually. And while we can update our rules and regulations to reflect the new rule, the way the proposed regulation is written, it places an unreasonable administrative burden on airport staff and puts us in a position of enforcing the new rule by requiring us to collect and track compliance.

We encourage you to implement an on-line searchable database, as is done with other CARB programs, and other State programs to allow staff to confirm compliance prior to issuing operating permits, but reduces
that burden of paperwork.

Lastly, I wanted to mention that in reading the Board's summary, I find that it does overstate the available incentive funding that is available for airports. It also over -- underestimates the infrastructure costs that are very significant. And the maintenance and fuel costs are also not accounted for. Some airports are not eligible for funding from investor-owned utilities. We're -- we're under municipal-owned utilities. And so that funding source is also not available to us.

So I look forward to working further with staff to fine-tune the regulation. Thank you.

CHAIR NICHOLS: Thank you.

I think we might as well just plow through this at this point. We won't try to break.

MR. HARRIS: I'm really glad you said that.

(Laughter.)

MR. HARRIS: I didn't want to have to come back after lunch. Madam Chair, Richard Harris from the Nossaman firm on behalf of the San Diego County Regional Airport Authority, the San Diego International Airport.

To be brief, I will associate my remarks with Don Gilbert from San Francisco. San Diego, as you know, is one of the top three largest airports. We have the same concerns about the reserve fleet number. We think that
the 5,000 miles would make -- make a lot of sense in terms of that.

The other -- the other issue for us is the temporary operations exemption. San Diego is a convention destination, Comic-Con, others. We think there should be a way to work with staff to come up with something that makes sense on the temporary exemption for San Diego and the other larger airports. I want to raise one issue here that I think you might hear a little bit more about, and which is of importance to -- maybe even to the larger airports who qualify and have qualified in the past for funding from the FAA. And I noticed it was on the screen earlier as one of the pots of money, and this is FAA funding.

One of the problems with FAA funding is that it is for voluntary actions over and beyond regulatory requirements. And so if those volun -- if we can together, because the airports are good actors here. And we want to try to accomplish the same goals that you do as a Board. We ought to be able to work together to come up with a mechanism, where the airports are still able to compete for that FAA funding, and bring in that -- bring in those federal dollars like we have in the past, and use those federal dollars here to accomplish these same goals.

That funding actually is a great program with a
50 percent match. And it brings large dollars. We just think that together we ought to be able to think of a way to come up where we can get to the same goal without it being that -- that strict of a regulation that keeps us from qualifying for the FAA funds.

So I want to get that on the record. Appreciate your consideration. We look forward to continuing working with the staff here in the comment period. And Supervisor Fletcher good to see here you today.

Congratulations. Thank you.

CHAIR NICHOLS: Thank you.

I think maybe we can break for a moment here just in the testimony and answer that question, because this has come up before. And I was under the impression that we were convinced that this was not actually a -- going to prevent people from getting FAA funds, but maybe we should just clarify this point.

MOBILE SOURCE CONTROL DIVISION CHIEF KITOWSKI:

Sure. This is Jack Kitowski. I'd be happy to start that discussion. We -- as you know, this Board has allocated a significant amount of funding towards -- towards incentive programs, with a focus on zero emission. So I think part of the story is the potential pot, as we showed in the presentation, is much larger than just the FAA funding. And the amount of funding we have actually
is quite a bit more significant than the roughly $7 million that the FAA has for that.

CHAIR NICHOLS: That's total for the entire country?

MOBILE SOURCE CONTROL DIVISION CHIEF KITOWSKI:

Yes. I will say though that, you know, we've heard these concerns, and so we did have discussions with FAA staff themselves, and discussions on how we could structure the rule. Their program is very similar. It's a -- you know, earlier extra -- it's a surplus kind of metric that they use, very similar to your Moyer program. So we have a lot of experience with how that should be structured. And we use that information in the discussions their to structure our rule in such a way that we think there still will be eligibility, as long as you act early or extra to the -- to what we have in place.

And I'm sorry. I should clarify. I just got notice. It's seven million that we've got in California, not nationwide.

CHAIR NICHOLS: Oh. Okay. Good. That's at least better.

BOARD MEMBER RIORDAN: That sounds better.


I'm the Executive Director of the California Airports Council. And I am here to speak to the question you just asked. And I'm not sure Mr. Kitowski has this information. The regulation was released on December 31st during the federal government shutdown. We were not able to get comments from the FAA on the impact of the regulatory language on our grant programs until the shutdown ended a couple of weeks ago.

They basically told us that we are -- we would not get any further funds from the grant program for ZEV acquisition or deployment. The reason for that is, as follows: They were -- they told us we are always welcome to apply, but if we cannot demonstrate how the funding will take us beyond the requirement of the mandate, that we will not get any funds because, as Richard indicated, it is a strictly voluntary program.

So what that means is even though you have an outyear 2035 deadline for 100 percent, it's impossible for us to show how we can go beyond 100 percent. So we are, what I call, functionally ineligible for further federal grants.

And Madam Chair, in your opening comments, you noted how several airports have begun the electrification process. Other speakers previous to me have also said the same. Those were commenced with these federal grants.
CHAIR NICHOLS: Um-hmm.

MR. LITES: So according to the FAA, we'll no longer have that as a source of money to finish the job. So airports wanted to get that on the record, understand the -- and ensure the Board understands this dynamic. We offered throughout the last couple of years to meet every timeline and hurdle that was presented in Mr. Poggi's presentation earlier, but do so within a structure that maintains our eligibility for the FAA grants. And we were told that frankly was just not an option that the Board would entertain.

So we really want to ensure that we understand, as other speakers have said, the costs for the infrastructure are just now coming into airports. We're finding, as an earlier speaker said, Susan, that it does exceed some of the projections. And so we're that much more concerned that we could lose the access.

California airports, for all GHG emission reductions projects, have drawn down about $32 million across a variety of programs in the last six years. Fifty percent match, that means an equal investment on part of the airports. The programs that have been cited and we've been directed to, in lieu of federal funds, do not pay 50/50 at all.

And so we're really talking apples and oranges.
And so while there might be ample dollars available, they do not pay for the projects in the same manner. And we want the board to understand that.

Thank you.

CHAIR NICHOLS: Thank you very much.


I'd like to say I'm strongly in support of this rule as it will help emissions reductions around our airports. But I would encourage the Board to consider unlinking it from the Zero-Emission Powertrain Regulation, specifically because there will be some zero-emission solutions that are in the market today that do not currently meet that ZEP Rule, which will have greater on-road validation than new product lines, which might meet the certification requirement.

However, when you have two different zero-emission solutions, one with more on-road data and one with a better warranty, but not necessarily on-road data, that is a customer choice of to which you want to trust more, a business assurance or the data that you've seen in the real world. Most of our customers tend to go with real-world data.

And so if there's an option in which fleets can choose to buy a not ZEP certified product that is a
zero-emission system, we would encourage that.

Thank you.

CHAIR NICHOLS: Thank you.

MR. KENNY: Hi. Good morning, Chair Nichols, members of the Board. I'm Ryan Kenny with Clean Energy. We're the nation's largest provider of renewable natural gas transportation fuel. And we have just a few comments.

In the spirit of collaboration, I think, you know, we do share a lot of the concerns that have been expressed. But also, we are concerned about the -- this being more of a longer term strategy addressing especially NOx, if not greenhouse gas emissions. We do think that 2023 is very important, just like 2031 for nonattainment. And we do believe that there should be an off-ramp for technologies that are ready now to also participate in the regulation.

We do believe the Board should direct staff to perform an alternatives analysis before adoption to include off-ramps should specific benchmarks not be met. We also would ask the Board provide authority to scale back the regulation, if staff's projections on costs, operational reliability, and technology readiness fall short.

I think you've heard a few of those concerns today. And I think, you know, pointed what we've seen
with another article in the LA Times this week on the Albuquerque, New Mexico disaster with their EV fleet. The city is now suing the manufacture. They're ditching their EV pursuits and now going towards diesel shuttle buses.

And I think, you know, the concern that this might be overly optimistic based on operational, and finance, and cost, in addition to even problems that we've seen with New Mexico.

So we do off -- ask that the Board consider off-ramps should this not work out, and that the staff projections are not realistic.

Thank you.

CHAIR NICHOLS: Thank you.

MR. WATSON: Good afternoon, Chair and Board members. Charles Watson on behalf of Proterra. Thank you for the opportunity to provide comments on the proposed Zero-Emission Airport Regulation. We strongly support adoption and implementation of a robust rule and applaud the actions of the Board and staff to meet California's important air quality goals.

The proposed rule is a balanced approach that will allow airports sufficient time to plan and procure zero-emission shuttle buses and infrastructure, while promoting the development and use of zero-emission airport ground transportation to reduce emissions.
As previously noted, some California airports are already deploying zero-emission buses, including San Jose and Sacramento, which have already purchased and will soon launch zero-emission shuttle buses made in California by Proterra. As the leading manufacturer of zero-emission buses, Proterra will continue to innovate and implement strategies to make battery-electric buses the most competitive and fuel efficient choice for our customers, including airports, and prove -- and improve our technology to make battery-electric transit options the number one choice of fleet operators, bus drivers, maintenance staff, and public riders alike.

We urge your support for this proposal.

Thank you.

CHAIR NICHOLS: Thank you.

MR. JAMMAL: Good afternoon. My name is Sam Jammal with BYD. I want to first thank you all for your leadership on the Innovative Clean Transit Rule, and just this marker and conversation on really setting California apart. And we look forward to working with you to meet these goals, as well as help show California as a national model.

BYD we've, to date, delivered 84 zero-emission electric buses with an additional 157 on the way. Nineteen public transit agencies have utilized our product
in California. We have 115 buses to public and private entities including universities throughout California.

On the airport side, we have three projects at airports right now. We have 20 60-foot electric buses that are going to be delivered to LAX. We have, in Kansas City, four 30-foot buses on the way, two of those I believe are in use to date. And in Atlanta, we have another two that are going to be delivered. And so we're already seeing across the country airports start to adopt this stuff.

This rule really would help show we're serious about this. We believe the technology is reliable, and can actually deliver a service, especially with the defined routes that we see on airports.

And so we want to thank you for that, and also just make the quick request of making sure there's reliable funding for these programs. As everyone mentioned, you know, we need to make sure that there is the funds to help with those incremental costs. Because if we're serious about this, we want to make sure that folks know that steady resources are along the way. And we'll do our part to continue to educate folks across the street -- or down the street I guess I should say on the need for these resources.

And we look forward to working with your team as
well. So thank you.

CHAIR NICHOLS: Thank you.

MR. MAGAVERN: Good afternoon, Madam Chair and Board Members. Bill Magavern with the Coalition for Clean Air. We support this rule. I think it's actually a cautious timeline, and the airports will have no trouble meeting it, I expect.

This is clearly not the largest sector that you regulate, but airports are the source of a lot of emissions. So it's appropriate that we do everything we can to reduce emissions at airports. And this will also be visible, these vehicles will be visible to the traveling public, so it's an opportunity to educate them about zero-emission transportation.

I do want to note that other than the emergency exemption, we would oppose any further exemptions to these requirements. The 3,000-mile threshold we think is already generous. We would probably prefer 1,000 miles.

So we urge no further weakening of the rule, and look forward to seeing it enacted when it comes back the second time.

Thank you.

CHAIR NICHOLS: Thank you.

MS. McGHEE: Good afternoon. This is Lisa with San Diego Airport Parking Company.
And SDAP is actually currently a site host for the green shuttle pilot project for the SB 350. So we're moving forward with a project with the airport shuttle right now. It is the perfect vocation for ZEVs, but it is not like any other's vocation. Its has high vehicle miles traveled, high hourly use, high loads and a short duty cycle. Yet, there has been no Demonstration with these vocations to understand how a short-range vehicle that averages over 100 miles daily can confidently stay in services if the power level for charging is not three-phase power and 480 volts.

All airport operators create emissions. It should be the responsibility of all airport commercial operators to achieve the same compliance, not just Heavy-duty shuttles. For example, taxies, TNCs, and limos have several hundred permitted vehicles per each mode in San Diego, whereby off-airport and on-airport have 30 and 60 vehicles.

We move multiple people each way, greatly reducing emissions. Taxis, TNCs, and limos move one per one way. The cost analysis is not correct. For example, the $0.17 kilowatt hour is not at all the cost to the average kilowatt hour in SCE, PG&E, SDG&E territory. Thereby, the calculation results require modification.

Additionally, the fuel costs should be an
apples-to-apples comparison, thereby the fuel gallon costs should remove the $0.93 diesel gallon cost or the $0.68 gasoline gallon costs. The kilowatt hour cost does not include all other fees, such as the customer monthly fixed charge, franchise and State tax fees that are the out-the-door kilowatt hour kilowatt costs on your invoice.

The Low Carbon Fuel Standards is not the applicable -- is not applicable -- is not applicable unless you own the charger and do not fuel elsewhere.

Additionally, monetizing the credits is not a guarantee nor can they easily be monetized with low volume credits, as brokers want high volume credits.

Support an opportunity to manage charging with vehicles that go through the reserve is a challenge without EV fuel rates that are a benefit. The cost can be more than other technology choices. For example, SDG&E just requested a modification to its priority review Green Shuttle Pilot Program to add more DC/FC and eliminate the Level 2 chargers for airport shuttles due to this challenge. Power level matters. This means all shuttle sites require a 480-volt transformer to support this regulation. This can be expensive.

HVIP rebates. The cost since 2015 for my same EV vehicles has gone up, and the rebate went down. Small fleets and private fleets make up a large number of
transportation operators. An expansion of the funding to invest in this technology is necessary. My request is to fairly consider the impact on small businesses and private fleets.

    I support the measure with modification to include light-duty, medium-duty, heavy-duty vehicles at the airport, as the ozone areas require a change. Infrastructure supports -- all right. Thank you.

    CHAIR NICHOLS: Thank you.

    Mr. Pingle.

    MR. PINGLE: Hello, all. My name is Ray Pingle. I'm with Sierra Club, California. We strongly support the proposed Zero-Emission Airport Shuttle Bus Rule. More than adequate funds are available to assist airport shuttle bus fleet operators in paying for the capital cost of the transition to ZEVs. The total cost of ownership for this transition is positive without any grant funds. But in the early years additional capital is needed.

    There are a host of incentive programs to pay for the incremental cost of electric buses, including FAA's annual grant program, such as the Volunteer Airport Low Emissions, or VALE, Program, the Zero-Emission Vehicle and Infrastructure Program. There's also the HVIP Program, Carl Moyer, Community Air Protection Incentive Funds, that's the 617 funds, the VW Mitigation Trust Fund, and
many others.

And it's noteworthy, as actually Anthony pointed out as well, that when you add in the additional revenues from these incentive funds, the total cost of ownership increase even more producing even more savings for the operators.

The electrical infrastructure is being paid for by the utility programs under SB 350, and combined with HVIP and other incentives can cover the majority if not all of these costs. We would to express our appreciation to the staff that work on this project and develop a simple and easily-to-understand rule, but yet is also cost effective and that will achieve the GHG and pollutant reduction objectives.

This rule offers many benefits, including reductions in criteria pollutants, especially in disadvantaged communities, reductions in GHGs to mitigate climate change, growing the California economy, creating new good paying jobs, improvements in worker health, long-term financial savings for airports and shuttle operators, and once again offering a model for airports throughout the nation on how to transition cost effectively to zero-emission vehicles.

Thank you.

CHAIR NICHOLS: Thank you. That concludes the
list of witnesses that we have. So I think, at this
point, unless the staff has any additional points that
they wanted to put on the record here, we can proceed to
Board discussion. But I know Board members are going to
have questions, so let're start to my immediate right
here.

Mr. Fletcher

BOARD MEMBER FLETCHER: Thank you, Madam Chair.
I have a question for staff. On the FAA funds that are in
dispute at being at risk, is it -- am I correct in
understanding that those funds are to help airports get to
zero-emission vehicles and shuttles? Is that -- do I
understand correctly that's what those FAA funds are for?

AIR POLLUTION SPECIALIST POGGI: That's part of
it. That's -- zero-emission vehicles are one aspect of
it.

BOARD MEMBER FLETCHER: One aspect of it.

And in the slides, we have a list of many
California airports that are adopting zero-emission
airport shuttles.

AIR POLLUTION SPECIALIST POGGI: That's correct,
yeah

BOARD MEMBER FLETCHER: So would it be as
perplexing to you as it is to me if an airport came and
complained about potentially not being able to get funds
that they don't appear to be using anyway?

AIR POLLUTION SPECIALIST POGGI: They have used them in the past. FAA funds have been used in the past.

BOARD MEMBER FLETCHER: Right. No. No. But like a particular airport, if they were using those funds to get zero-emission airport shuttles, wouldn't they appear on our list?

AIR POLLUTION SPECIALIST POGGI: Yes.

BOARD MEMBER FLETCHER: They would. So if they're not on our list, then they're probably not accessing those FAA funds?

AIR POLLUTION SPECIALIST POGGI: That would be correct.

BOARD MEMBER FLETCHER: So it would be perplexing that they'd be complaining about potentially losing funds this they don't access?

AIR POLLUTION SPECIALIST POGGI: I guess so, yeah.

(Laughter.)

BOARD MEMBER FLETCHER: It's perplexing to me. I want to -- I want to thank the staff for helping, as a new Board member, get up to speed. And I appreciate that. And I'm just getting to know a lot of the stakeholders in this room, and I look forward to hearing from all of you and hearing your concerns as well.
Because I'm not as familiar with a lot of you who came and spoke, being a new Board member, but I do know a little something about San Diego.

In San Diego, our air quality is steadily worsening. According to the American Lung Association, it's 42 percent worse -- 42 percent increase in unhealthy days since 2015. We recently announced in San Diego that we're not going to come close to our SB 375 greenhouse gas emission funds. I also am familiar with our San Diego Airport. And over the last decade we've had no meaningful action on transit to the airport. We've had not meaningful engagement on these types of issues. We've had no meaningful commitment for how we may get there. And so we arrive at a point in today's world, where this morning when I went to the airport, I had no option to get to the airport, other than drive my car.

I will note that our airport is the only large airport who's not participating in movement to try and do these things, utilizing the same FAA funds they complain about not being available.

I will commend our airport on the incredibly beautiful and massive parking structure that we've been able to build.

(Laughter.)

BOARD MEMBER FLETCHER: I would encourage my
airport to maybe apply that same motivation and focus
towards trying to help us address air quality and
greenhouse gas emissions in San Diego. And I want to be
clear, my comments don't expand to anyone else's airports,
because I don't know anything about you. I look forward
to learning more.

But as we move forward, I would just, from my
perspective as a new Board member, encourage staff to move
aggressively. And swiftly in an area so that we can begin
to see some meaningful efforts, because I know the people
of San Diego are certainly counting on it.

Thank you.

CHAIR NICHOLS: Thank you.

Mr. Gioia.

BOARD MEMBER GIOIA: Sort of two comments. One
is I think a lot of what we heard from some of the air --
from some of the airports was not unlike some of the
hesitation we heard from public transit agencies, but it's
my understanding our staff has really been working hard to
provide flexibility in this -- in this regulation. And I
think just like this Board went ahead and adopted the
Innovative Transit Rule in December dealing with public
transit, I think we should go forward and move this as
quickly as possible.

There is flexibility in this rule to accommodate
a lot of the comments that people made about checking in, about technology. In fact, the rule that we passed in December is going to drive this industry and this technology in this state. I mean, the fact that by 2029 every public transit agency is going to have to -- every new vehicle -- new bus purchased has to be zero-emission is already ramping up investment in this industry right here in California, creating jobs here in California. And that's going to benefit the airport shuttles.

You are a much smaller piece of this picture than public transit. You're an important piece, but that public transit rule is going to drive this technology quicker, the lifecycle costs are cost competitive -- are becoming more cost competitive and will be.

So I think -- I thing moving forward helps drive the industry. And it reminds me of a comment. I was talking last night to one of our honorees that are were recognized earlier the morning. And he said, you know, it's really bold action that is going to solve this problem and not incrementalism. And that regulations that -- like this that create change in a field, in an industry is what's going to move -- make us make progress on air quality and climate change, not sort of incremental action.

So -- and I do want to acknowledge the work of
the airports who are -- who are doing work on this. We're just trying to continue to move this along. And I will then raise an issue that I raised when we talked about the Innovative Transit Rule. And that's how we can look at applying this same standard to the many Google buses and -- that we see. I'm not sure if we -- you have them as much in Southern California. We see them in the Bay Area, who often take the place of public transit. So we raised that at that -- last fall. I'd be interested to hear from staff any additional thinking about how we can include those types of transit in a rule like this. Do you have more -- have you had a chance to look at that more since we sort of raised it last fall?

MOBILE SOURCE CONTROL DIVISION CHIEF KITOWSKI:

Yes, a little. Let me -- let me talk a little bit about that. So in the context of the Transit Rule, as we'd talked about then, it didn't fit. That was public agencies --

BOARD MEMBER GIOIA: Right, I understand.

MOBILE SOURCE CONTROL DIVISION CHIEF KITOWSKI:

-- and the scope of who was being regulated was different.

And the scope of this rule, it doesn't quite fit, because this is -- has to be touching airports for it to be applicable. But where we think it has applicability
is in the upcoming Advanced Clean Truck Rule or what's been called the Local Truck Rule. And right now, we're in the stages of defining the scope and focus of that rule. We're looking to come to this Board around December of this year, and we will certainly have that as part of the public process.

BOARD MEMBER GIOIA: So those privately operated buses -- bus fleets will be included in that -- in that rule?

MOBILE SOURCE CONTROL DIVISION CHIEF KITOWSKI:
Well, I can tell you we're starting the public discussion.

BOARD MEMBER GIOIA: Process, right.

MOBILE SOURCE CONTROL DIVISION CHIEF KITOWSKI:
As a matter of fact we have a work group on Monday --

BOARD MEMBER GIOIA: Right.

MOBILE SOURCE CONTROL DIVISION CHIEF KITOWSKI:
-- associated with that. And there is a lot of debate about, you know, what that structure should look like, manufacturer rule, fleet rule, a combination of the two. So we have a -- we have a long public process in front of us, but this is certainly one of those areas that we have on our list to engage on.

BOARD MEMBER GIOIA: Great. Okay. And just
to -- and my final comment is, I mean, we the skept -- the concern and caution that -- that airport shuttle agencies have. And my response is I think the staff under -- has heard that, understands that, and will be working through changes as this gets implemented just like on the Innovative Transit Rule, and I'm optimistic.

CHAIR NICHOLS: Okay. Thank you. We have a number of folks down on this side as well. I think -- well, where will we start? Were you up? Whoever is first. Go first. Dan, you want to start first.

BOARD MEMBER SPERLING: I just have a short question. I think this is great rule. It's like we have found a -- the sweet spot for an application -- early application as -- as the staff pointed out.

Just one little question is on the -- there was a question raised about LCFS credits. I mean, part of it is like how much money of those in your calculations estimates, you know, is due to the LCFS for these buses, and the question about getting those credits? So if the airport operates the charger obviously, they get the credits. But an argument is made -- the assertion was being made that -- I didn't quite understand it -- that they thought they were not going to host the chargers or maybe they were thinking they were going to go running off somewhere else. I'm not sure exactly what the thinking or
what the concern is.

MOBILE SOURCE CONTROL DIVISION CHIEF KITOWSKI: I think the concern had to do with small fleets having challenges, if they were utilizing somebody else's charger and trying to get the value of the -- monetize the value of those credits back to themselves. And that is something that we would have to, you know, work on to see if it -- it really is an issue or not. I'm not sure, at this point, whether it is or it isn't.

The value of the credits, and staff may have more details, but is going to vary significantly depending on the size. You're talking about a 12 shuttle van versus a transit one -- transit style. In general, the transit style I can tell you that the ports most commonly use is -- runs similar mileage to a transit bus. And that was 10 to 12 thousand dollars year per bus use. So the others would obviously be smaller.

BOARD MEMBER SPERLING: Okay. Thank you.

CHAIR NICHOLS: Okay.

Mr. Serna.

BOARD MEMBER SERNA: Thank you.

So I, too, agree with Professor Sperling, I'm very supportive of this rule, and appreciate the comments by my colleagues, Supervisors Fletcher and Gioia earlier. It should be no surprise that I think you're initially
hearing from those members of this Board that also serve in a county elected capacity first, and with some real vested interested, since we kind of have feet in both places, in terms of the airport systems that we're affiliated with. And I want to thank those representatives that provided testimony representing their individual systems here today.

I think it's incredibly important that as implementation of this moves forward that we continue to think carefully and perhaps even very creatively about how do we centralize not just reference to federal resources to help implement the rule, but I think there's a real opportunity to look at lessons learned as we're proceeding, especially here in Sacramento County, in the rollout of the Green Cities Initiative and Electrify America's investments, especially as they relate to the fact that in addition to so many other elements of what we're doing here in -- here in Sacramento with those resources, we are looking at deploying an electric bus through our Regional Transit district here that will run out to Sacramento International.

So I'd be very interested to know what staff's thinking is today or in the not too distant future about how we could actually be kind of a -- function as a central clearinghouse for the multitude of resources that
can help airports system, counties, implement this rule, work with other shuttle operators, and not just leave it kind of at their whim to -- and wish them good luck in terms of finding what's necessary to implement this.

But I think there's so many different moving parts and opportunities, we somewhat have a responsibility I believe to do just that. So I would encourage us to think carefully about that. And if there's any reaction or comments from staff immediately to that suggestion, I'd be interested to hear it.

MOBILE SOURCE CONTROL DIVISION CHIEF KITOWSKI:

Thank you, Supervisor. Yes, I would like to comment, because your choice of the word "responsibility", I think is -- is right on. When we came here to -- in front of this Board with the Transit Regulation, we came saying we are partners. And we're not partners not just at the Board hearing, but we're partners through the implementation. To make the transformation from combustion to zero-emission work, we -- we need to be there through the step -- through every step of this, and that includes not just monitoring the technology, that includes a number of -- and helping them work through -- folks work through infrastructure, but a number of other areas that we've talked about like workforce training, and incentive programs.
I will point out a couple of weeks ago, we held a two-day symposium for the transit operators. Very well received, where this -- this was different than the regulatory process. We went through the nuts and bolts. We had people up here who've been through the good and the bad of trying to start a zero-emission fleet, and the lessons learned, and what do you need to do, and who do you need to call, and what do you need to think about.

And we went through two days of that. And I thought it was very effective. Heard great feedback from the transit fleets on that. And our plan is, you know, we certainly have, you know, to think about how, as we expand, we incorporate more and more of that, but, you know, a variety of different tools and measures to be able to inform fleets and assist in the transformation.

BOARD MEMBER SERNA: That's good to hear. I would also include some of the more -- and I'm biased here, but some of the more progressive, forward-thinking utilities. Of course, we have SMUD here locally that has been a -- you know, a notable innovator when it comes to how to deploy more and more zero-emission vehicles, and their partnership with local government, and the state to do just that.

So, you know, this should be a big tent -- be perceived as a big tent opportunity.
Thank you.


BOARD MEMBER MITCHELL: Thank you.

I'll start out by saying I'm very supportive of the rule. I think it's -- that we're going the right direction. But I have a couple of questions.

One of the issues raised was the emergency exemptions. Suppose you need to evacuate the entire airport because of who knows what terrorism, weather, something like that, do you think that there's a real problem there and we need that kind of an exemption?

MOBILE SOURCE CONTROL DIVISION CHIEF KITOWSKI:

What we have said in our presentation and our discussions is -- there was a lot of discussion on the comments about exemptions in general. And I'll say staff does not agree with all of those exemption requests. We think actually just the opposite. On the Olympics, for example, we think we should be planning for a very zero-emission Olympics.

But in terms of emergency exemptions, we do believe that's a place where we should be looking at our language over the 15-day process and working with them, and defining what constitutes emergency situations, and providing additional flexibility for those instances, yes.

BOARD MEMBER MITCHELL: Okay. Thank you.
The other question I have is about the technology for the cutaway buses. Do we know what the range would be for one of these cutaways? There's two different classes, so I guess the ranges are different. And how well does that work in with the duty cycle of those buses, because they're used quite a lot at most of the airports?

AIR POLLUTION SPECIALIST POGGI: So the range of a cutaway on a single charge is about 100 miles, maybe a little bit less depending on conditions.

BOARD MEMBER MITCHELL: And then someone testified that the duty cycle of one of these shuttles was normally 100 miles a day, is that your --

AIR POLLUTION SPECIALIST POGGI: That -- that's more than average, and that would be assuming that there was no charging at all during a 24-hour period.

BOARD MEMBER MITCHELL: It looks like if it's 100 miles a day, and they have a 100-mile range, a single charge might work -- overnight charge would work for most of those, is that right?

AIR POLLUTION SPECIALIST POGGI: That's correct. We expect some mid-day charging as well. Just a few minutes here and there can help get you over the hump.

BOARD MEMBER MITCHELL: The other issue that brings up with this regulation is that this regulation reaches to private fleets, but we didn't hear from a
single private fleet owner. Have you guys heard from them? What are -- what are their -- what's their thinking on this?

MOBILE SOURCE CONTROL DIVISION CHIEF KITOWSKI:
Yeah, let me start that discussion and others may jump in. So we have had extensive outreach toward the private fleets. Our own outreach we've coordinated with -- we've coordinated with various associations that -- that would be dealing with this. The airports assisted quite a bit. Our Ombudsman's Office assisted in this outreach, as well as surveys to get more involved. It's one of those lead a horse to water but you -- you know, you can't make them come to the Board hearing to testify.

(Laughter.)

MOBILE SOURCE CONTROL DIVISION CHIEF KITOWSKI:
So we -- so I think there's a general awareness out there. We've got some engagement from private fleets, mostly the off-airport parking. Lisa McGhee was here. And so we appreciate that.

Always would like to get more. I think as we talk -- go through the outreach component and the sort of training component that we had talked about earlier, that will be a goal of ours to reach more of those.

The benefit is many of those off-airport parking
are smaller fleets, so they will have additional time in
this process to become aware of the rule.

BOARD MEMBER MITCHELL: I would just say I think
that's important. I know at -- well, certainly at LAX, I
would say 50 percent of the traffic going around the
horseshoe loop is, you know, these smaller fleets. And
it's hotels, parking lots, and rental car places. That's
going to change, because there's a lot of improvement
plans at LAX, including the new light rail, and the
consolidated rental facility.

So -- but I would say engaging our private fleets
is pretty important here, because it's going to be a big
impact for them. So I'm very supportive of the rule. I
think we're -- this is going the right way, and it's a
good opportunity to kind of experiment here.

Thank you.

CHAIR NICHOLS: Thank you.

Hector.

BOARD MEMBER DE LA TORRE: Yeah. I have a
follow-up question on private fleets. Are we talking
about all the private fleets that come in and out of the
airport or are we only talking about private fleets that
are under some kind of contract with the airport to
provide services?

MSCD INCENTIVES DEVELOPMENT SECTION MANAGER
OLALUWOYE: Yes. The contractors are actually covered under our on-airport fleets. So those would be the ones that are -- that do go to-and-from the airport -- or actually, I should say those that go around the airport. The off-airports are the private fleets that do go from a different location to the airport.

BOARD MEMBER DE LA TORRE: Like the parking ones and all those others.

MSCD INCENTIVES DEVELOPMENT SECTION MANAGER OLALUWOYE: Correct.

BOARD MEMBER DE LA TORRE: So it in -- this will apply to all of them?

MSCD INCENTIVES DEVELOPMENT SECTION MANAGER OLALUWOYE: Well, of them in a 15-mile radius of the airport, as well as ones that go un -- beneath 30 miles as a total route.

BOARD MEMBER DE LA TORRE: Okay. And then the second -- thank you. And the second was just a comment on somebody was talking about off-ramps. Everything we do here has off-ramps. We have shown -- this Board has shown numerous times over the years that if something isn't going in the direction we think it is, we pause, we analyze, and sometimes we change. So that is always the case.

It isn't that we're not hearing the concerns. We
think this is where things are headed, and we're very
confident of that. But if something changes. The economy
has a dip, which is likely in the next few years -- next
couple of years, things might change. And so, you know,
at that point, we'd look at that situation on a
case-by-case basis.

So don't -- just because there's nothing explicit
here about that doesn't mean we don't acknowledge that it
might happen down the road.

Thank you.

CHAIR NICHOLS: Thank you.

Sandy.

VICE CHAIR BERG: Thank you. I would just like
to also offer my support, but -- with no buts, I offer my
support. I do think that this is a duty cycle that
absolutely should work. And if it doesn't work, then we
have some other issues that we really need to go back to
the drawing board and take a look at. So I'm really
encouraged that this is a duty cycle that should work.

I would like to encourage staff to take a look at
the next five, six years is going to be really a game
changer, because we're going to have so many more examples
within the fleets and things working. And so this no
backsliding that you have in 2023, which I think is very
important, I would offer that you might want to take a
look at the balance of encouraging people to purchase ahead of time versus some of the concerns they have through the exemptions that they're looking at. And maybe there's some sort of sunsetting to encourage people to go out in front, but they have a no backsliding provision then in 2023.

So is there something we can offer until the actual 2027, where you have 33 percent? So it isn't a full exemption on the rule, but it might be some comfort to allow people to absolutely get out in front of this and cover the no backsliding. So just a thought for you.

Thank you.

CHAIR NICHOLS: Okay. I think we've pretty much exhausted the topic here. I don't have anything in -- I'm sorry? Excuse me. You were being hidden somehow.

BOARD MEMBER TAKVORIAN: Thank you. I just wanted to offer my support also for the rule. And a couple of my questions have already been covered, but I wanted to -- just, one, I think it's an extension of what Supervisor Serna saying, but I was very interested in the concept of centralization of infrastructure and shared resources, and wanted to hear more from staff about what you think about that?

In San Diego, we have an airport, Port of San Diego, and our metropolitan transit system that are all
within two or three miles of each other. And the rules are moving towards zero-emission heavy-duty in all of those areas. So is it possible that CARB -- I know CARB can't do everything. So don't start with that. But is it possible that CARB could help -- and perhaps the MPOs could be engaged in this process to really put together a shared infrastructure, because we're having all these heavy-duty vehicles that are needing to charge and get to zero-emission, and could that be cost savings, could that be more efficient? So that's one question I hope that you would respond to.

And my second one is in regards to the exemption process. And I appreciate that you're saying that you're going to be looking at the emergencies and defining those. And I'm concerned about a slippery slope with exemptions. And I understand from the slides that -- in your presentation that there's really not a public process for exemptions. And I want to suggest that we consider that there should be a public process.

It's concerning to me that there's a lot of concerns from the airports. And I think that we really need -- we're putting a lot of resources from staff resources, all of the outreach that you've done, the Board's attention to this. So I think if a major airport is seeking exemptions, the public ought to be part of that
process. So I wanted to hear what your thoughts might be about that as well. Thanks.

CHAIR NICHOLS: Thank you. I support both of those comments absolutely. And I would agree that if there is going to be a process for waivers that it should be one that is open and accessible to the public for sure.

I think the infrastructure point is one that I'd like to see us exploring further for a lot of reasons. But as you've pointed out and as some of the witnesses indicated, we're dealing, in some cases, with multiple fleets and multiple locations, and the potential for duplication, waste, overlap, et cetera is high.

There's also a real need for new charging facilities to go in here, which could be potentially available not only for the airport's own shuttles, but for other charging needs that are out there as well.

So I'm particularly thinking about those beautiful parking structures and places where you might want to come in and charge as a member of the public, because we know there's a lot of activity going on at and around the airports. All you have to do is look at the freeways that are clogged, you know, during commuter hours with people going to and from the airports and what about their potential need for charging as well.

So I think between now and the time this comes
back, I'd like to ask the staff to at least give some
thought to whether there's someway we could incentivize a
increase in the amount of charging, and the convenience of
charging that's associated with this rule. I don't -- I
understand sometimes you can load something down with too
many different, you know, great new ideas. And I don't
mean to do that, but I think maybe there's an opportunity
here that we haven't -- that we haven't fully considered.

Okay. I think we're ready, at this point, to
move -- do we have a motion?

Yes

BOARD MEMBER DE LA TORRE: I'll move the item.
CHAIR NICHOLS: A motion.
BOARD MEMBER SERNA: Second.
CHAIR NICHOLS: Second.
All in favor, please say aye?
(Unanimous aye vote.)
CHAIR NICHOLS: Any opposed?
None.
No abstentionS on this one great.
So at this point, I think we take a lunch break.
But I'd like to try to keep it to a half an hour, given
the schedules that people have for the rest of the day.
So we'll try to be back here at 1:30.

Thanks, everybody.
(Off record: 1:00 PM)
(Thereupon a lunch break was taken.)
CHAIR NICHOLS: Okay. Ladies and gentlemen, sorry for the long -- longer-than-anticipated lunch break. Having a larger Board means we have more people at lunch, which means more fun.

(Laughter.)

CHAIR NICHOLS: But it is a little hard to get our troops so organized today, apologies.

We have a couple of informational items on our agenda for this afternoon. And they're important, but no votes need to be taken. So that reduces the stress a little bit, I guess. The next item on the agenda is an update on the 2017 Scoping Plan Implementation. Just over a year ago, this Board approved California's 2017 Climate Change Scoping Plan, establishing a number of discrete actions that will enable California to reduce greenhouse gas emissions to achieve our 2030 target, and put us on a trajectory for continued emissions reductions.

The 2017 Scoping Plan update includes a portfolio of policies all of which address greenhouse gas emissions and, in most cases, are also designed to reduce traditional air quality pollutants as well. Today, we will hear about implementation progress on the scoping plan. And I would note that we, as a Board, have been
taking action almost every time we get together once a month to support these efforts, but it -- we don't often get to see them as a whole. So this is an opportunity to kind of take stock of where we are.

California is recognized as a global leader in addressing climate change impacts, and as we continue down that path, we also continue to improve the tools for more effectively addressing our localized air quality concerns, especially in the most burdened communities.

It's also more important than ever to maintain our progress in reducing greenhouse gas emissions. The scoping plan provides a useful framework, but it's really only through adopted programs that our reduction targets will be met.

Planning is important, but it's only the first step. So the staff will highlight in this presentation sectors where we need additional attention to actually making sure that these plans are getting carried out.

In late -- in light of the latest science pointing towards the imperative for even greater greenhouse gas emissions reductions, staff will also share their thoughts on activities that they plan to undertake this year.

So, Mr. Corey, please introduce this item.

EXECUTIVE OFFICER COREY: Thank, Chair.
California is on track to achieve our 2020 greenhouse gas emissions goal, through successful implementation of targeted measures. And as you noted, our 2016 GHG inventory shows we're below 1990 levels four years earlier than mandated by AB 32. Many of the measures implemented will not only reduce GHGs, but they also reduce localized air pollutants in the State's most vulnerable communities.

At the same time, the policy and science landscape continues to evolve. As you noted, the Intergovernmental Panel on Climate Change recently redetermined that limiting the temperature rise to 1.5 degrees Celsius through drastically reducing missions and increasing carbon sequestration is essential to avoiding the worst impacts of climate change.

The staff presentation will summarize our progress on implementation of the 2017 scoping plan and preview staff activities for this year. The discussion on how to both reduce emissions and increase carbon sequestration will require critical dialogue with stakeholders over the coming months and years.

I'll now ask Maureen Hand of the Industrial Strategies Division to begin the staff presentation.

Maureen.

(Thereupon an overhead presentation was presented as follows.)
AIR RESOURCES ENGINEER HAND: Good afternoon, Chairman Nichols and members of the Board. This informational item is annual update called for in the resolution from December 2017, where the Board voted to adopt the 2017 Scoping Plan Update.

Today, I will provide a high level summary of steps we have taken to implement the 2017 Scoping Plan Update. I will also describe planned climate change related activities for 2019.

--o0o--

AIR RESOURCES ENGINEER HAND: This slide should look very familiar, but it's a good reminder of the key statutes and Executive Orders that guide our climate targets. In 2006, AB 32 set our initial target for 2020 to return to 1990 greenhouse gas emission levels. Then SB 32 called for a 40 percent reduction in greenhouse gas emissions below 1990 levels statewide by 2030.

The 2017 Scoping Plan lays out a cost effective and achievable path for this target. This 2030 target is on the path toward achieving the goal of reducing greenhouse gas emissions 80 percent below 1990 levels by 2050. We anticipate that last year's executive order calling for carbon neutrality by 2045 will build on our successes in reducing greenhouse gases from fossil fuels, and emphasizes our need to focus on our natural and
working lands and other sequestration. Carbon neutrality will require both reductions in greenhouse gas emissions, as well as increased carbon sequestration.

--o0o--

AIR RESOURCES ENGINEER HAND: California's annual greenhouse gas inventory is a publicly available resource that provides a comprehensive assessment of greenhouse gas emissions from each of the primary economic sectors. Transportation is the largest emitting sector. When we include the emissions associated with producing and refining fossil fuels, nearly half of the state's annual greenhouse gas emissions are associated with meeting transportation demands.

--o0o--

AIR RESOURCES ENGINEER HAND: We have made important progress in reducing our greenhouse gas emissions. The greenhouse gas emissions inventory, shown here by the light blue line, is also an important tool for establishing historical emission trends and tracking California's progress in reducing GHGs. We see that our greenhouse gas emissions have followed a declining trend since 2007, and are 13 percent lower than peak levels in 2004. The dashed line is the 2020 target established by AB 32, a return to 1990 emission levels. Last summer, we announced that emissions fell in
2016 fell below 1990 levels for the first time. The dark blue line represents emissions reported by California's largest greenhouse gas emitters under the mandatory reporting regulation. The state's largest emitters, including industrial facilities, fuel suppliers, and electricity generators and importers report to CARB annually and represent about 80 percent of the state's greenhouse gas sources. This preliminary look at 2017 greenhouse gas emissions indicates a continued downward trend

--o0o--

AIR RESOURCES ENGINEER HAND: As was previously mentioned, the Board adopted the 2017 Scoping Plan Update in December 2017. The Scoping Plan identifies measures that together are expected to reduce economy-wide greenhouse gas emissions to 40 percent below 1990 levels by 2030.

The figure illustrates the contributions that will be needed by the six primary measures. These measures reflected legislation or policies that were known at the time the Scoping Plan was developed. Since adoption of this Scoping Plan, new legislation has been signed, and we have completed some rulemakings.

Per SB 100, the Renewables Portfolio Standard, or RPS, was increased from 50 percent by 2030 to 60 percent
by 2030, and calls for planning for 100 percent zero
carbon electricity by 2045.

And the Board adopted amendments to the Low
Carbon Fuel Standard that increased the stringency of the
car been intensity reduction target to 20 percent by 2030.
The Scoping Plan target was 18 percent in 2030.

Reducing greenhouse gas emissions from
short-lived climate pollutants is a significant element of
the strategy. And the fugitive sources of methane and
high global warming pollutant emissions are not covered by
the Cap-and-Trade Program.

--o0o--

AIR RESOURCES ENGINEER HAND: Emissions inventory
data is an important tool for tracking progress toward
meeting the State's targets. The greenhouse grass
inventory provides emission data for all California
economic sectors. In addition to this annually updated
data, the Board recently adopted a regulation to allow for
enhanced reporting of criteria and toxics data as called
for in AB 617.

There are a number of program metrics that are
useful in tracking progress toward meeting the state's
greenhouse gas emission goals. These include measures of
economic activity, fuel type and use, growth in renewable
energy, and adoption of new technologies or practices that
alter transportation energy demand.

A number of State agencies, in addition to CARB, maintain data to support these metrics, for example, the Department of Finance and the Energy Commission.

The Climate Change Investments Reports also include information on the benefits of projects funded by the Cap-and-Trade Program.

--o0o--

AIR RESOURCES ENGINEER HAND: The Board took numerous actions last year to implement the Scoping Plan. Many of the actions also improve air quality. The Board adopted GHG planning targets that most of the state's retail electricity providers are using to inform procurement decisions that will impact the electricity sector's greenhouse gas emissions in 2030. The Board also adopted updated regional greenhouse gas emission reduction targets for the state's Metropolitan Planning Organizations. A number of regulations were strengthened and extended. These regulations will reduce traditional air pollutants and GHGs, and include vehicle standards, clean fuels and Cap-and-Trade.

These regulations provide long-term certainty for technology and clean energy investments. Additionally, the Board adopted a new regulation restricting the use of high global warming potential hydrofluorocarbons last
year. Each of these rulemakings included its own public
process and analyses to inform Board action.

--o0o--

AIR RESOURCES ENGINEER HAND: California Climate
Investments support the state's low-carbon transition to
a -- support the state's low carbon transition and its
climate air quality and environmental justice goals.
Since 2012, the Governor and the Legislature have
appropriated over $8 billion in California Climate
Investments funding received through the State's
Cap-and-Trade auctions.

Investments are successfully reducing greenhouse
gas emissions, strengthening the economy, and improving
public health and the environment, particularly for the
most vulnerable Californians.

$1.4 billion was appropriated for fiscal year
2018-2019. These monies were provided to over a dozen
agencies for a variety of programs. At CARB, the Low
Carbon Transportation Program accelerates the transition
to low-carbon freight and passenger transportation modes.
 Rebates are provided for purchases of battery electric,
plug-in hybrid electric, and fuel-cell electric vehicles.

Incentives target replacement of fleet vehicles
including trucks and buses. Other projects demonstrate
low-carbon technologies, particularly for heavy-duty
vehicles and off-road vehicles.

Funding for the natural and working lands sector will be applied towards projects in program areas that include climate adaptation, wetlands and watershed restoration, healthy soils, prescribed fire, sustainable forests, regional forest health, and urban greening.

These are just a few examples of the types of investments funded by the Cap-and-Trade Program auction proceeds. Importantly, as reported in the 2018 annual report to the Legislature, 51 percent of investments to date are benefiting disadvantaged communities.

--o0o--

AIR RESOURCES ENGINEER HAND: The 2017 Scoping Plan includes several policies to address the transportation sector. And if successfully implemented, they would reduce on-road fuel demand by 45 percent by 2030. While overall, statewide greenhouse gas emission reductions are down, emissions in the transportation sector increased two percent from 2015 to 2016.

Because this sector is heading in the wrong direction, and the Board directed us to continue to keep evaluating ways to reduce greenhouse gas emissions, we held two workshops in the summer of 2018 on additional opportunities to reduce emissions in this sector.

In the first workshop, staff heard from experts
about opportunities to reduce greenhouse gas emissions from Petroleum transportation fuels. External panelists highlighted the need to address both emissions of the vehicle fleets and vehicle miles traveled. The discussions also underscored the need to think broadly about the impact of all sectors and land-use decisions on transportation emissions, as well as the need to better incentivize innovation and technology development in this sector. Panelists highlighted the need for resilient policies that reduce petroleum demand.

In the second workshop, we explored new actions to accelerate deployment of zero-emission vehicles. This workshop focused on increasing use of ZEVs in both light- and heavy-duty vehicle fleets. Potential areas of ongoing and future analysis include vehicle technology assessments, fueling infrastructure needs, estimates of the size of each type of fleet, and impact on emissions, among others.

--o0o--

AIR RESOURCES ENGINEER HAND: A key aspect of reducing transportation sector greenhouse gas emissions requires changing the way we meet our transportation needs in this state. The Scoping Plan assumes that VMT can be reduced seven percent by 2030 and 15 percent by 2050 from projected levels. We know that we need to do more to
reduce VMT.

We need to make significant changes in the way communities and Transportation systems are planned, funded, and built in order to meet our greenhouse gas emission reduction targets, while supporting sustainable development and increasing mobility.

Our approach must include policies that provide options for affordable housing near transit hubs and where people live and work. These strategies can also preserve the carbon sequestration potential of our natural and working lands. Simply raising fuel costs and making it too expensive to drive is not a viable pathway.

I would like to note that the Scoping Plan relies on existing new vehicle standards to tackle transportation emissions. CARB will vigorously fight any federal attempts to restrict our ability to set greenhouse gas standards.

If we ultimately lost, it would imperil our ability to meet our air quality and GHG targets. We would have to make up the reductions through new programs aimed at the transportation sector, as well as emission reductions from other sectors as necessary.

--o0o--

AIR RESOURCES ENGINEER HAND: We've talked about the largest sector of emissions, transportation. And I
will now focus on the second largest measure in the Scoping Plan, the Short-Lived Climate Pollutant Strategy. This strategy is critical to achieving our 2030 limit.

The majority of California's methane emissions originate from the dairy and livestock sector, primarily from manure management and enteric fermentation. Methane emissions can be avoided via projects that change manure management practices. Also, methane emissions can be captured using dairy digesters that put the resulting biogas to beneficial use. Unfortunately, barriers exist that impact the development of these dairy methane emissions reduction projects.

To address these barriers, the Dairy and Livestock Greenhouse Gas Emissions Reduction Working Group was formed in May 2017, which included CARB, the California Department of Food and Agriculture, or CDFA, the Energy Commission, and the California Public Utilities Commission, or CPUC.

Three subgroups, identified in the figure on this slide, were also formed to address specific topic areas and develop recommendations.

To provide a balanced approach, each subgroup was made up of representatives from a diverse group of stakeholders, which included industry, project developers, and others you see listed on this slide.
Especially important was the participation of representatives from environmental justice organizations, who brought to the table the perspective of communities that are affected by dairies and dairy emissions reduction projects. These subgroup members identified potential issues and proposed future research to achieve the dual goals of improving public health and reducing methane emissions from California's dairy and livestock sector.

The three subgroups met dozens of times over a two-year period. They developed recommendations designed to guide State policies, accelerate dairy methane reduction projects, and overcome barriers. The subgroup recommendations to the Dairy Working Group were presented to the State agency principals last December and are posted on CARB's Dairy and Livestock Working Group webpage.

--o0o--

AIR RESOURCES ENGINEER HAND: Because of tight profit margins, one key recommendation we heard last December was to continue publicly funded grants and incentives to encourage new dairy projects. In the past few years, California Climate Investment funds have played a major role in achieving reductions in dairy methane, primarily through CDFA's Dairy Digester Research and Development Program, and also their Alternative Manure
Management Program.

To date, over 60 digester projects and nearly 60 alternative manure management projects have been funded, with the majority of funds going to digester projects due to their greater potential to obtain large methane emission reductions.

In addition to supporting emissions reductions, digester projects also contribute to the state's renewable energy efforts, because the biomethane that's produced can display -- can displace fossil natural gas for transportation, electrical generation or industrial uses.

This is not to downplay the importance of alternative manure management practice projects, which reduce the creation of methane in the first place. These practices can reduce methane emissions on dairies where digesters are not feasible.

California's 2018/2019 budget includes another $99 million for these two CDFA grant programs with awards expected to be announced in September 2019. In addition to grant funding administered through CDFA through Senate Bill 1383, the Legislature tasked the Public Utilities Commission with implementing at least five dairy biomethane pilot projects to demonstrate interconnection from dairy digesters to our natural gas pipelines infrastructure.
Last fall, the CPUC announced the selection of six projects intended to capture biomethane from a total of 45 dairies in California. The infrastructure cost for these projects, nearly $319 million, will be ratepayer funded through natural gas utilities.

--o0o--

AIR RESOURCES ENGINEER HAND: To ensure continued progress on methane emissions reductions in the dairy and livestock sector, and to support the production and use of dairy biomethane, CARB staff identified the following next steps.

First, per SB 1383, CARB, in consultation with CDFA, will analyze the dairy and livestock sector's progress in reducing methane emissions including progress in overcoming technical and market barriers. This analysis will be completed by July 1, 2020.

Second, CARB staff will consider subgroup recommendations as we move forward with our existing programs and new efforts.

Third, we will explore ways to improve the competitiveness of in-state renewable natural gas. Currently, a significant portion of California's renewable natural gas supply comes from out of state.

Last, we will continue to research ways to reduce emissions from the dairy and livestock sector. The Dairy
Research Prospectus developed by the Dairy Working Group's Research Subgroup provides a guide to potential future research efforts.

---

AIR RESOURCES ENGINEER HAND: Starting with this slide, I will provide some information on global discussions related to climate change and how those relate back to California. Last year, two seminal climate change reports were published, one with global scope and the other focused on the United States.

The IPCC special report provides a global perspective on impacts of global warming of 1.5 degrees Celsius above pre-industrial levels. The Fourth National Climate Assessment assesses climate change impacts across the United States now and throughout this century.

Our climate is already changing and these two reports describe similar impacts and risks associated with continued warming of the planet.

Although, there are numerous mitigation and adaptation efforts underway globally and in the United States, the scale and speed of these actions is not considered sufficient to avoid substantial damages.

Global warming impacts will not be distributed equally, both at the global and national scale. Disadvantaged and vulnerable populations, as well as
communities dependent on agriculture or coastal livelihoods are at higher risk of adverse consequences.

In summary, these two reports further substantiate what we already know. While actions we take here in California will reduce greenhouse gas emissions and provide public health co-benefits, the reports confirm that unless others take similar actions, we are still susceptible to the adverse impacts of climate change.

---o0o---

AIR RESOURCES ENGINEER HAND: Our thinking about how to preach the climate challenge is evolving. And the concept of carbon neutrality is gaining in importance. The concept is that to address climate change, the carbon dioxide and other greenhouse gas emissions generated by sources, such as vehicles, power plants, and industrial processes must be less than or equal to the amount of carbon dioxide that is removed and stored, both in natural sinks, such as forests, and mechanical sequestration, such as carbon capture and sequestration.

The magnitude of climate change impacts will depend upon when carbon neutrality is achieved. The IPCC special report finds that to limit global temperature increase to 1.5 degrees Celsius, we need to reach global carbon neutrality by mid-century.
The report also indicates that on a global scale, some regions may remain net emitters, while others are better suited to be sinks. Last September, the Governor signed an executive order for carbon neutrality by 2045, consistent with the IPCC report findings.

In short, the framing of near zero emissions is not sufficient to limit global warming to 1.5 degrees Celsius. We need our greenhouse gas emissions flux to be at zero or net negative, where we remove more greenhouse gases than we emit.

--o0o--

AIR RESOURCES ENGINEER HAND: The IPCC special report also explored policy paths to reduce emissions. Rapid and far-reaching transitions in all sectors are needed to achieve carbon neutrality by mid-century, and to limit global warming to 1.5 degrees Celsius.

Innovation and international cooperation will be critical moving forward. Innovation policies may be more effective when they combine public support for research and development within incentives for technology development. Behavior changes consistent with adapting to and limiting global warming to 1.5 degrees Celsius can be accelerated when policies are combined with education, information, and community approaches.

Together, policies, increased investment, and
accelerated technological innovation and behavior change can enable economy-wide transformation that can lead to carbon neutrality by mid-century.

This has always been the California approach. We have consistently pursued a portfolio of incentives, prescriptive regulations, and carbon pricing to achieve the State's greenhouse gas emission goals. Our reductions in greenhouse gases lend proof that our approach is working, while the economy has grown.

--o0o--

AIR RESOURCES ENGINEER HAND: Others are taking steps to adopt or develop carbon neutrality goals. Each of these efforts involves serious consideration of unique attributes of the jurisdiction in question. The European Commission developed a long-term strategy that outlines a vision of the deep economic and societal transformations required, engaging all sectors of the economy and society to achieve the transition to a climate neutral economy by mid-century. This goal is an aggregate goal across a region of 28 member states.

Sweden's climate policy framework includes a goal net zero GHG emissions by 2045, and negative emissions thereafter. Their plan is to reduce 85 percent of their emissions within their border, but they will need to rely on investments in out-of-region actions for balancing the
remaining 15 percent of emissions.

Costa Rica is developing plans to offset all carbon emissions. They're implementing measures to address transportation sector emissions, as well as considering a carbon certificate market.  

--o0o--

AIR RESOURCES ENGINEER HAND: In the slide, I will describe some implications of carbon neutrality for California. The path to carbon neutrality requires actions on both sources and sinks. Today, we track statewide greenhouse gas emissions from transportation electricity, commercial, residential, industrial, agricultural, and waste management sectors, including high global warming potential gases.

We also track emissions and sequestration in our natural and working lands. Currently, these lands are a source of GHG emissions, releasing more carbon than they are sequestering. Some amount of emissions from this sector are part of the natural cycle, and are necessary for healthy systems. This includes some periodic fires.

However, decades of fire suppression in our forests, years of drought, and the tree mortality crisis are exacerbating these losses. Moving toward carbon neutrality will -- will require us to determine what level of emissions are expected from healthy and resilient
ecosystems and what is needed to get our landscapes into a healthy and resilient state.

We also need to consider activities like land conversion for housing or other uses, which not only removes the land from being a potential carbon sink, but can promote additional greenhouse gas emissions associated with transportation.

Today, California emits greenhouse gases from fossil energy and industrial sectors, as well as from our natural and working lands. To achieve carbon neutrality by mid-century, we must minimize emissions from our fossil energy and industrial sources, and transition our natural and working lands from a source to a sink, such that we achieve net negative greenhouse gas emissions.

As we start to consider the concept of carbon neutrality, our starting point is the existing accounting framework, which includes the major greenhouse gas emissions and not just carbon dioxide.

--o0o--

AIR RESOURCES ENGINEER HAND: It's easy to look at carbon neutrality as simply balancing emissions with sequestration, but it is more complex than that. I mentioned different approaches being considered or adopted by other governments in an earlier slide. We will also have to evaluate options for California, as we move
We need to understand how much more we can reduce fossil energy and industrial sector emissions. What is the minimum level of greenhouse gas emissions that will be technically feasible, cost effective, and scalable. We know that our natural and working lands currently store carbon and can become a valuable emissions sink. We know they are emissions sources today. What is the long-term potential for storage and sequestration in resilient forests, and when could these lands transition from emissions source to sink?

What are options for mechanical sequestration technologies that can extract carbon emissions and store them through geologic sequestration or other forms? This past year, we took an important step. The Board adopted a carbon capture and sequestration protocol for projects that capture CO2 and sequester it in geologic formations.

We know from the 2017 Scoping Plan analysis that a suite of policies including cap-and-trade is four times less costly than other options to achieve the 2030 target, with the least impact on the economy and jobs, and the greatest affordability for households. What is an optimal mix of carbon pricing with complimentary policies as we move past 2030?

Evaluating this new framework requires tools to
assess economic and environmental outcomes associated with carbon neutrality under different scenarios. And it's important to assure that co-benefits for vulnerable communities are maximized. While we continue to look at additional ways to reduce greenhouse gases that can complement the programs we already have, we must consider affordability for low-income households and design programs to maintain political and public support for climate action.

--o0o--

AIR RESOURCES ENGINEER HAND: The 2017 Scoping Plan established a strategy to achieve the State's SB 32 target. We must diligently monitor and be willing to adjust the scoping plan measures as needed to ensure we achieve the 2030 target.

Last month, staff held an introductory webinar on carbon neutrality and the work that lays ahead. Staff also hosted the Bioresources Economy Summit in partnership with Lawrence Berkeley National Laboratory and the University of California at Berkeley.

The summit provided a forum to discuss how California can further facilitate a circular sustainable economy built around bioresources that contributes to our environmental, economic, and equity goals.

In the coming months, workshops will provide a
forum to explore specific topics focused on energy demand and supply, transformation across economic sectors, and sequestration activities.

In addition, we will continue to work with other agencies, academics, and international partners, while also engaging with the legislature.

Our State and local partners have expertise and authority that are critical in helping the state reduce its greenhouse gas emissions.

We also want to leverage external resources. The next year provides an opportunity to engage with academics and researchers who may already be evaluating paths to deep decarbonization. Our plan discussions can help inform their research agendas. International partners are facing similar challenges in considering similar options.

We just keep our seat at the international table to learn from others and share our experiences. The path forward for addressing climate change must include both reducing emissions and sequestration. This must happen globally for us to avoid the most adverse impacts of climate change around the globe and at home.

--o0o--

AIR RESOURCES ENGINEER HAND: Thank you.

CHAIR NICHOLS: Thank you. We have a list with eight names on it of people who have signed up to comment
on this presentation. So I think we should hear from them
starting with CALSTART.

MR. SCHUCHARD: Good afternoon, Chair Nichols, Board members. Ryan Schuchard with CALSTART. And I'm also one of the -- the co-chairs of the Dairy Working Group. And I just wanted to say mostly thank you for entrusting CALSTART, as one of the members of that working group. And secondly, more importantly, I just wanted to commend Floyd, and I think I saw Marcelle back there and the whole team for executing such a professional and comprehensive process over two years. It had just an enormous amount of stakeholder input, information, and did such an impressive job of synthesis.

And just two comments on the outcome. CALSTART is very pleased with the overall portfolio of recommendations that emphasize both the actions needed for near-term near zero-emission technologies that are ready today and can accelerate projects, while also having a good program for putting dairy methane to use in advanced vehicles and technologies.

And then secondly, one of the key findings was that, surprise surprise, we can do this, but we need the durable sufficient incentive funding for the vehicles for multiple years to come. And as always, we continue to work with CARB and the Legislature to make that a reality.
And we look forward to being a continued resource in the Dairy Working Group space and other working groups as you might find us a resource.

CHAIR NICHOLS: Thank you. I think you are accompanied by a helper today? Did you bring someone with you?

MR. SCHUCHARD: She's trying to keep a low profile, but yeah. That's Madelyn back there.

CHAIR NICHOLS: Oh, okay.

(Laughter.)

CHAIR NICHOLS: Thank you. Thank you.

Mr. Magavern.

MR. MAGAVERN: Yes. Thanks.

Bill Magavern, Coalition for Clean Air.

My comments will focus on the transportation sector, which as the presentation noted is the biggest source of greenhouse gas emissions in California, and also the only sector that is growing. And I thought it was commendable that last year when it became clear that we were falling short in reducing emissions from transportation, CARB did not go into denial or pretend that everything was fine, which is sometimes the way government agencies react, but instead started convening discussions about how we can do better.

And I participated in both of the workshops that
were referred to, and suggest that CARB should move ahead in both those areas. One was reducing emissions from the petroleum sector, and the second was fleet rules.

So a couple suggestions along those lines. First of all, I very much agree with Supervisor Gioia's suggestion this morning that private bus fleets should be subject to fleet rules. That, I would say, should be at least as aggressive as those that the public transit agencies are now subject to.

We also think that you could move more quickly than has been proposed so far on zero-emission trucks. And I'll be at the workshop next Monday to talk about that.

On cars, clearly, we need to set aggressive post-2025 clean car standards for greenhouse gas emissions, and for zero-emission vehicles. And again, in that area, we could benefit from fleet rules, including for the transportation network carriers, which will now be regulated by the Clean Miles Standard that was enacted into law last year. And I know that the implementation for that is due to start soon, and we'll be working with your staff on that.

And then beyond what's clearly within CARB's jurisdiction, I know it's sometimes said that CARB is the agency that regulates everything that moves. But we know
that actually there's a lot in the transportation world that is outside of your hands and really requires multi-agency cooperation. And when we're talking about reducing vehicles miles traveled, we really do need to see that cooperation.

And I think you need also stronger statutory tools. I believe, and I think that Mayor Steinberg, the author of SB 375, believes that that authority needs to be strengthened, because we're especially falling short when it comes to reducing emissions that come from increased miles traveled by our vehicles. Gasoline and diesel use are going up, and so we need to make our communities more sustainable, more livable, and give people choices in the way they get around.

Thank you.

CHAIR NICHOLS: Thank you.

MR. BOCCADORO: Thank you, Madam Chair, and members. And I have handouts for the Board, if I could provide those to the clerk.

Michael Boccadoro on behalf of West Coast Advisors and our client here is Dairy Cares, which is the environmental coalition that's been working so closely with the Air Resources Board. I also want to thank Floyd and his team for the work that they did on the dairy subgroup. I had the pleasure of serving as one of the
co-chairs of the Dairy Digester Working Group.

I thought staff did an outstanding job of sharing with the Board the progress that the dairy industry is making. To put a caveat on it, we'll have 250 projects in the next couple of years that are up and operating on California dairies, half of those being digesters, half of those being alternative manure management practices.

Those projects are going to deliver massive amounts of methane reduction. And it's very effective, and we need to keep it going. Which brings me to a couple of points that are part of the recommendations of the Dairy Subgroup, keeping the funding going.

We have $99 million on the street today through CDFA, which was last year's budget allocation. That's critical. There's only $25 million in the Governor's currently proposed budget. So why this program is getting cut back, at this time, despite the fact that it's providing more GHG reductions than any other program being funded by the State, and is providing those reductions at a cost of $8 for every ton of GHG reduction CO2E.

So if anything, this should be a program that we're doubling down on, not reducing funding for going forward.

A critical point, these projects, I think as staff also pointed out, not only provide GHG reduction,
but they provide tremendous criteria pollutant benefits as well. Almost all the new projects are pipeline biomethane for transportation fuel, which means we're going to be replacing diesel with renewable natural gas in San Joaquin Valley and South Coast. And that's going to lead to tremendous criteria pollutant reductions. And so we're just building on the tremendous success that this can have from a methane standpoint.

I want to point out too, I agree with staff that we need to find a way to prioritize in-state biomethane. I think there's a lot of California taxpayers that would probably lose their mind to find out that we're paying more for gasoline in California to provide windfalls to projects, pig projects coming out of the Carolinas or dairy projects coming out of the midwest, where the State is receiving zero benefit in terms of GHG reduction. Yet, those projects are eligible for LCFS and are getting a windfall in California.

And we need to stop that. We need to make sure that these projects in California, whether they're dairy, wastewater, or others are getting the benefits of our dollars here in the state.

Thank you.

CHAIR NICHOLS: Thank you.

MR. FLAHERTY: Good afternoon, Chair Nichols and
Board. My name is Ryan Flaherty with Sustainable Conservation. We're an environmental nonprofit that's been working to find solutions for cross-media impacts to -- from dairies for manure management for 20 years. I'm also -- I was also the co-chair for the Non-Digester Subgroup. And so I'll speak to that portion of the work. I'll echo the others that it was an absolute pleasure to work with Floyd and his team. Did an outstanding job.

You can access the full recommendations. I just have three thoughts to share. One, if we're going to meet the 40 percent reduction goal, we need multiple tools in the toolbox. And digesters are one tool, and these non-digester practices and technologies are those other tools, and they're very important tools.

So things like solid separators, flush to scrape, compost pasture don't sound very compelling to the layperson, but they're actually really interesting to dairy producers, and to a wide array of dairy producers, from small to large, regionally diverse of all types. So they're really important in that aspect and they can be quite cost effective.

So looking at the CDFA program solid separators, and flush to scrape in particular are as cost effective or more cost effective than digesters on a cost per CO2
equivalent.

And so I would agree with Michael that we should continue funding. I think on the non-digester side, we're currently pretty limited in our options. And so another recommendation the subgroup had was to look at a process in investments to expand those options, so that we can get more benefit, and particularly, I would argue those that have water quality co-benefits.

And that brings me to the third point, which is I know this is not in your jurisdiction, but we do have a very serious nitrate leaching to groundwater issue that we can't ignore. And some of these projects offer a really good opportunity to address both methane and water quality impacts from dairies. And so I encourage investment in those types of technologies and practices.

And with that, thank you very much, and I'm looking forward to working with ARB and sister agencies in implementing the recommendations.

Thank you.

CHAIR NICHOLS: Thank you.

There you are. Hi. Over there.

(Laughter.)

MR. HAMILTON: Good afternoon, Chair Nichols --

CHAIR NICHOLS: Good afternoon.

MR. HAMILTON: -- members of the Board. Good to
see you again. It seems like we're on a 1383 theme here. So I'm just going to continue with that, since I was on subgroup 2. I want to compliment Floyd and his team for pulling together and CDFA for pulling together this -- this whole endeavor. I felt like there was a lot of good communication that happened, and a lot of great discussion. And to some extent, the concerns of the environmental justice community were recognized, and, in occasional moments, even added into the recommendations.

But I have some real concerns with moving forward with this. But I first want to state that we were told this would be a separate item at the beginning of the month or maybe a little sooner. I'm not clear when it was pulled and put in the scoping plan.

I think you can see by the kind of attention it's getting --

CHAIR NICHOLS: Um-hmm.

MR. HAMILTON: -- that this is probably a real top-line item within the scoping plan that's imminent. And so I think it really deserves another look and another meeting where it's pulled out as its own agenda item, so we can talk about it more completely, and especially these recommendations.

But just more generally, I'm concerned about several things. One, there's very little focus at the
health impacts of these projects, whether it's on the
front end or back end of the cow, so to speak, which would
be the alternative manure management practices on the
front end, and on the back end, of course, the dairy
digesters. That work is not complete.

Some of it's in process at CPUC, but there seems
to be a run for the door here. Let's take the money while
we can get it, and get these things built before we even
have the final data from those projects that haven't
finished their pilot phase yet. So the first scoping
decision raised some significant safety concerns regarding
something called siloxane that this gas brings to it, the
pipeline. We've already had enough problems with our
pipeline. We don't need to blow up anymore communities.
So, you know, I think that we need to flesh that all out.
And there's a process going on that's doing that at CPUC.

I'm very concerned that the financial
underpinnings for these projects put the State of
California at tremendous financial risk. So if we're
going to underwrite these things and make sure that should
the LCSF -- FS prices drop, as happened recently, when we
modeled on $100 credit, and it dropped to $62 in a month,
what do we do when that happens?

So we're going to pay some underwriters a hideous
amount of money to take on some of that risk, but the rest
of that risk would be taken on by the State of California. Again, I'm very concerned about that kind of approach. And if this is so great, and if we're going to make a lot of money here selling renewable natural gas to transportation folks for these trucks -- which I agree, by the way, I'm a heavy-duty diesel natural gas guy for at least 20 years -- I want to see the money.

So we should be making money there and we should be able to take that money and invest it in these projects. So where are those guys from that industry coming out of the walls saying, hey, we want to put some money in this.

So right now, this is entirely done by the State, funded by the State. And again, health, safety, all those things are not complete. We don't have enough information yet. We are building these things like nobody's business.

So I think there's potential. It could all be true. I'd sure like to have some data to support that.

Thank you for your time.

CHAIR NICHOLS: Thank you.

Hi.

MR. SMITH: Hello. My name is Aidan Smith. I'm here representing the Leadership Counsel for Justice and Accountability. I wanted to offer some comments on the scoping plan.
I think we can all agree that we're not seeing sufficient progress on transportation-related emissions. CARB must take seriously its SB 150 report, and demand that locals do more to improve land use, housing, and transportation patterns, investments, and trends, so that we can reach both our state's climate and equity goals.

While it is unfortunate that the time may have passed to influence 2018 Sustainable Community Strategies in the San Joaquin Valley, CARB should, at the very least, require regular updates on progress toward's VMT reductions, ensure funding programs, support local and regional projects that will promote VMT reductions, and promote climate resilience while investing in pilots and scaling up pilot -- and scaling up pilots that work in diverse regions of the state such as the Van y Vienen project.

CARB must also be more aggressive in directing climate investments towards equitable climate resilience, including ensuring that no climate investments result in negative impacts in local communities, ensure cooperation with impacted communities, and eliminating barriers to climate investments in some of the most vulnerable communities of the state, including disadvantaged, unincorporated, and rural communities.

Similarly, CARB should better align funding
programs with other agencies, both local agencies and statewide agencies to develop and implement a strategy -- a strategy to achieve both climate and equity goals. Without such integration and alignment, we risk agency -- local agencies will continue to undermine climate change preparedness with road and highway expansions that come at the expense of both air quality and needed investments in transit -- and needed investments in transit and active transportation.

Finally, we are disappointed that there continues to be minima -- a minimal discussion of environmental justice in CARB self-assessment. As we and our partners have raised for several years, climate policy will only be successful if aligned with strategies designed to create a more equitable and environmentally just California.

Thank you.

CHAIR NICHOLS: Thank you.

MS. McGHEE: Lisa with San Diego Airport Parking Company.

Improving grid charging. The electricity power mix sources is expected to reduce carbon intensity. Distributed resources planning requires generating more energy by renewables. The lowest carbon intensity hourly window provides an opportunity to gain benefits, while reducing carbon intensity when grid charging.
If tailpipe emissions is being exchanged for upstream emissions by grid charging, reducing emissions in the ZEV medium- and heavy-duty sector is progressive and targets are still required. Electricity is one of the highest emitters. Why not require the best zero-emission grid charging?

Create a requirement for fleets to install a percentage of peak time charging of battery storage. This has many cost-saving benefits, when there is high utilization and enables more flexible charging at peak time when off the grid, and peak -- and via peak battery storage equipment.

This achieves the lowest carbon intensity hourly window of kilowatt hours, and allows fleets to have a benefit. Additionally, this achieves a cost-effective solution, including increases in capacity at a site, no additional trenching requirements, can avoid demand chances, can avoid upgraded transformers, and can charge as fast as the equipment can, requires no three-phased transformer, reduces emissions, creates emergency backup, and reduces the kilowatt hour costs.

This action establishes a reduction in emissions. The transportation medium- and heavy-duty sector needs more regulations towards ZEV adoption in order to achieve progress. More funding without -- with incremental costs
in the medium- and heavy-duty sector is required.

Why not consider repowers the same as school buses are allowed? This achieves a ZEV at a lower up-front cost or why not create a leasing program with a residual that the HVIP pays for, and thereby maintains the same average monthly payment that fleets are accustomed to. This makes it more feasible for all who displace.

CHAIR NICHOLS: Hi.

MS. SEATON: Phoebe Seaton also with Leadership Counsel for Justice and Accountability. I'm going to dedicate most of my comments to 1383. I was also on a subgroup. I was on the alternative manure management program subgroup. I want to again focus though however on the digester program primarily.

Kevin Hamilton mentioned a lot of the issues and the concerns that we have. Just to a highlight a few of those, I think the funding piece, we've already seen inn CARB's materials that it looks like about a half a billion dollars have already been invested in dairy digesters with unproven results in terms of GHG reductions. These are very new technologies, unproven technologies. That the reason for the CPUC proceeding, which saw $320 million of investment in cluster projects, was to kind of test out the viability from a -- from a economic, fiscal, and environmental perspective.
And I think it behooves all of us to look at those environmental and fiscal implications of clusters and dairy digesters before investing another penny of State resources into those funds. There's also been a lot of discussion about transitioning to carbon neutrality, getting off of gas onto clean -- clean energy. And we question the investment in biomethane as we're moving towards a no-gas future.

And it seems that we're putting hundreds of millions of dollars into technologies that really double down into a fuel that will soon be a fuel of the past.

We also are extremely concerned about the environmental justice impacts of the dairy program, especially with respect to its impact on concentrating dairies for the purpose of producing biomethane. And as we incentivize the production of biomethane, what does that mean for an incentive structure around CAFOs and air quality and water quality.

We don't -- again, I think we're looking for the data on that. One of our biggest concerns is a lot of the data around dairies and dairy digesters is hidden, obfuscated, or protected as a trade secret. And we hope that in the 2020 analysis, or before that, there's public access to data around dairies, and the impact of dairy digesters on the dairy industry.
There's also, I think, on the bridge between the
digester program and GGRF investments benefiting
disadvantaged communities, we're going to release a report
in the next few weeks that questions whether the dairy
digester projects that are classified as beneficial to
disadvantaged communities actually have any benefit
whatsoever.

The digester program is, of course, the program
we know and love the best, but are concerned that CARB may
be attributing benefits to disadvantaged communities in
other programs. And so we'd request a deeper dive, a
deeper look into what programs and projects are being kind
of classified as beneficial to disadvantaged communities,
in which programs are actually beneficial to disadvantaged
communities.

And it looks like my time is up, but look forward
to the discussion.

CHAIR NICHOLS: Thank you.

That concludes the list of witnesses on this
item. So it's available for any comments or questions
that Board members may have. This is obviously just an
update on where we are in implementing the Scoping Plan.

And it's interesting. I'm not quite sure what to
make of it that, you know, by far the most attention seems
to have been on the dairy digester portion on this, which
is a relatively small aspect. Although, it does deal with an important -- an important pollutant, methane, one of our targets for short-term action.

And it seems to have focused a lot of attention on dairies per se, and how people feel about them. But the transportation section, which is much bigger, is also the one that's probably the most lacking in big new ideas that are really what we need to be focusing on, I think, to get beyond where we are today.

So, you know, I've -- I expected to have more representation from our friends in the environmental community, frankly, coming in and pounding on the desk and demanding more aggressive action on transportation work, but I guess that's just where we are at the moment.

So we're going to have to do a lot of work here though in the -- in the coming year, as I see it, to bring the plan up to speed for where needs to be to achieve the kind of speed and scope that we need from this plan. And I know a lot of work is going on at the staff level, but they're not quite ready to unveil it all just yet.

So this is just kind of an interim report. And it's -- you know, a lot is going on. There's no question that -- you know, we -- I don't think we should feel embarrassed about where we've gotten to at this point. Clearly, we have a lot to show and tell others about, and
a lot of work to be done to try to encourage other jurisdictions to join with us and many are, I know, at least looking at doing. And that's going to be another important activity I think for ARB over the coming year.

But if any Board members have any particular questions?

Yes, Judy, and then Dan.

BOARD MEMBER MITCHELL: I'll just mention that there's a number of --

(Thereupon a cell phone rang.)

BOARD MEMBER MITCHELL: Wow.

Hector, I'll let you take care of that.

(Laughter.)

BOARD MEMBER MITCHELL: But there's been quite a lot of action in the Legislature --

CHAIR NICHOLS: Yes.

BOARD MEMBER MITCHELL: -- on things relating to housing, housing near transit.

CHAIR NICHOLS: Right.

BOARD MEMBER MITCHELL: And there was an item that came before a Committee that I serve on in the SCAG region that suggested that -- I think it was legislation that our joint meetings with the CTC also include HCD. And then a glimmer of a suggestion that we also include CEC. That gets to be a pretty big gathering.
But when it comes to the Scoping Plan, I mean, we deal with a lot of different agencies, and we're all kind of in our little separate silos. So some of that's a good idea, you know, that we are working closer together. And so just wanted to mention that that has been -- that's being discussed in various areas and in the Legislature.

CHAIR NICHOLS: It's a very good point, that ARB is not solely responsible for implementation of the plan. We're responsible for doing it, but -- for making the plan, but others also have key roles in making this a reality, so -- and I think we're going to be hearing more actually in the next report on that.

So thank you.

Dr. Sperling.

BOARD MEMBER SPERLING: So let me follow up on a couple of those themes, and that is -- let me actually start even with the biogas, the digesters that everyone is so excited about. I was actually -- the staff showed me some numbers, and I forgot what they were, but the amount of reduction that we can get from the dairy digesters stunned me how big a number it was.

CHAIR NICHOLS: Um-hmm.

BOARD MEMBER SPERLING: So actually just I would be interested in someone just giving me that number in a second for everyone's benefit.
But it -- starting to follow up on this theme of working with collaboration. I mean, I think we're learning more, the deeper we get into this, how absolutely critical it is to have these partnerships --

CHAIR NICHOLS: Um-hmm.

BOARD MEMBER SPERLING: -- not only with other State agencies, but with the locals, and with a lot of local governments as well, you know, land use, housing, equity. You know, I think we do -- you know, Hal Harvey kind of was cheering us on this morning. And in many ways, we've taken that responsibility to be leaders. And people look to us. And so I think that we do need to think, and we do, way beyond our specific authorities, you know, to collaborate.

And so, you know, two points. One is the dairy digester, is that unless this has changed in the past year, there were huge credits given to the biogas coming out of those digesters, if it was used for transportation, but not for electricity. And that's just a function of how our programs are. And it's an example of how we really do need to partner and figure out how to get all of these different policies and programs, not only compatible, but synergistic.

I don't think we've solved that one from what people were saying. But it does illustrate, you know, the
hug challenge as we go forward on, you know, working with the others, and getting the price signals, and getting the incentives aligned right.

Which brings me, of course, to transportation. Not -- no surprise. And, yeah, it's the same story there. We've got to figure out how to get others to work with us and to follow some of these ideas. And one of the very biggest is aligning transportation funding with our environmental goals. I mean, I think that's probably the most important.

And we've had the meetings with the CTC. They haven't been fruitful yet, let me say, but we need to do that. And that's the way we're going to make SB 375 work is by rewarding cities and counties for, you know, basically doing the right thing. And that's probably the primary mechanism to be able to do that.

So -- and the other is that this whole -- I think we're getting more and more comfortable with two ideas that are important. One is working more closely with locals on land-use issues. When I came here 10 years ago, it was -- you know, don't even mention cities and land use in the same breath with CARB. And I think now there's a much bigger appreciation that indeed we do have to be somehow figuring that out.

And the other part is pricing. You know, we
don't like to use the word "pricing" a lot, so I often call it incentives and disincentives. But again, we've got to do this -- so on transportation, we've got to create the incentives and the disincentives that encourage pooling with microtransit, use of micro-mobility, you know, even -- you know, first/last mile access with transit. We kind of know what -- we kind of have an idea what can be and should be done, but we don't quite have the path to get there in terms of the specific instruments, and the specific acts, and there's politics around it.

So it's challenging, but I have hope.

(Laughter.)

CHAIR NICHOLS: That's a good conclusion.
Okay. Diane.

BOARD MEMBER TAKVORIAN: Thank you.
Okay. You know, we've been thinking about the scoping plan or working on the scoping plan for more years than I think any of us want to recognize. So, you know, the scoping plan is really important. I think that's why there's a lot of attention on it. It's also exhausting, so I think that's why there isn't as much attention on it to your point. And I want to just appreciate the folks that are here, especially from, you know, the environmental justice organizations that are trying to
lift up these issues related to dairies and that sector.

And to the other folks who have come to testify today, I think -- I think it's important. And the reason the scoping plan is important, it's the overview of how we're doing on GHG reduction overall. You know, we're taking all these measures and we're excited about them, and we are -- you know, we're enthusiastic. We're pushing forward. We're working through all of this.

But this is supposed to be the place where we look overall. And, you know, I hate to say it, but I feel like, yes, there was all this reference to these global reports that we're not doing so well. But I don't feel like there was much recognition on the part of staff to how well or not well we're doing from a CARB perspective.

I mean, I think the transportation aspect was totally glossed over. There was no reference to SB 150 in this presentation. I -- you know, that was a stunning report that said we're not making it. The MPOs aren't making it. SB 350, we had the argument about that. And maybe 19 percent was the right place because they're not hitting that. So then why set targets at all?

And I'm not saying we shouldn't, but I just feel like we need to be more rigorous in this place. So if, Mary, you were looking for somebody to pound on the table, I'm happy to do that. I guess that's -- that's what I'm
doing here is that the AB 398 removes the refinery
measure. So staff grew the Cap-and-Trade aspect of the
scoping plan and that was supposed to cover what
refinery -- the refinery part of the measure was going to
cover. So there wasn't an explanation of so where are we
on that very explicitly. I'd like to see that.

I would like to see the relationship with the SB
150. I'd like to see where we are on the reports on
direct emission reductions. There's supposed to be a
report on environmental justice and health that was called
out in the resolution. And I understand if it's not done
yet. But why wasn't there a reference to where it is or
what the status of it is?

Where's the -- there's supposed to be a report on
the air emissions data. And you referenced that, but it's
not -- that it's coming, but not a clear timeline on when
it's coming.

And then there was also a report on the
collaboration with OEHHA on the benefits and impacts of
GHG emission limits adopted by CARB within disadvantaged
communities.

So those are all things that I think we all care
about. I know that CARB cares about those things, and
that I think should have been focused on in this report,
so at least we could see where are they coming and when
are they coming and what's their status.

So I have to say that I feel disappointed in the overarching report, even though I feel enthusiastic about some of the measures that we see coming forward. So I think that the SB 150 report was a really important one, in that it was bold and it told a lot of truths that I think we all have to face. So I'd like to see us carry on in that spirit. And I'd love to hear more about what some of the responses are to those reports and when they -- they may be coming. Thank you.

CHAIR NICHOLS: Dr. Balmes and then Mr. Gioia.

BOARD MEMBER Balmes: Well, Diane already stole my line about doing some pounding. And, you know, I think -- it's really hard for me to be as optimistic as Dr. Sperling on the transportation side of things. I've actually been getting -- despite all the good work we've done as an agency and in partnership with others over the years, correct me if I'm wrong, but vehicle miles traveled went up last year in California.

So we're kind of losing the battle. And I think affordable housing, which the Governor has correctly identified as an important - one of his major areas of work is part of the problem. Maybe one of the major contributors to vehicle miles traveled. Until we have land use that doesn't cause working-class people have to
drive miles and miles from places where they can afford to
their jobs, we're going to continue to have this problem.

And I don't have the magic Bullet solution. I
wish I did. But I think we really have to get, as Mr.
Magavern said, much more serious about California's love
affair with cars, which even with cleaner vehicles coming
out, is still a major source of greenhouse gas emissions
and climate change. So I just encourage us as a Board to
double down on the transportation initiatives that we'll
need to meet our goals.

And on the -- the dairy issue, in part because I
work with some of the folks that came to testify in the
San Joaquin Valley, I know how important this issue is to
the environmental justice community in the SJV. Yes,
we're concerned about capturing that methane and doing it
in a clean way. But they're very concerned about
potential impacts of that new technology.

And I understand that. They don't trust that
we're going to get it right, unless we have good data from
pilot projects. And I hear that, and I actually support
that position.

Thank you.

CHAIR NICHOLS: I'll just take all these comments
sort of in order, and then I'm going to try to engage in a
conversation with Richard. So let's -- let's hear from
folks about their concerns.

(Laughter.)

BOARD MEMBER GIOIA: Oh. Okay. There it is. Sorry.

I think Dr. Balmes and Diane really opened the door to really continuing to focus on this -- the issue of VMT and transportation. Clearly, two pieces of bad news here. Transportation sector, GHG emissions increased, right, two percent from 2015-2016? VMTs are up. And actually a third, the SB 375 regional targets do not achieve the VMT level called for in the scoping plan.

So I think we have to be careful to applaud ourselves on the progress we've made. And there has been progress, but there's a lot of hard work left on the transportation VMT side. And this does get to the issue of building more housing, building more housing in the right place where it counts to reduce VMT. And how -- I think we should focus on how we can exercise more leverage - and I say this as someone coming from local government - over local government in meeting these needs.

There's a reason I think the Governor rightly sued a Southern California city over housing. Our colleagues in local government, and especially in city government, are not building hou -- enough housing period, and not building -- approving and having built enough
housing in the right places.

And it's this -- it's this same tension between State, regional, and local government. But until we exercise a bit more authority in this area and look at how we can leverage transportation funding -- I know we've been having these discussions with the California Transportation Commission, which really haven't yielded anything, I think, meaningful yet - I hope they do - that we really do need to start using the transportation funding as leverage to get housing built in the right location to reduce VMT and to make housing affordable.

And so I'm sort of singularly focused on that area. I think if we really focus on that area and really say our job is working to link the funding and develop other leverage mechanisms, I don't think incentive dollars work all the time, that you need to have the stick.

And that's not popular to say in local government, but we've failed. And so it's the strategy of figuring how to do this in a way that doesn't develop too much pushback, but is still effective at achieving the goal of getting the right housing in the right place and reduces VMT and GHGs, and improves health.

So I'd like staff to think about how we focus on a strategy there, not just in the discussions with CTC, but in the work that we're doing as we approve the
Sustainable Communities Strategies from around the region.

CHAIR NICHOLS: Thanks.

So, you know, this conversation, the comments, are all very well taken and very appropriate. The conversation that the report is frustrating obviously. And part of me wants to say we just -- you shouldn't present a report like this unless you've got something actually to recommend in terms of strategies. But it's actually a little bit unfair, because, you know, what the staff is doing is kind of reporting on their piece of a much bigger problem. That it's the only part that they can report on is sort of what they've actually been able to do, unless we're going to go out and report on what everybody else has done or failed to do. And there's a lot, you know, as a society, clearly that -- a lot more that needs to be done.

We make ourselves responsible for all of it by doing this plan when we don't actually have the -- all the tools, or resources, or authority to actually cause it all to be carried out. But I think the comment that was made earlier about using leverage that we do have was very -- was very well taken.

I just want to give Richard a chance to respond a little bit. Hopefully, not to be defensive, but just to sort of indicate --
(Laughter.)

CHAIR NICHOLS: -- because -- well, what I mean is it's -- there's -- it's easy to be defensive. And I feel that way sometimes myself, but -- as I did yesterday, you know, when I was being cross-examined in front of the Senate Environmental Quality Committee, not because they were being so critical, but just because, you know, people want to know why haven't you solved this problem already, you know.

(Laughter.)

CHAIR NICHOLS: I mean, you've been working on it. You should have -- should have gotten it done.

So why don't you add whatever you would like to at this point about sort of where you want to see this report taking us next.

EXECUTIVE OFFICER COREY: No. Thank you, Chair. Thanks for the opportunity.

I'm going to break this down, one, on the few broader scoping plan questions, then I want to go to specifically to SB 150 Report, which frankly the conversation and dialogue amongst the Board members is excellent. You're just going to get complete support, one, for recognizing the challenge in front of us, and I think some pass forward.

But to the broader scoping plan, I think this is
really a challenge with an update. But, you know, I'm taking some message from this dialogue and this discussion thinking about future status reports on the scoping plan, because Ms. Takvorian's point about what the purpose of the scoping plan is right on point. It is a broader plan for how are we moving forward to meet both our SB -- or AB 32 and SB 32 GHG reduction targets.

And, you know, I was reflecting on when the Board acted on the '27[SIC] Scoping Plan, the Board acted on a resolution that had a number of directives to us. In fact, there are 19, in terms of -- and what we didn't do is talk about everyone of those 19 measures. In fact, if I had, or if we had, done that, I think we would have actually portrayed a much more encouraging report on action. The Board updated a -- doubled the stringency of the low carbon fuel standard, the zero-emission transit item, moved forward on a regulation to require annual reporting of toxics, a public mapping tool so people can look in their communities, where are the facilities located, what are the emissions from those facilities, and another dozen measures. Not all are done. Absolutely, that's the case that we have not finished a subset of them. Work continues to them.

But I'm going to think about what's a more effective means. I mean the public exchange is really
valuable for a report to the Board. But to get at some of
the detail I'm describing, it may require a supplemental
written report, because it just -- it's a lot of detail
and a lot of activities in terms of the range of actions.
And I'm talking about the 19 that are just under our
purview. There's several, as Chairman Nichols mentioned,
that other agencies are tasked with.

With respect to the SB 150 report, and what we
appreciate -- what I appreciate is kind of the honest
assessment of, yes, in aggregate, we did beat our target,
but we also know transportation represents 50 percent of
our GHG emissions, 80 percent of NOx, 95 percent of our
diesel PM. If we don't get in front of it, that trend
won't continue. It won't. And I think we all know that,
and I think that's why the strategies, including doubling
down on electrification, on the light-duty and heavy-duty
side are going to be important.

That's why when I gave a report in Fresno to the
Board in January, this Board asked for a specific report
on SB 150. That happens next month. So we're going to
have a focused discussion of -- and it won't be -- what
you won't get is a straight up here are the solutions. I
think we have a lot of work to do, but I think Professor
Sperling and several others had noted we aren't going to
get there without strong partnerships at a local level.
There's no doubt that we have an intersection of housing, access -- mobility, equity, GHG, criteria pollutant exposure issues, VMT. These things are all connected to one another and there's not a silver bullet solution, but there clearly are, I'm going to say, incentives and disincentives to encourage where that development takes place to open access, to increase mobility, to reduce VMT.

Professor Sperling. When we met with the last meeting of the CTC and CARB, one outcome -- a positive outcome, by the way, was that Professor Sperling committed to hold some roundtable discussions with MPOs, with locals, and hopefully down the road I think developers in terms of let's just get the problem statement on the table, so we are all talking the same language. Let's talk about what it will take to move forward and get in front of this thing. That process is beginning. There's been a few of those meetings already.

And after me, Jim Corless with SCAG is going to be talking about some activities that are underway -- that are underway from an MPO standpoint that a direct outcropping of the 150 -- SB 150 report in terms of pilots, in terms of some opportunities to begin to take this issue on.

So I'm not putting -- sugarcoating this. There
are some real challenges in front of us. There's no
doubt. And I think to get at it, it's an honest
conversation like we're having, but there's certainly a
lot of success that we -- that you have had, and your
direction in a number of measures that move forward. Even
on today, the discussion of the shuttle bus measure as
part of the SIP is part of our climate strategy. So maybe
I'll end on that point.

CHAIR NICHOLS: Okay. Well, much to do.

(Laughter.)

BOARD MEMBER RIORDAN: Yes.

CHAIR NICHOLS: Lot's of work ahead of us. And,
you know, I think the Board members are probably going to
want some opportunities to think in a more comprehensive
way about some of these issues. We have, you know, the
good fortune of having a number of people who represent
local governments, who serve on this Board, and who have
opportunities to weigh-in on ways in which they think we
could be more effective and engaging at the local level,
not just their frustrations, but also hopefully some ideas
about what we could be doing that might be more effective.

And it would be good to have kind of an open
workshop about that -- about that at the Board level. I
think everybody, especially, you know, before we get too
much farther along in the year, would benefit from that
kind of a conversation. So that's just one suggestion.

   Yes.

   BOARD MEMBER TAKVORIAN: Yeah, I like that
suggestion, because I think that we are taking -- CARB has
taken on so much and been so successful in so many arenas.
And I think that, in a way, those successes get conflated
with the ineffectiveness or the lack of action on the part
of some of our partners and other folks that need to act.
And I feel like we need to pull those apart a little bit
in order to be more direct about where we need more help,
and where more folks from local government, as Supervisor
Gioia has said, need to come into the -- into the arena.

   And I feel sometimes like we kind of cover it in
a way. And I don't think that's the intention, but that's
what ends up happening, so that it's not really clear.
You know, local government, you -- you're going to have to
do this. And even if CARB doesn't have the authority for
that, I think we have friends sitting with us from the
Legislature and who are listening who might say, oh, well,
maybe there's some action that we might take there, or
maybe some local government folks will wake up to what are
some of the things they can do.

   So I guess I just want to peel back the curtain a
little bit, both to celebrate the successes and point to
those, but also to point where those, you know, partners
are, and where they may be lacking. So I think an open
discussion that includes --

CHAIR NICHOLS: Um-hmm.

BOARD MEMBER TAKVORIAN: -- representatives from
those governments as well would be really a welcome thing
to happen. Love it.

BOARD MEMBER SERNA: Chair Nichols, if I could.

CHAIR NICHOLS: Yes, please.

BOARD MEMBER SERNA: I wanted to add to that,
because I totally agree with the concept of having some
kind of convening to vet this further. There's only a
quarter of us on this Board that serve in a local
government capacity as elected people. And so we think --
naturally, we think differently about how do we implement
the things that we do here, whether it's rulemaking or, in
this case, a very complex, a lot of moving parts plan --
scoping plan.

And I would only add that if we're going to have
this convening and certainly invite local planners,
executive directors of MPOs, planning directors, whatnot,
that we perhaps also open that up a little more broadly to
include those that represent the market. You know, local
government can work all day long with the best intentions
to lay the greatest plans. And in many respects, we work
in a very reactionary environment where we're responding
to regulations -- a regulatory environment that comes
either from the State or the federal government. But
we're working with local partners, developers that are
taking real risks, whether they're doing brownfield, or
infill, or greenfield.

So I think we ought to open that up to perhaps
include some folks from the development community to give
us some real-life anecdotes about the challenges, the
difficulties, and quite frankly the opportunities to do
exactly what we're all trying to do which is reduce
vehicle miles traveled, reduce greenhouse gas emissions.
I think that would be a little more insightful.

CHAIR NICHOLS: Yeah. I'm envisioning a really
interesting program here. Yes.

BOARD MEMBER SPERLING: Let me follow up just a
bit on that. So as Mr. Corey said, after the last meeting
we had with CTC, we have started a series -- as a result
of that, we have started a series of roundtables. It's
being led by the university people from UC Institute of
Transportation studies from around the state. But
we've -- so Richard -- so, yes, we had a meeting that
had -- it's roundtables. We're holding five of them
around the state. We had one in Sacramento. We had many
of the leaders of the administration -- new administration
there. We had Mayor Steinberg there, and, of course, CARB
and CTC staff there as well. We held a meeting two days ago in Fresno, and Mr. Corey was there, and CARB staff. And so we're having another one in the Bay Area, and then one in San Diego and L.A.

So what we're basically doing -- and CTC is fully involved in these. What we're doing is kind of softening up, you know, the people out there. I mean, 375, the first time through really aroused a lot of antagonism in the transportation community and local governments, because like, you know, who are you, CARB, you know, intruding in our territory.

And that's gone, but it's still -- you know, there's a lot of softening up that has to go -- continue. And I think we're doing the first round of that. And so these follow-ups with CARB Board and others I think should follow on that, but with a much more focus on specific actions --

CHAIR NICHOLS: Um-hmm.

BOARD MEMBER SPERLING: -- and to get specific engagement and commitment to some of the proposals that we're just talking about vaguely now. So that's -- you know, before we jump, I just want to kind of slow us down a little bit, because this -- you know, these local -- the locals and the others -- you know, like we were in Fresno two days ago. Yeah, greenhouse gases is important to
some, even many. But with transportation, there's a lot of other big, big concerns there and challenges, and a lot of disruption happening.

So we should go into this with our eyes open. I think -- you know, I said before, I was hopeful. Hopeful in a sense that there are ideas, but it is going to take a lot of work. And, you know, we should be in this for the long haul and figure out -- we need a strategy on how to do that.

CHAIR NICHOLS: I take your point, and I agree with you. I don't think we should just jump out and announce a workshop and have everybody come in and talk at each other, and say a lot of the same old generic things that people have been saying for years about whose job it is to do what, and how difficult it all is. We will just all leave even more frustrated than we started. So I accept that as good advice.

But I don't want to give up on the notion that given our responsibilities on climate, we have an obligation to figure out what our role is in all of this, and how to be effective. And I think we haven't quite got there yet. But I'm sure as a result of these workshops that you're doing, you could be helpful in sort of designing what the discussion topics should be, and how to get people to come and talk about them. And I think I
would ask you to do that. I'm sure you would volunteer anyway.

But I really would like to see staff -- I'd really like to see staff begin to flesh out some ideas about how we could engage. And it -- maybe it's just in the beyond 375 discussion what comes next. Maybe just narrow it down to that. That in and of itself would be of great value I think.

Well, we have another report today and it follows rather logically on this -- on this one. So I'd like to ask if our Board Member from Sacramento would like to introduce this item

BOARD MEMBER SERNA: Sure. Thank you, Chair Nichols, and I'll be brief.

So you're right this does dovetail nicely from the previous conversation. And as you, Mr. Corey, referenced, the last item today is really to hear from the Executive Director of SACOG, our local MPO here representing our six-county region, about the progress that has been made to date in the thinking and application of a fairly unique attempt to meet the state's most stringent goal -- greenhouse gas reduction goal as it relates to the implementation of SB 375. I think as many know, 19 percent reduction compared to 2005 levels by 2035 is a pretty tall order.
And we have not spent a lot of time and energy trying to be combative or to dissuade partnership with CARB. In fact, CARB staff have been very good about working with our local staff, our SACOG staff, to figure out a means to conduct somewhat of a pilot project using some pretty innovative thinking to get us to that extremely tall target of 19 percent reduction.

And so this afternoon, we are going to hear from our esteemed Executive Director, Mr. James Corless from SACOG about -- about that progress.

Take it away, James.

(Laughter.)

(Thereupon an overhead presentation was Presented as follows.)

CHAIR NICHOLS: Good afternoon.

MR. CORLESS: Thank you, Supervisor Serna, Chair Nichols, and members of the Board.

I really hope this is going to build on our last discussion about the scoping plan and transportation. It couldn't have seemed to be a better -- a better setup in many ways. And I want to really give you a sense kind of from the ground from a council of governments that really is the conduit, if you remember, to local government. We have every local government in our six-county region on our board.
MR. CORLESS: And maybe perhaps also just by way
of background, I was actually working in the Bay Area for
a long time for the Metropolitan Transportation
Commission. Supervisor Gioia and I remember each other
from long ago, where I actually had --

BOARD MEMBER GIOIA: We remember you well and al
of your good work in the Bay Area.
(Laughter.)

MR. CORLESS: And I -- my job was to essentially
figure out how to make housing money -- or housing an
incentive for transportation funds, right? So you produce
more housing, you get more transportation dollars. It was
also to figure how when we extended mass transit
corridors, we required local governments to upzone along
those transit corridors. And those were very, very
difficult conversations to have.

But I do believe they are -- they are essential.
So I want to give you also just a reintroduction perhaps
to our region -- our Sacramento region. And I really want
to just today make a pitch that we want to be a region
that is willing to try anything to get to this 19
percent.

And as transportation planner -- I often say I'm
a recovering transportation planner.
(Laughter.)

MR. CORLESS: It's been 25 years. And the answers that we have today are not the answers that we had just five years ago. And we have to have an honest conversation about your notation about VMT going up and emission going up. We just can't solve today's problems with the stuff that just comes right off the shelf.

Frankly, we can't afford it from a cost perspective, and it's not going to, I think, get us where we need to go. So a reintroduction to our region. As you can see on this map, I am not speaking to you from just the City of Sacramento. I'm speaking to you from a really large region that extends from UC Davis to Lake Tahoe, from Galt and Isleton all the way up to Live Oak, and the border of Butte County.

We're six counties, 22 cities, two and a half million people. And as you can kind of tell from this map, and hopefully you've experienced our region enough, we are a rural region. We have a lot of ag. We have a lot of rural poverty. We feel more akin perhaps to the valley than we do the coasts.

We also, because we believe we're in the front yard of the State Capitol, as I'm going to keep repeating, we would like to be the place that you try things. And we believe that we are at the point right now with our region
where we are willing to admit mistakes. We're willing to
tell you the truth about what works and what doesn't work.
And frankly in transportation, we've probably got more of
what doesn't work right now.

--o0o--

MR. CORLESS: If you remember back to SB 375 and
the targets and Supervisor Serna introduced this by saying
we have a 19 percent target as does the coastal
metropolitan regions. Again, we often say we have one
foot in the coastal economies one foot in the valley
economy. It is going to be extremely hard for us to reach
this 19 percent greenhouse gas target.

But that said, we worked with our Board and our
local governments to say -- to ask them essentially
honestly what would it take? If you could really think
about all the strategies that would get us to this target,
what would it look like?

And whether you noticed it or not, I'm sure --
I'm sure you paid great attention to a little asterisk
next to the 19 percent target for the Sacramento region.
We certainly did and it was really your staff's
acknowledgement that our region is -- is different. We
believe -- again, we have this interesting place where
we're a foot in the valley and a foot in the coast. When
we're trying to build affordable housing and infill
housing, we have Bay Area labor costs, and we have
Sacramento region price points. And that differential
alone makes it very hard.

So we've come up with a pilot program. We've
worked with our local governments all across the region.
And there's three elements of this pilot program that we
believe need to be implemented to reach the greenhouse gas
target. This is not about modeling to 19 percent,
although we're doing that. And now I think with SANDAG's
news we may be first out of the gate on 19.

But there's three buckets, accelerating infill
development, accelerating your travel choices and travel
options - that does now always mean fixed route transit -
and accelerating deployment of electric vehicles, and
especially accelerating all of those things in places, not
just wealthy neighborhoods, but the folks that really need
it the most. Those are the three buckets we're focused
on.

We're calling this pilot program Green Means Go.
I don't have to explain to you, I think, the green. But
in transportation, we love green lights and we love
accelerate things. And frankly, we don't think we have
much time to waste.

--o0o--

MR. CORLESS: I talked to some of you about a
program that we brought here to this region. And it's a little example I hope of the kind of innovation and creative thinking we want to bring to problems. It's a program we're calling Civic Lab. We're into our second year of Civic Lab. This comes off my experience working at a national level in the Smart Cities Collaborative in the Smart Cities space with Columbus, Ohio, and many of the cities that lost that Challenge grant under the old U.S. DOT, but had great ideas.

And the notion of Civic Lab is, as Winston Churchill I think once said, "Gentlemen, we've run out of money, now we have to think".

(Laughter.)

MR. CORLESS: So we -- as I said, we don't have the resources to actually fix all the problems like we used to think we could fix all the problems, so now we have to think. We want a partner with a private sector. We want to use technology. And Civic Lab is a program -- it's like a mini university. It's nine months for cities, and counties, and transit districts, our public sector. We told them the first year to come in with their transportation problems, not the solution. So I said don't assume that you know how to fix this, but come in with a problem that you're trying to solve, and let's run through this.
We're going to bring some start-up folks. We're going to bring some private sector providers, and help you work through the problem and come up with a pilot project. And we're going to try to test this pilot project. SACOG Board put a million dollars into this. We leveraged another $800,000 for a $1.8 million pot of money. In the transportation arena, that's relatively small. And so we went off and running.

--o0o--

MR. CORLESS: We had teams from around the region. We put different disciplines together. Different cities actually collaborated. So I'm just going to run through a couple of examples here. And I'm sure that in some of your regions, if you're outside the Sacramento region, you may have seen these kinds of things.

This is a test in West Sacramento, just across the river from here, with a private a provider named Via. Via does door-to-door shuttle service that's on-demand point to point. It's sort of like Uber marrying a public transit bus, and this is what you get as the offspring. It's on-demand. It's tech forward. It goes door to door. And we've so far seen a tremendous success with people being able to use this shuttle.

The goal, of course, from your perspective under VMT reduction, is to take single occupancy cars off the
road. The ultimate goal, of course, would also have this to be an electric shuttle service, so that we're not just doing shared, but we're doing electric.

--o0o--

MR. CORLESS: Just today, on the campus of Sacramento State University, we were very proud to have launched a local motors autonomous shuttle. This is actually -- this shuttle has been roving around the Sac State campus for a couple of weeks with its doors closed learning the map of the campus, so that it can understand where to go and the routes to go. And pretty soon it's going to open its door to students. We're testing this on the campus of Sacramento State, because we are still -- we have some regulations in California that won't allow autonomous on public right of way, which I think is a hindrance. Although I understand some of the safety concerns.

But we're excited about this. And this came out of our Civic Lab team again. And we were able to actually put some of those pilot project funds onto this and be the local match. The Sacra -- Sacramento and Phoenix were the two cities that won this first round of these tests. Again, I know there's a couple around the state like this. But we're really excited to be testing this and deploying it in a place like Sacramento State.
And again, those -- those dollars that we had as a local match, we could -- we could deploy really quickly, and we helped win Sac State that deployment.

--o0o--

MR. CORLESS: I know you all know about bike share. We've got bike share that's happening all over the place. This frankly, in my two years here at the helm of SACOG, was a fascinating project, because we started bike share two years ago. And Alberto Ayala is here from the Air District who put the original grant application in, as a public -- 100 percent publicly funded bike share system. And in the span of those two years, we switched it to a 100 percent private system with the public funding going to fund the infrastructure, and going to buy down a low income discount program.

So I'm happy to tell you -- although, we're still getting the numbers in -- we have a boost low-income annual membership for $5, if you qualify. We're trying to get -- make sure that we get bikes redeployed every night into low-income neighborhoods and we're assessing the data.

I can tell you overall big mixture, we're now getting more Jump bike rides than Uber rides on the grid in Sacramento. So we're getting bikes to surpass Uber.

--o0o--
MR. CORLESS: That's why Uber bought Jump by the way.

(Laughter.)

MR. CORLESS: That was a good business move.

Davis also in our Civic Lab program. The City of Davis, as you know, has the Capitol Corridor, the Amtrak route. One of the busiest in the nation. I think the third or fourth busiest. And because of that, as you can see with this platform and all the people on it, parking lot fills up every morning. This is problem all over, right? We have trail -- rail systems and Amtrak systems where the parking lot fills up. Is the answer to build more parking?

Well, perhaps not. So in Davis, we're working with Lyft. We don't have Lyft Line. So you might be familiar with UberPool and Lyft Line, the shared versions of Uber and Lyft for TNCs. We don't have them in places like Sacramento or the valley, but we're actually looking to underwrite and work using public funds to work with Lyft to provide Lyft Line to do shared rides to the Davis Amtrak station every morning, so you can get there on time and catch your train. And we don't have to build another parking garage.

--o0o--

MR. CORLESS: A great example of a team through
Civic Lab, Rancho Cordova, Sac County, City of Sacramento, Folsom, and looking at first/last mile in suburban areas. This is a map of the light rail networking in Sacramento. We have a -- we have a network here. We need to utilize bet better, and we need to figure out how we actually make those suburban connections. Again, a fixed route bus.

And believe me for years, I would say transit, walking, and biking; transit, walking, and biking. The game has completely changed. And we need to rethink whether fixed route service can work in suburban and rural areas. And largely, it is proving to be very challenging and difficult.

So in this situation we're looking at door-to-door microtransit services in these suburban areas.

--o0o--

MR. CORLESS: And I just also finally want to again just give you a little bit of an aerial, a little community called Knights Landing in Yolo County. We're working with Knights Landing and Yolo County Transit District to look at a microtransit service to get people to jobs, to get -- to get workers to farms and ag jobs. And even in a place like Knights Landing, a very small community that's very ag based, fixed-route transit is not serving the community. It is not working the way we need
it to work. And so us putting more money into those kinds
of fixed route services, we have to -- we have to rethink.

--o0o--

MR. CORLESS: I just want to say one more thing
about Civic Lab in this first year that was, again, I
think a benefit from the Council of Governments
perspective. We did a -- we did a umbrella procurement.
We went out with an RFQ and we pre-procured about 13
vendors who came in. And then our local governments were
able to pull off our umbrella procurement, and actually
deploy many of these services. That's how we won the Sac
State Olli service.

All right. I want to talk a little bit about
land use and housing and infill development, and then get
your questions. We know that transportation alone isn't
going to solve this, as important it is to crack the
transportation challenge.

--o0o--

MR. CORLESS: Again, this is a map of our region.
This is the map that we -- we have something called the
blueprint in our six-county region. In 2004, all the
jurisdictions got together and looked at a 50-year growth
strategy. The gray areas are established communities.
And those red areas that are quite small are the 100
percent places that we need affordable housing. These are
the places that have services, that have retail, that have jobs. We need to attract development here. They are very hard to attract development to.

--o0o--

MR. CORLESS: Along comes our next year of Civic Lab. So again, we've just launched a second year Civic Lab. This time it's focused on taking old retail corridors with businesses that are closing and strip malls that are empty and trying to rethink those commercial corridors as mixed-use, multi-family housing on top, flex space on below, because we're potentially over-retailed.

We have 13 teams, five of our six counties are represented, everywhere from Sacramento County to the little Isleton business corridor down in the Delta. We are going to be taking this -- these teams and setting them up to do, what we call, a developer marketplace working with the Urban Land Institute. It's kind of like speed dating for cities and developers.

I'm just trying to get your -- you know, trying to keep it going here.

(Laughter.)

MR. CORLESS: Connecting cities, and their properties, and the -- their kind of places that they really want to think about how can we get infill development and multi-family to happen with even some
national developers who have had experience doing this and are well capitalized. We're setting them up. We're doing pro formas. We're doing the financials. So because we need a different products type, we are -- we are vastly undersupplied, but we have a demand for smaller lot, multi-family. A lot of these commercial corridors provide that -- that space and that opportunity. But the economics are not working.

---o0o--

MR. CORLESS: This is what we want more of in our region. It's not the tall sky-scraper high rise. It's the four, five, six-story housing product that we're missing. We're missing a whole middle of housing in our region and we need to stimulate it.

---o0o--

MR. CORLESS: It could be a corner in any one of your jurisdictions up and down the state.

---o0o--

MR. CORLESS: And we're trying to basically transform these kinds of places with development that looks like this, lively, active, affordable, mixed income. And we have plentiful supply of these kinds of corridors and parking lots all over our region.

They're also, by the way, the places where we actually do have some of the better fixed route transit
service that's already under -- underway.

--o0o--

MR. CORLESS: Just again, I want to tell you a little bit about our Civic Lab teams. Now, we've kind of said this pilot program we want cities to go even further and look at their policies, and really step you and put their hands up in terms of what they'd be willing to do to do things like streamline line permitting and approval processes, and things like accessory dwelling units, affordable housing.

These communities and others are stepping up. We haven't even put a financial incentive on the table yet, and they're saying want to help. We want to do something. We want to figure out how to understand the housing challenge and how to contribute. And I think that's a big deal.

--o0o--

MR. CORLESS: So just to close, our region being the front yard of the State Capitol, being a partner with CARB, being a partner with the State, we want to be the place where accelerate these new solutions. We want to be a test bed. We are willing to admit when things don't work. And there's a lot of things right now that are not working. Our Civic Lab program is an incubator for a lot of new ideas. And working with folks like UC Davis and
Sacramento State, we're also partnering with universities and colleges to do the quantitative data gathering, that does this work does, it not work?

And we're willing to tell you that. We're willing to tell the State that. And we just really want to be your partner. Because again as important as that 18, 19, 20 percent is, the future is harder to predict than ever before. And transportation it's never been more uncertain.

So we need demonstration projects in the here and now. We need to generate excitement about these things, and we want to be the place where that happens.

I thank you for your time. I'd be happy to answer any questions.

CHAIR NICHOLS: Thank you for the presentation, and for your generally thoughtful and collaborative approach to all of this. I don't know that we have any questions at the moment.

Did you want to comment?

BOARD MEMBER SPERLING: Yeah. I'll actually -- so Mr. Corless was that Sacramento roundtable we had.

CHAIR NICHOLS: Um-hmm.

BOARD MEMBER SPERLING: And he and Mayor Steinberg teamed up very effectively to make the argument that one of the things that we need is a pool of money to
support these kinds of pilot projects and demonstrations, this experimentation. And I think that's a really good idea. So for those that are involved on the money side, think about that.

MR. CORLESS: I will say that U.S. DOT Smart Cities Challenge Grant that the Obama Administration put out in 2016, it was $40 million. One city, which is kind of a big deal.

CHAIR NICHOLS: Um-hmm.

MR. CORLESS: We usually spread stuff around like peanut butter. But that challenge grant got so many cities to rethink transportation, to rethink their approach, and their readiness to shared, and connected, and electric. It was remarkable. That's why we tried to swoop in, in my former career, and take about 16 of those cities that didn't win the grand prize, I think if you -- it does not take a lot of money to get our attention.

And if you could do that in a -- sort of a race to the top type of model, I think there would be a ton of support, and interest, and enthusiasm.

CHAIR NICHOLS: And what is the money needed for?

MR. CORLESS: Pilot projects. Demonstration programs. I mean, I was saying, Chair Nichols, that in our Civic Lab that first year, we had 1.8 million. We ran
that through the procurement process that we pre-procured. That's a relatively small amount of money to get a lot of demonstration projects out there.

CHAIR NICHOLS: Um-hmm.

MR. CORLESS: I will say the bigger nut to crack is infill development. We honestly have a major problem. If you want land use to change, and you want to get into housing and talk about that, many of you know this from the local level, we have serious infrastructure needs out there. So Florin, Lightview[SIC] rail station just down here in South Sacramento --

CHAIR NICHOLS: Um-hmm.

MR. CORLESS: -- about $10 million to upgrade wastewater. And just even the water network was never built when it was part of the unincorporated county to actually sustain even, you know, six stories of moderate density affordable housing.

We have major, major problems like that. And it's not enough for one developer and one project to take on that risk, to take on that expense. That's a -- that's a higher price tag, but it is absolutely needed.

CHAIR NICHOLS: Thanks.

Okay. We have 3 people who've signed up to speak on this item also. So I think we should give them a chance to talk. First from the Sacramento AQMD, Albert
Ayala.

DR. AYALA: Good afternoon, Chair Nichols and members of the Board. Thank you for giving us the opportunity to be here today. Albert Ayala, Director of the Sacramento Metro AQMD.

My message here today is simple. We are here to express support for SACOG and to tell you, the Board, that SACOG is not alone. Because as you can gather, I say transportation is the glue that brings us together, because we're all coming at it from different perspectives. You know, we're coming at it from emissions and air quality standpoint. And, of course, SACOG greenhouse gas reductions, VMT, et cetera.

And what we want to do is we want to do better at locally coordinating and collaborating on these -- on these efforts. Because when you look at the buckets that Mr. Corless described, infill, better travel options, electrification of transportation, those are all areas that ring very familiar and true to, as you know, the things that we at the air districts are trying to put in place with your help.

So what we want to tell you is communicate that we are ready to step you to the challenge. We agree the 19 percent is going to be a tall order, but we're ready to do what we can to help SACOG get us over the hump and
participating in being part of the solution.

Since leaving ARB a year and a half ago, I've refined my thinking. And now instead of just simply thinking about better transportation, I think about better mobility. And the reason I like this phrase is because I think it's emblematic of what we're trying to do, right? And the bike sharing, the Jump bikes, is really a good example about that, because what we're trying to do is not just simply take people away from combustion cars into electric vehicles. Because if we only do that, we're still going to end up with the issue of congestion and many other problems.

So what we're trying to do, as you know, is try different things, become an experiment. Bike sharing, car sharing, microtransit, better land-use planning, because air districts have a very robust and key role in land-use planning and CEQA development.

And similar to what we are doing at the local level, becoming a more integrated, more strategic group of agencies that are pushing our local governments in supporting this transformation. We're here to thank you for your help, and certainly we want to invite you -- as we've communicated to Professor Sperling, thanks for making us part of your roundtable.

We want to invite you to work with us and to
try -- and to help us experiment, because I do think that we have an opportunity to better optimize our relationship that we, at the local level, have with the State. Because as the Board deliberated before, we have a lot of work to do ahead of us. And I think it's going -- it's going to take multiple efforts, including I do believe better alignment of the State and local policies, so that we can push ahead.

So again, the message today here for us is simple, we want to stand in support of SACOG, to tell you that they're not alone in making this happen and want to thank for your attention.

CHAIR NICHOLS: Thank you.

MR. KUMAR: Chair Nichols, members of the Board, thank you. My name is Kirin Kumar. I'm the Executive Director to WALKSacramento and also representing a group called Design for Active Sacramento. We're a regional and community-based organization that works throughout the Sacramento region. And our mission is to advance health, equity, sustainability, and economic development through the built environment.

I'm here today to share with you the urgent need for a pilot program like this, and to express our support for the work that the Sacramento Area Council of Governments are doing.
In order to address and achieve our 19 percent reduction goal, as well as the co-benefits of healthier communities, improved air quality, and economic resilience, we must accelerate our infill development in the Sacramento region.

And we have to do that by reducing barriers to this kind of development. We've seen necessary transportation projects in the Sacramento region in disadvantaged communities stalled because of the high costs of utility infrastructure projects.

One of the first -- transportation nerdy stuff. But the first Class 4 elevated facility in Sacramento, fantastic project along the Franklin Boulevard corridor ballooned in price because of the utility infrastructure costs necessary to move that project forward.

We've seen our transit-oriented development communities slow to come onboard, because of these infill barriers. And then, of course, our low-income communities suffer the most from this lack of investment.

The program that we're talking about here today, and that SACOG is working on developing represents a bold strategy not only for achieving our greenhouse gas reduction goals, but also creating a significantly more livable region.

As a capital region, and one of the most
geographically and socially diverse communities in all of California, we have an opportunity to set an example for the rest of the state.

So thanks for your consideration.

CHAIR NICHOLS: Okay.

MR. BLOOM: Good afternoon. Keith Bloom with Mutual Housing California. We're a Sacramento based non-profit affordable housing developer. I'm here today to speak in support of the Green Means Go Program, and all the details that come with it suggested by Mr. Corless a few moments ago. It's obviously very important to incentivize the infill development in the Sacramento region.

From an affordable housing developer's perspective, and specifically in the Sacramento and the SACOG region, it has been very difficult for a group like mutual housing to develop infill housing. And simply due to the fact that there is a lack of funding.

There was hope beginning in about 2015 when the State Affordable Housing and Sustainable Communities Program was rolled out. We have worked on a handful of projects that have applied for those funds, and unfortunately haven't been successful in obtaining them.

The challenge has been is that the program is structured such that it tends to favor the communities in
the Bay Area, as well as in the Southern California area, because those programs -- those projects that are proposed include not only housing but also significant transportation projects. That's how the AHSC program is structured.

So the problem in the SACOG area is there are just not significant enough transportation projects to couple with the housing projects, infill projects to become competitive for those funds.

So obviously, the Green Means Go Program, at least in part, could potentially fill some of the funding gap that -- that is a result of our inability to get AHSC funds, not only from an affordable housing developer's perspective, but also a market rate developer's perspective. And I've been in those shoes before as well.

I think the Green Means Go Program should also do its best to encourage local jurisdictions to waive fees, to replace -- or, excuse me, to reduce parking, as much as possible, the required parking levels, increase allowed density, as well as building heights. Sometimes you'll see localities zoning will allow for a high -- relatively high level of density, but the building heights will be minimal, so you'll never be able to achieve those levels of density.

Finally, if it all possible, to encourage
localities, and as well us through the Green Means Go
Program to provide financial support for alternative
transportation modes.

    Thank you very much for your time.
CHAIR NICHOLS: Thank you.

    Well, to be continued. But I think this
highlights a region, but also an approach to moving
forward on some of these complicated issues. And
Sacramento was a good place to start, because we know
they've been putting themselves forward in a number of
ways to try to create an atmosphere here where this is a
region that will be a place that experiments happen. And
I -- I think this was a good place to being. I suspect
we'll be hearing from some other regions in days to come.

Did you want to make some final remarks?

BOARD MEMBER SERNA: Yes. Thank you, Chair
Nichols.

    I just wanted to again thank James and his
extraordinary capable staff on the work that they're
doing, that we were briefed on today. And I want to thank
Alberto with our local air district. I certainly want to
thank our CARB staff.

    I think they have erred on the stronger side of
empathy when it comes to -- to really understanding the
challenge -- the magnitude of the challenge that we have
as that region that has the greatest lift on this.

And what wasn't said by James during his presentation is the fact that with those six counties, those 22 cities, and his membership, you can imagine the kind of position that his city council people and members of boards of supervisors have, when perhaps they don't maybe share the same sense of wanting to respond to that challenge quite frankly.

And I think James has done an extraordinary job of tempering their concerns, at the same time being real responsive to what we all agree needs to be done, which is to be extremely innovative. So I just want to thank him on that particular point.

So thank you.

VICE CHAIR BERG: And Madam -- Madam Chair, before, I just also would like to throw in thank you very much. This was a really great presentation. It also was inspiring. So even though we don't have it all right yet, thank you very much for being willing to come out, let us know what you're doing. There's no question that the greater Sacramento area is doing very dynamic things. Let us know how we can help as well. And so I just wanted to thank you very much.

CHAIR NICHOLS: Okay.

We -- this concludes this item.
And before we adjourn, we always take public
comment on matters that are not actually before the Board. But I think there's some misunderstanding perhaps on the part of people that deal with us about the purpose of the public comment period here. It really is to put matters on the agenda that haven't been -- on our agenda, that is the Board's ability to know about something that they might not otherwise know about. It's not really a place to seek a solution or to get a resolution on something, because we agenda'd it, and we haven't dealt with it. We don't have a staff report. We don't have the ability to work on it.

And it's also not a time where people can trade, and come in, and make a longer presentation by piling up the number of people, and then collaborating on one bigger presentation. The first two items that were on our agenda -- on our list for the public comment period are people that we know have issues about the Truck Rules.

And Vice Chair Berg has volunteered to meet with them outside the meeting. And you can see her as soon as we adjourn and make arrangements for a time when you all can get together and have a chat about this issue that you're concerned about. And we will see if there's anything that can be done, that can a assist in this -- in this problem.
The other two we will take a three-minute comment from. But again, just to be clear, this is not a place where we come up with solutions or direct anything, other than if we need to ask the staff to prepare a response or to look into the matter further.

So yes.

MS. FERRARI: May I say something? We've been waiting all day to make three minutes of comments.

CHAIR NICHOLS: Well, I'm sorry, but you were given poor information about what this project is from.

MS. FERRARI: We called ahead -- we had -- we had called ahead to ask -- we had called ahead to ask about making public comment that is related to CARB. We called ahead of time --

CHAIR NICHOLS: Uh-huh.

MS. FERRARI: -- and they said we could speak for five minutes. And, you know, we called -- we drove all the way up to Sacramento, and we've been sitting here all day. So what would be the harm in making a three-minute -- reading of three-minute letter after, you know, everything we've done the comply with CARB. And after sitting here the entire day, and after we already --

CHAIR NICHOLS: I'm sorry. I just heard you say five minutes. I'm not going to cross-examine you about this --
MS. FERRARI: Well originally they told us --
CHAIR NICHOLS: -- but it's not true.
MS. FERRARI: Okay. No, when we call -- when we called they said five minutes. I'm just letting you know what they said when we called. We called and we were told that there was a public forum that we could speak about what was on our mind.
CHAIR NICHOLS: Yes.
MS. FERRARI: We asked ahead of time. And they had said five. I know I've heard recently it was three.
CHAIR NICHOLS: Correct.
MS. FERRARI: But, you know, I don't see the harm in us being able to make -- we came all the way up to Sacramento. We've been sitting here all day just to make some very -- comments that are very important to the trucking industry, and I don't understand what the harm would be.
CHAIR NICHOLS: I don't the harm either. I also don't see, frankly, that you're going to get the resolution that you want.
MS. FERRARI: Okay. That's okay. But could I have a quick three minutes?
CHAIR NICHOLS: We will let you speak for three minutes, and we'll let everybody else speak for three minutes too.
MS. FERRARI: Okay. So I'm on top, so should I get started.

CHAIR NICHOLS: So start now.

Yes, thank you.

MS. FERRARI: Good afternoon. My name is Debbie Ferrari. I've been in the trucking industry for 37 years. I represent the California Coalition of DMV Motor Carrier Permit Holders. I'm here today to let every member of the CARB Board know that we have -- we must have your help with an urgent situation.

I'm talking about the bill introduced by the State Assembly bill AB 5. The author and supporters of the bill have stated the bill could codify the Supreme Court decision known as the Dynamex ABC Ruling verbatim.

Why are we asking CARB Board for help?

The vehicles ruled on the Dynamex decision were cars. They weren't commercial vehicles. If it's codified verbatim, it would literally put every owner/operator in the state out of business. So this is critical.

Many hiring entities, such as the one that I work for acted as enforcers on behalf of CARB for a long time, because of the severely delayed enforcement mechanism. We, who followed the law, told owner/operators that we would not hire them, unless they would make a great financial sacrifice so that they would meet the new law.
Recently, I heard a speech given by an Assembly Member about CARB. He stated that CARB was acting as an adversary to freight rather than as a partner to freight. He said it must change. What's freight? Freight is trucking. And a lot of trucking is performed by legitimate owner/operators.

Supporters of AB 5 only refer to illegitimate owner/operators when they justify the bill. Many legitimate owner/operators are currently hauling out fire debris, doing levee repair, paving, and hauling out for basements. It's your chance to be a partner to freight, if that freight is meeting California law.

Please do it because it's ethical. Do it because owner/operators crushed their old trucks for you. And please do it, because many of these small businesses have received grants. And those grants require they stay in business for a certain period. So if the State puts them out of business, they will not be able to comply with the terms of your grant. I'll let you go after that.

CHAIR NICHOLS: Thank you.

MR. DE LA TORRE: Can I -- just a clarification.

CHAIR NICHOLS: Appreciate your comment.

We have a -- wait. Excuse me, ma'am. You can stay and have -- answer a question.

BOARD MEMBER DE LA TORRE: AB 5 is prospective
legislation. It's -- it hasn't been signed.

MS. FERRARI: It's on the Assembly -- it's on the floor right now, but the final wording -- but they've said that they're looking at codifying the ruling verbatim, but we're trying to get them to amend it.

BOARD MEMBER DE LA TORRE: Who -- and whose bill is it?

MS. FERRARI: It's Assembly Member Gonzalez, AB 5. And we're trying to get them to make an amendment, so that if everyone follows the laws of the State of California including the CARB law --

BOARD MEMBER DE LA TORRE: Okay. I just wanted clarify. It wasn't law. It's just a bill.

MS. FERRARI: Well, they're saying that it's technically the law. We're all out of business. But at this point, we won't -- it won't really be potentially acted upon until it gets codified. So we're trying to get an amendment, so that we can legally stay in business --

BOARD MEMBER DE LA TORRE: I understand.

MS. FERRARI: -- so we can repay the CARB grants.

BOARD MEMBER DE LA TORRE: Having been a legislator, I can tell you it's not going to happen tomorrow. It's going to be something that's going to --

MS. FERRARI: I've been working on it --

BOARD MEMBER DE LA TORRE: -- take probably the
whole year.

MS. FERRARI: Okay.

BOARD MEMBER DE LA TORRE: And so it's just
something we'll be monitoring. We can't do anything about
what they do over there. Well, one of us can.

(Laughter.)

MS. FERRARI: We've been working on it. We'd
appreciate it if you'd put a word in for us, because, you
know, the expenditures and you know what we went through,
and you know the trucks that were crushed, and, you know,
the grants that were taken out.

BOARD MEMBER DE LA TORRE: All we can do --
MS. FERRARI: We need to get a word in.
CHAIR NICHOLS: We will react --
BOARD MEMBER DE LA TORRE: All we can do is react
to them asking for technical assistance. So obviously, we
will do that.

MS. FERRARI: I don't know if they're going to
ask you. There's -- might be a disconnect.
BOARD MEMBER DE LA TORRE: No, they're -- they
usually do.

MS. FERRARI: Okay. Well, I've been working on
it since April, and it's tiring.

(Laughter.)

BOARD MEMBER DE LA TORRE: Okay. Sorry.
CHAIR NICHOLS: All right. And I'm sorry you spent the day waiting, so --

MS. FERRARI: Thank you.

CHAIR NICHOLS: But appreciate that you communicated with us, anyway.

BOARD MEMBER DE LA TORRE: Yes. Thank you for coming.

CHAIR NICHOLS: Really.

MS. FERRARI: Thank you.

BOARD MEMBER MITCHELL: But while CARB can't act on it, some of us who are on the Board can.

CHAIR NICHOLS: All right. Denis Van Dera, is he here -- is that you? You're done.

Okay. Thank you.

Paul Dyson from Rail Propulsion systems. Are you here?

Another person who signed up for a three-minute comment.

What about Phoebe Seaton on AB 617. You're here. I see you.

Hi.

MS. SEATON: Phoebe Seaton again, Leadership Counsel for Justice and Accountability.

CHAIR NICHOLS: You have been here all day, but you've spoken twice already.
(Laughter.)

MS. SEATON: I know. I get my money's worth. And I won't even take my three minutes. I just wanted to -- totally message taken that 617 is very much on conscience and on your agenda. And I believe it might be agendized for next meeting. So we look forward to a further conversation at that point.

Just wanted to highlight a couple points. Really wanted to say a special thanks to several staff members who have been working diligently and going way beyond the call of duty to work with community members, and I know in the Eastern Coachella Valley and Fresno where we work listening to kind of concerns and doing their best to broker better relationships locally.

On the concern side, our concern, we worked very, very, very hard with the steering committee to come up with a census -- consensus agreement around boundaries that would incorporate some of the most polluting industries in Fresno. And there's been some kind of recent pushback from the District. I can't -- and I could overstate maybe, but I can't think of how I can overstate the importance of including within the boundary -- the 617 boundary in Fresno those -- the operations and land uses that are most relevant to achieving the emissions goals.

And we, again, look forward to CARB, and staff,
and the Board and staff working with the community members to make the steering committee's kind of really -- work a reality.

CHAIR NICHOLS: Thank you. Thanks for staying and thanks for the comment. And 617 is very important to all of us. It really is a new way of doing business with communities. And so it's gratifying to hear that our staff is having some success in terms of building the relationships. And we'll see where this all goes. But so far, it's looking very promising.

So thank you.

BOARD MEMBER GIOIA: Madam Chair?

CHAIR NICHOLS: Yes.

BOARD MEMBER GIOIA: Can I just make a comment, since I spent much of much Saturday --

CHAIR NICHOLS: You have been using a lot of your time too.

BOARD MEMBER GIOIA: -- at a committee summit in Richmond, the city I live in and represent. We had an AB 617 community summit. And in the Bay Area, just for those who are interested in other regions of the state, we've decided to approach the selection of the steering committee a bit differently. Rather than the Air District selecting the members of the steering committee, we basically put together a community summit with co-leads
and a design team of community members. And so the community summit is developing the process to select the steering committee.

So the steering committee won't be picked by us on the Air Board or Air District. It will be picked by the community through a process developed by the community. So it's unique. We're learning as we go along. And so if you want to follow that process, you're welcome to do that.

CHAIR NICHOLS: Okay. I think that actually does conclude all of the business before us today. So thanks to all for being here. And it -- good discussion, and looking forward to our next meeting in March.

I won't be with you in March, but Sandy Berg will be chairing the Board meeting. I will be in -- actually, the on the day of the Board meeting I will be in Italy for a meeting with EU implementers of their Cap-and-Trade system. We have convened all the jurisdictions in the world that have Cap-and-Trade Programs, including China, to get together and talk about how we're doing, and ways to make these programs work better. So that's exciting.

And then from there I'm heading to Cairo for an actual vacation, which I scheduled before -- before I knew I was going to be continuing on the Board.

(Laughter.)
CHAIR NICHOLS: So that's my update.

BOARD MEMBER RIORDAN: Good for you. All right.

CHAIR NICHOLS: But we'll -- I'll see you in April.

Thanks, everybody.

We're adjourned.

(Thereupon the Air Resources Board meeting adjourned at 4:02 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 3rd day of March, 2019.

JAMES F. PETERS, CSR
Certified Shorthand Reporter
License No. 10063