APPEARANCES

BOARD MEMBERS:
Ms. Mary Nichols, Chair
Ms. Sandra Berg, Vice Chair
Mr. John Eisenhut
Senator Dean Florez
Supervisor John Gioia
Ms. Judy Mitchell
Mrs. Barbara Riordan
Supervisor Phil Serna
Dr. Alex Sherriffs
Ms. Diane Takvorian

STAFF:
Mr. Richard Corey, Executive Officer
Dr. Alberto Ayala, Deputy Executive Officer
Ms. Edie Chang, Deputy Executive Officer
Mr. Kurt Karperos, Deputy Executive Officer
Ms. Ellen Peter, Chief Counsel
Ms. La Ronda Bowen, Ombudsman
Ms. Emily Wimberger, Chief Economist
Ms. Analisa Bevan, Assistant Division Chief, Emission Compliance, Automotive Regulations, and Science Division(ECARS)
Mr. Pippin Brehler, Senior Attorney, Legal Office
APPEARANCES CONTINUED

STAFF:

Mr. Joe Calavita, Staff Air Pollution Specialist, Mobile Source Control Division (MSCD)

Mr. Michael Carter, Assistant Division Chief, MSCD

Mr. David Chen, Manager, Advanced Emission Control Strategies Section, MSCD

Mr. Daniel Hawelti, Air Resources Engineer, On-Road Heavy-Duty Diesel Section, MSCD

Ms. Kim Heroy-Rogalski, Branch Chief, Mobile Source Regulatory Development Branch, MSCD

Ms. Alexandra Kamel, Attorney, Legal Office

Ms. Deborah Kerns, Senior Attorney, Legal Office

Mr. Jack Kitowski, Division Chief, MSCD

Mr. Stephan Lemieux, Manager, On-Road Heavy-Duty Diesel Section, MSCD

Ms. Renee Littaua, Manager, Strategic Planning and Development Section, MSCD

Ms. Lisa Macumber, Manager, Innovative Light-Duty Strategies, MSCD

Ms. Karen Magliano, Division Chief, AQPSD

Ms. Lucina Negrete, Chief, Innovative Strategies Branch, MSCD

Mr. Andrew Panson, Staff Air Pollution Specialist, Innovative Light-Duty Strategies Section, MSCD

Mr. Alex Santos, Staff Air Pollution Specialist, On-Road Heavy-Duty Diesel Section, MSCD

Ms. Maritess Sicat, Chief, Heavy-Duty Off-Road Strategies Branch, MSCD
A P P E A R A N C E S  C O N T I N U E D

STAFF:

Mr. Webster Tasat, Manager, Central Valley Air Quality Planning Section, Air Quality Planning and Science Division (AQPSD)

Mr. Jon Taylor, Assistant Division Chief, AQPSD

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

ALSO PRESENT:

Mr. Fraser Atkinson, GreenPower Bus

Mr. John Boesel, CALSTART

Mr. Nico Bouwkamp, California Fuel Cell Partnership

Dr. Rasto Brezny, Manufacturers of Emission Controls Association

Mr. Chris Brown, Feather River Air Quality Management District

Mr. Manuel Cunha, Jr., Nisei Farmers League

Mr. Todd De Young, San Joaquin Valley Air Pollution Control District

Ms. Janet Dietzkamei, Asthmatics of San Joaquin Valley

Dr. Don Gaede, Fresno Madera Medical Society

Ms. Genevieve Gale, Young Fresnans for the Environment

Mr. Douglas Gearhart, Lake County Air Quality Management District

Mr. Larry Greene, Sacramento Metropolitan Air Quality Management District

Ms. Virginia Gurrola, City Council Member, City of Porterville
ALSO PRESENT:

Mr. Kevin Hamilton, Central California Asthma Collaborative

Ms. Jennifer Hanshew, California Association of School Transportation Officials

Mr. Henry Hogo, South Coast Air Quality Management District

Mr. Roger Isom, Western Agricultural Processors Association

Mr. Ryan Kenny, Clean Energy

Mr. Thomas Lawson, California Natural Gas Vehicle Coalition

Dr. Janelle Lee

Mr. Rudy Le Flore, Sunline Transit

Mr. Rey Leon, Valley LEAP, Green Raiteiros

Mr. Jamie Levin, Center for Transportation & the Environment

Mr. Bill Magavern, Coalition for Clean Air

Mr. Christopher Miller, Advanced Engine Systems Institute

Ms. Colby Morrow, Southern California Gas Company

Mr. David Norris, Lakeport Unified School District

Mr. Chris Peeples, Alameda-Contra Costa Transit District

Mr. Nicholas Pocard, Ballard Power Systems

Mr. Seyed Sadredin, San Joaquin Valley Air Pollution Control District

Mr. Jeff Serfass, California Hydrogen Business Council

Mr. Tim Shannon, Twin Rivers Unified School District
A P P E A R A N C E S C O N T I N U E D

ALSO PRESENT:

Ms. Sarah Sharpe, Central California Asthma Collaborative

Mr. Joseph Steinberger, Bay Area Air Quality Management District

Mr. Milt Stowe, Mayor, City of Porterville

Mr. Richard Teebay, County of Los Angeles

Mr. Cliff Thorne, Orange County Transportation Authority

Mr. Eileen Tutt, California Electric Transportation Coalition

W. James Wagoner, Butte County Air Quality Management District

Mr. David Warren, New Flyer of American

Ms. Dolores Weller, Central Valley Air Quality Coalition
### INDEX

<table>
<thead>
<tr>
<th>Item 16-9-1</th>
<th>PAGE</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</td>
<td>2</td>
</tr>
<tr>
<td>Item 16-9-1</td>
<td>3</td>
</tr>
<tr>
<td>Vice Chair Berg</td>
<td>3</td>
</tr>
<tr>
<td>Motion</td>
<td>4</td>
</tr>
<tr>
<td>Vote</td>
<td>4</td>
</tr>
<tr>
<td>Item 16-9-2</td>
<td>4</td>
</tr>
<tr>
<td>Vice Chair Berg</td>
<td>4</td>
</tr>
<tr>
<td>Executive Officer Corey</td>
<td>5</td>
</tr>
<tr>
<td>Staff Presentation</td>
<td>7</td>
</tr>
<tr>
<td>Dr. Brezny</td>
<td>27</td>
</tr>
<tr>
<td>Mr. Lawson</td>
<td>29</td>
</tr>
<tr>
<td>Board Discussion and Q&amp;A</td>
<td>30</td>
</tr>
<tr>
<td>Motion</td>
<td>32</td>
</tr>
<tr>
<td>Vote</td>
<td>32</td>
</tr>
<tr>
<td>Item 16-9-3</td>
<td>37</td>
</tr>
<tr>
<td>Chair Nichols</td>
<td>37</td>
</tr>
<tr>
<td>Executive Officer Corey</td>
<td>38</td>
</tr>
<tr>
<td>Staff Presentation</td>
<td>39</td>
</tr>
<tr>
<td>Dr. Brezny</td>
<td>61</td>
</tr>
<tr>
<td>Board Discussion and Q&amp;A</td>
<td>63</td>
</tr>
<tr>
<td>Motion</td>
<td>66</td>
</tr>
<tr>
<td>Vote</td>
<td>66</td>
</tr>
<tr>
<td>Item 16-9-4</td>
<td>67</td>
</tr>
<tr>
<td>Chair Nichols</td>
<td>67</td>
</tr>
<tr>
<td>Executive Officer Corey</td>
<td>67</td>
</tr>
<tr>
<td>Staff Presentation</td>
<td>67</td>
</tr>
<tr>
<td>Board Discussion and Q&amp;A</td>
<td>83</td>
</tr>
<tr>
<td>Mr. Hogo</td>
<td>84</td>
</tr>
<tr>
<td>Mr. Miller</td>
<td>86</td>
</tr>
<tr>
<td>Dr. Brezny</td>
<td>88</td>
</tr>
<tr>
<td>Mr. Boesel</td>
<td>93</td>
</tr>
<tr>
<td>Board Discussion and Q&amp;A</td>
<td>94</td>
</tr>
</tbody>
</table>
# INDEX CONTINUED

| Item 16-9-5 | Chair Nichols | 96 |
| Item 16-9-5 | Executive Officer Corey | 99 |
| Item 16-9-5 | Staff Presentation | 100 |
| Item 16-9-5 | Mr. Sadredin | 117 |
| Item 16-9-5 | Board Discussion and Q&A | 142 |
| Item 16-9-5 | Ms. Gale | 150 |
| Item 16-9-5 | Mr. Hamilton | 152 |
| Item 16-9-5 | Ms. Dietzkamei | 154 |
| Item 16-9-5 | Dr. Lee | 156 |
| Item 16-9-5 | Ms. Weller | 158 |
| Item 16-9-5 | Mr. Magavern | 160 |
| Item 16-9-5 | Mr. Cunha | 162 |
| Item 16-9-5 | Mr. Isom | 165 |
| Item 16-9-5 | Ms. Sharpe | 168 |
| Item 16-9-5 | Board Discussion and Q&A | 170 |
| Item 16-9-5 | Motion | 186 |
| Item 16-9-5 | Vote | 189 |

<p>| Item 16-9-6 | Chair Nichols | 191 |
| Item 16-9-6 | Executive Officer Corey | 192 |
| Item 16-9-6 | Staff Presentation | 193 |
| Item 16-9-6 | Board Discussion and Q&amp;A | 204 |
| Item 16-9-6 | Mr. De Young | 211 |
| Item 16-9-6 | Mr. Greene | 213 |
| Item 16-9-6 | Mr. Hogo | 214 |
| Item 16-9-6 | Mr. Brown | 218 |
| Item 16-9-6 | Mr. Gearhart | 221 |
| Item 16-9-6 | Mr. Steinberger | 224 |
| Item 16-9-6 | Mr. Wagoner | 226 |
| Item 16-9-6 | Mr. Serfass | 227 |
| Item 16-9-6 | Mr. Le Flore | 229 |
| Item 16-9-6 | Mr. Bouwkamp | 230 |
| Item 16-9-6 | Mr. Norris | 233 |
| Item 16-9-6 | Ms. Morrow | 234 |
| Item 16-9-6 | Mr. Kenny | 236 |
| Item 16-9-6 | Mr. Lawson | 238 |
| Item 16-9-6 | Mr. Atkinson | 242 |
| Item 16-9-6 | Porterville City Council Member Gurrola | 245 |
| Item 16-9-6 | Porterville City Mayor Stowe | 247 |
| Item 16-9-6 | Mr. Hamilton | 248 |
| Item 16-9-6 | Mr. Teebay | 251 |
| Item 16-9-6 | Ms. Tutt | 252 |
| Item 16-9-6 | Mr. Shannon | 254 |
| Item 16-9-6 | Ms. Hanshew | 256 |</p>
<table>
<thead>
<tr>
<th>Name</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mr. Levin</td>
<td>257</td>
</tr>
<tr>
<td>Mr. Peeples</td>
<td>260</td>
</tr>
<tr>
<td>Mr. Thorne</td>
<td>263</td>
</tr>
<tr>
<td>Mr. Warren</td>
<td>264</td>
</tr>
<tr>
<td>Mr. Pocard</td>
<td>266</td>
</tr>
<tr>
<td>Mr. Magavern</td>
<td>268</td>
</tr>
<tr>
<td>Mr. Leon</td>
<td>271</td>
</tr>
<tr>
<td>Board Discussion and Q&amp;A</td>
<td>274</td>
</tr>
<tr>
<td>Motion</td>
<td>275</td>
</tr>
<tr>
<td>Board Discussion and Q&amp;A</td>
<td>276</td>
</tr>
<tr>
<td>Vote</td>
<td>276</td>
</tr>
</tbody>
</table>

Public Comment 289

Adjournment 291

 Reporter's Certificate 292
VICE CHAIR BERG: Good morning, everyone. Chair Nichols is on her way here. And we thought, in the interests in time, that we would go ahead and get started. She's flying in this morning. My understanding is that she has landed and on her way. And so we will be expeditious by starting, and then, of course, once she arrives she will take over the meeting.

So good morning. I'm Sandy Berg, Vice Chair. And I'd like to bring the October 20th, 2016 public meeting of Air Resource Board will come to order.

Will you please stand with me for the pledge of allegiance.

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

VICE CHAIR BERG: Thank you.

Madam Clerk, will you call the roll

BOARD CLERK HARLAN: Dr. Balmes?

Mr. De La Torre?

Mr. Eisenhut?

BOARD MEMBER EISENHUT: Here.

BOARD CLERK HARLAN: Senator Florez?

BOARD MEMBER FLOREZ: Here.

BOARD CLERK HARLAN: Supervisor Gioia?

BOARD MEMBER GIOIA: Here.
BOARD CLERK HARLAN:  Ms. Mitchell?
BOARD MEMBER MITCHELL:  Here.
BOARD CLERK HARLAN:  Mrs. Riordan?
BOARD MEMBER RIORDAN:  Here.
BOARD CLERK HARLAN:  Supervisor Roberts?
BOARD MEMBER SERNA:  Here.
BOARD MEMBER SERNA:  Here.
BOARD CLERK HARLAN:  Dr. Sherriffs?
BOARD MEMBER SHERRIFFS:  Here.
BOARD CLERK HARLAN:  Professor Sperling?
BOARD MEMBER TAKVORIAN:  Here.
BOARD CLERK HARLAN:  Vice Chair Berg?
VICE CHAIR BERG:  Here.
BOARD CLERK HARLAN:  Chair Nichols?
VICE CHAIR BERG:  Thank you very much.
First, I'd like to start the meeting by saying
thank you to the San Joaquin Valley Air District. It's
wonderful to be back, and we really appreciate you hosting
us and being so gracious and organizing, so that we could
have our meeting here today. And we thank you Seyed and
your group, and we're really looking forward to a very
productive day. And great to see you.
I have a few announcements before we get started
this morning. Anyone wishing to testify, should fill out a speak -- request to speak card, and that's available outside the Board room. Please turn it into our Board assistant or the clerk of the Board prior to the commencement of the item.

Also, we'd like to encourage you to be aware that we will impose a 3 minute time limit for each of the speakers. Please state your first and last name when you come up to the podium, which is here on my right. Put your testimony in your own words, as it is easier for the Board to follow. And we encourage you to go to your main points, because 3 minutes goes by very quickly. If you have a written submission, written comments, they have already been submitted, and the Board members have had an opportunity to review those.

For safety reasons, please note that the emergency exits are to the rear and side of the room. In the event of a fire alarm, we're required to evacuate this room immediately, and go out to the parking lot gate to the open -- empty open area to the west of the building. When the all-clear signal is given, we'll return to the hearing room and resume the meeting.

So with that, I think we'll go ahead with our first item. Our first item is Agenda Item 16-9-1. It is a consent item, and the only consent item we have this
morning. So I'd like to ask the Board clerk if any
witnesses have signed up?

BOARD CLERK HARLAN: (Shakes head.)

VICE CHAIR BERG: Seeing none, I'd like to ask
the Board members would anyone like to take this consent
item off of the consent calendar?

Seeing none, I will close the record on this
agenda item. Having the Board members had an opportunity
to review the resolution, do I have a motion and a second
to adopt?

BOARD MEMBER RIORDAN: Madam Chairman, I'd be
happy to approve the staff recommendations and the items
that go with it.

VICE CHAIR BERG: Thank you. A second?

BOARD MEMBER EISENHUT: Second.

VICE CHAIR BERG: Thank you.

All in favor?

(Ayes.)

(Chair Nichols not present.)

VICE CHAIR BERG: Opposed?

Abstained?

Carried.

The next item on today's agenda, the proposed
innovative technology regulation would encourage voluntary
erly deployment of innovative new truck and bus
technology that California needs to meet its air quality and climate goals by providing these technologies with targeted short-term ARB certification flexibility.

Recent news around the in-use emission performance of certain light-duty vehicles underscores the importance of ARB's engine and vehicle certification program, and continued need for a rigorous certification program to validate vehicle emission compliance and enforce emission standards.

I understand staff is not proposing any major changes to how California evaluates or certifies advanced technologies. Rather, this program proposes a regulation intended to encourage near-term technology innovations by reducing initial resource and engineering challenges inherent in certifying a new truck or bus technology for the first time, while still maintaining the integrity of ARB's certification process.

To the extent that staff proposals encourages additional early deployment and development and deployment of zero and near zero truck and bus technology, it would complement ARB's low carbon transportation and other funding programs and enable development of more robust technology-advancing regulations in the years to come.

Mr. Corey, would you please introduce this item?

EXECUTIVE OFFICER COREY: Yes. Thanks, Vice
Chair Berg. 2016 has been a defining year for illustrating what will be needed for California to meet its air quality and climate goals. This summer, we released the California Sustainable Freight Action Plan to transition to cleaner, more efficient transport system. And last month, we updated the Board on the State's proposed control measures, which are needed to attain more health protective federal air quality standards in the San Joaquin Valley, South Coast, and throughout California.

And early next year, staff will present to the Board its draft update to the Climate Change Scoping Plan, our strategy to meet California's 2030 climate goals recently affirmed by the legislature, and make progress towards our 2050 greenhouse gas targets.

The common thread through each of these plans is the critical need for California to transition to a more efficient zero and near zero emission technologies across all sectors, including the truck and bus sector.

The proposed regulation before you today would facilitate this needed technology transformation by encouraging manufacturers to develop and deploy key innovative truck and bus technologies before they're required by regulation. The proposed innovative technology regulation has been an interdivisional effort on ARB certification, regulatory development, and air...
quality planning staff to develop what is a balanced and
creative approach to address potential technology
certification barriers while maintaining and, in some
cases, enhancing our ability to ensure these technologies
achieve their anticipated air quality benefits.

Now, with that, I'm going to ask Joe Calavita of
the Mobile Source Control Division to give the staff
presentation.

Joe.

(Thereupon an overhead presentation was
presented as follows.)

AIR POLLUTION SPECIALIST CALAVITA: Thank you,
Mr. Corey.

Good morning, Vice Chair Berg and members of the
Board.

I'll begin this morning's presentation with some
background on the need for the proposed innovative
technology regulation before describing the proposed
regulation's individual elements.

--o0o--

AIR POLLUTION SPECIALIST CALAVITA: The proposed
innovative technology regulation would provide innovative
truck and bus technologies that California needs to meet
its air quality and climate goals with short-term targeted
ARB certification flexibility in order to encourage and
enable their early deployment.

This proposed certification flexibility has been structured to address each technology's potential initial certification challenges, while maintaining the ability to ensure anticipated emission benefits are achieved in use.

Let's start with a brief overview of ARB's engine and vehicle certification program and why it's important.

--o0o--

AIR POLLUTION SPECIALIST CALAVITA: ARB certification requires that a new engine or vehicle demonstrate compliance each model year with the applicable emission standard before it may be sold in California. Certification requires rigorous emission testing, and on-board diagnostics, useful life, warranty and other requirements geared to ensure the vehicle does not exceed emission limits when new and as it ages.

Certification defines a reliable scientifically-sound process for evaluating vehicle and engine emissions, enabling development, implementation, and enforcement of significantly lower vehicle emission limits over time. Vehicle certification has provided the technical foundation for California to achieve significant reductions in smog and unhealthy air days, even as California's population, vehicle miles traveled, and economy have grown.
As vehicle technology has advanced, our certification program has evolved as well. One of our newest certification elements, on-board diagnostics, is a particularly critical tool for ensuring in-use vehicle emissions remain low.

--o0o--

AIR POLLUTION SPECIALIST CALAVITA: On-board diagnostics refers to sophisticated and interrelated software and sensors that monitor virtually every component on a vehicle that can cause excess emissions, and provides owners with an early warning of malfunctions by way of a dashboard check engine light. By providing early warning of engine and after-treatment system malfunctions, OBD not only controls in-use emissions, but also protects vehicle consumers by helping them identify minor problems before they require major repairs.

OBD has been common in passenger cars since late 1990's and was phased in for heavy-duty diesel engines between 2010 and 2013. Alternative fuel engines are exempt from OBD requirements until 2018, due in part to their low-anticipated sales volumes. So you may be wondering how OBD fits into today' proposals?

--o0o--

AIR POLLUTION SPECIALIST CALAVITA: One thing we've learned as a greater diversity of advanced vehicle
technologies apply to ARB for certification, is that some certification requirements, particularly OBD compliance requirements, can pose initial engineering challenges. OBD is one of greatest assets, but it is often the most challenging certification requirement for new technologies.

The cost and engineering resources required to demonstrate OBD compliance can also deter manufacturers from choosing to introduce innovative new truck and bus technology, particularly if fleet demand for the new technology is uncertain. While we've made significant progress in reducing emissions and improving air quality, we still have a long way to go to ensure clean healthful air for all residents, and a stable climate for future generations.

As indicated by Executive Officer Corey, achieving our air quality and climate goals will require that California accelerate its transition to the next generation of cleaner more efficient truck and bus technologies. So how would this proposed regulation help us achieve this transition?

--o0o--

AIR POLLUTION SPECIALIST CALAVITA: The proposed innovate technology regulation includes 2 elements. The first, certification flexibility for new heavy-duty
engines would cover the 3 categories of engines identified here. Truck and bus engines meeting California's optional low NOx emission standards, high efficiency heavy-duty engines, which I'll define later in the presentation, and engines certified for insulation in a heavy-duty hybrid truck or bus.

When certifying these engines with ARB to demonstrate compliance with criteria pollutant emission standards, a manufacturer would be eligible to receive this proposed regulation's flexibility.

This proposal would not provide flexibility from existing engine emission testing, warranty, or other core certification requirements not otherwise specified in the staff proposal.

The second part of the proposed regulation defines certification and installation procedures for hybrid after-market conversion systems for trucks and buses. These proposed hybrid conversion system certification requirements would allow installation of an after-market kit that converts an existing non-hybrid truck or bus into a hybrid. These proposed hybrid conversion system requirements would replace ARB's case-by-case evaluation of such systems, with proposed requirements structured to encourage and enable early deployment of hybrid conversion systems.
The proposal before you today was developed with the support and expertise of ARB's heavy-duty on-board diagnostics and certification teams, as well as input from technology manufacturers and other stakeholders to help us struck the appropriate balance between certification flexibility, and encouraging early deployment of innovative truck and bus technologies.

--o0o--

AIR POLLUTION SPECIALIST CALAVITA: Staff's proposal primarily provides short-term certification flexibility geared to address each technology's potential certification challenges. By encouraging manufacturers to bring advanced truck and bus technologies to market before required to do so by regulation, the proposed certification flexibility is intended to help accelerate the commercial availability of these technologies.

This regulation would work synergistically with Greenhouse Gas Reduction Fund and other incentive programs enabling us to fund a greater diversity of clean truck and bus technologies.

Early technology deployment would also enable more effective technology advancing rule-making. Later today, you'll get an update on the need to adopt mandatory low-NOx engine emission standards in order to attain federal ozone standards in the South Coast and particulate
matter standards here in the valley. A greater diversity of optional low NOx truck and bus engines on the market, in multiple sizes and vocations, would enable ARB to adopt a more robust mandatory low-NOx engine standard.

Later today, you'll also get an update on the final federal phase 2 truck and bus greenhouse gas standards, and the need for California to achieve additional GHG reductions beyond phase 2 to meet our climate targets. The proposed innovative technology regulation would help advance this goal by encouraging early development and deployment of more efficient heavy-duty engines and hybrids that go beyond what is required by federal phase 2 standards.

The next several slides provide staff's proposal for each of the proposed innovative technologies.

--o0o--

AIR POLLUTION SPECIALIST CALAVITA: I'll start with an overview of proposed certification flexibility for the 3 innovative heavy-duty engine categories: Optional low-NOx engines, high-efficiency engines, and heavy-duty hybrids. For the purposes of this proposal, a heavy-duty engine refers to an engine certified for use in a truck or bus weighing at least 14,000 pounds.

These could include an engine installed in a delivery truck, work truck, drayage truck, tractor
trailer, shuttle, school, or transit bus, or other heavy-duty vehicle.

--o0o--

AIR POLLUTION SPECIALIST CALAVITA: First, let's look at engines meeting California's optional low-NOx emission standards, which are up to 90 percent lower for NOx than engines meeting the existing mandatory NOx standard.

The proposed innovative technology regulation would provide a participating optional low-NOx engine with very modest certification flexibility, since we believe these engines are unlikely to face significance OBD compliance challenges. Engines would generally be required to have fully functional OBD systems with flexibility tailored primarily to reduce initial certification costs.

The proposal would also allow an assigned engine deterioration factor be used instead of requiring the engine be aged over its useful life to demonstrate deteriorated engine emissions. Use of an assigned engine deterioration factor is common practice when certifying engines from small volume manufacturers, and can significantly reduce the time and resources required to certify a new engine.

Each manufacturer would be eligible for up to 3
model years of certification flexibility, through the
model years identified on this slide. These proposed
eligible ability sunset dates reflect the potential
technology readiness of spark ignition alternative fuel
low-NOX engines versus compression ignition diesel low-NOX
ingines, and provide an opportunity for manufacturers to
bring both to market in advance of a potential mandatory
low-NOX engine standard in the 2024 time frame.

Finally, to be eligible for the proposed
certification flexibility, a low-NOX engine must go beyond
what is required by the applicable mandatory NOx standard
for a given model year. That means low-NOX engines
receiving this flexibility, when certifying with ARB,
would be ineligible to participate in NOx emission
averaging, banking, or trading programs.

--o0o--

AIR POLLUTION SPECIALIST CALAVITA: Staff's
proposal would also provide certification flexibility for
a high efficiency engine, which is defined as meeting this
proposed regulation's new optional low CO2 engine emission
standards. These proposed new optional low CO2 engine
emission standards represent a 15 percent CO2 reduction
relative to a typical 2017 diesel engine, and are more
than 10 percent lower than what is required in the 2027
model year by federal phase 2 GHG standards.
The proposed optional low CO2 engine emission
standards have been informed by ARB's recently completed
technology assessments, and represent what we believe
could potentially be achieved by more efficient camless or
opposed piston engine architecture over the next decade.

While engine-efficiency gains of this magnitude
may be challenging, the optional low CO2 standards are
intended to set an aspirational goal for manufacturers,
and could be transformational, particularly in the
line-hall truck sector, which is responsible for the bulk
of heavy-duty truck emissions.

--o0o--

AIR POLLUTION SPECIALIST CALAVITA: And engine
meeting the optional low CO2 emission standards would be
eligible for up to 6 model years to transition to full OBD
compliance through 2027. This proposed extended
compliance timeline reflects the potential initial
engineering challenges in developing OBD systems for what
could be a new more efficient engine architecture.

An engine meeting the proposed optional low CO2
standards would have CO2 emissions well below what is
required by phase 1 or phase 2 GHG standards. However, to
ensure the emission benefits of such an engine aren't
offset by a manufacturer's other higher emitting engines,
an optional low CO2 engine receiving the proposed
certification flexibility would be ineligible to participate in GHG emission averaging, banking, or trading programs.

This approach helps ensure this element of the proposed regulation encourages GHG reductions beyond what is required by phase 2 standards.

--o0o--

AIR POLLUTION SPECIALIST CALAVITA: Hybrid technology can also achieve GHG reductions beyond what is required by phase 2 standards. And also help pave the way for more advanced zero emission truck and bus technology. Unfortunately, demand for hybrid trucks and buses has been limited, potentially due to historically low fuel prices. Several vehicle manufacturers have discontinued production of heavy-duty hybrid trucks and buses and no plug-in hybrid trucks or buses are commercially available at this time. Unlike with passenger cars, where a single manufacturer is generally responsible for production of the entire vehicle, hybrid truck and bus manufacturer -- manufacturing is typically not vertically integrated, meaning the engine, hybrid driveline, and truck or bus chassis are often produced by different manufacturers.

This non-vertically integrated manufacturing structure makes it more difficult to optimize vehicle and emission performance and can create OBD compliance
challenges.

--o0o--

AIR POLLUTION SPECIALIST CALAVITA: In order to facilitate initial certification, a manufacturer would be eligible to phase in OBD compliance over up to 4 or up to 6 model years, depending upon whether or not the hybrid vehicle is capable of at least 35 miles of interrupt -- uninterrupted all-electric range.

The longer eligibility window for hybrids with significant all-electric range recognizes that there are no plug-in hybrid trucks or buses commercially available today, and the importance of robust plug-in hybrids in paving the way for zero emission truck and bus technology.

The 35 mile all-electric range threshold is based upon discussions with interested manufacturers regarding a hybrid truck's optimal all-electric range, given battery costs and the typical commercial vehicle's average daily mileage.

CO2 emission reductions from a hybrid certifying with the proposed flexibility would have to go beyond what is required by phase 1 or phase 2 GHG standards, and a vehicle could not participate in GHG emission averaging, banning, or trading programs.

--o0o--

AIR POLLUTION SPECIALIST CALAVITA: Heavy-duty
hybrids would have one additional requirements to be eligible for this regulation's proposed flexibility. Emission testing suggests that some hybrid trucks may emit more NOx in use than their non-hybrid counterparts. This may be due to insufficient integration of the heavy-duty engine and the hybrid driveline which are often produced by different manufacturers. ARB is funding additional research by the National Renewable Energy Laboratory to better understand the reason for higher than anticipated NOx emissions from some heavy-duty hybrids.

In the meantime, the proposed innovative technology regulation requires -- would require that a hybrid truck or bus must demonstrate no NOx, hydrocarbon, or carbon monoxide emission increase pursuant to supplemental chassis or vehicle-based emission testing to be eligible for the proposed certification flexibility.

Staff's proposal leverages advancements in portable emission measurement system, or PEMS, technology. To define regulatory test procedures for evaluating over-the-road emissions of a hybrid truck relative to its non-hybrid counterpart.

Proposed supplemental PEMS test procedures to evaluate in-use hybrid vehicle emissions are also intended to encourage development of vertically integrated and robust hybrid trucks and buses, and could inform future
efforts for a more holistic approach to heavy-duty vehicle emission certification and enforcement.

--o0o--

AIR POLLUTION SPECIALIST CALAVITA: Finally, there is one more category of potentially more efficient hybrid vehicle technology that would be eligible for the proposed regulation. Some technology manufacturers have approached ARB proposing to install a small off-road or light- or medium-duty engine in a plug-in heavy-duty truck or bus that would achieve significant all-electric range. These engines would not be connected to the drive shaft and would not directly propel the vehicle.

Instead, the engine would operate at steady state to recharge the truck or bus battery, which in turn would propel the vehicle. Some manufacturers argue that these smaller off-road or light-duty engines would be more efficient than a larger heavy-duty truck engine performing the same function.

The proposed innovate technology regulation would provide an interim certification pathway for such technology, allowing a manufacturer to phase in OBD compliance for a limited number of engines through 2024. These interim certification procedures are intended to enable this potential technology's market launch in the near term while informing development of permanent
certification criteria, if needed, in the long term.

---o0o---

AIR POLLUTION SPECIALIST CALAVITA: The second and final part of this proposed regulation would identify ARB requirements to allow an after-market manufacturer to convert a non-hybrid medium- or heavy-duty vehicle into a hybrid.

---o0o---

AIR POLLUTION SPECIALIST CALAVITA: As mentioned earlier, very few hybrid trucks and buses are commercially available from truck or bus manufacturers. And no commercial hybrid medium-duty vehicles, such as pick-up trucks or vans, are produced by vehicle manufacturers.

Hybrid conversion system manufacturers have stepped into this void by offering a variety of hybrid after-market systems to convert a certified non-hybrid truck or bus into a hybrid vehicle. Hybrid conversion systems can facilitate development of an early hybrid truck and bus market by enabling interested California fleets to purchase, evaluate, and become familiar with hybrid technology. Hybrid conversions can also help support a zero emission truck and bus market by promoting installation of charging infrastructure, training for fleet mechanics and other personnel, development of battery technology supply chains, and other dynamics.
Unfortunately, hybrid conversion systems face unique certification challenges, small volume conversion system manufacturers may lack OBD engineering expertise and may not have access to proprietary original vehicle data needed to demonstrate OBD system compliance. Hybrid conversion systems must also be carefully integrated with the original engine in order to ensure no emission increase from the original non-hybrid based vehicle.

This proposed regulation would address these challenges by allowing a conversion system manufacturer to comply with progressively more stringent certification requirements over time as its volumes and engineering expertise have the opportunity to grow.

This tiered approach mirrors existing ARB certification requirements for plug-in hybrid passenger car after-market conversions.

--o0o--

AIR POLLUTION SPECIALIST CALAVITA: This slide summarizes this flexible approach to hybrid conversion system certification requirements with preference given to conversion systems capable of at least 35 miles of uninterrupted all-electric range. Each conversion manufacturer would have the option to meet more modest tier 1 or tier 2 emission test, OBD, warranty, and other requirements to allow California sale and installation of
the associated tier 1 or tier 2 sales volumes.

For example, a manufacturer just entering the market with a hybrid conversion system that achieves no electric range could opt to certify to tier 1 requirements to enable sale of up to 10 units. Compliance with more stringent tier 2 requirements would allow that manufacturer to sell up to 500 units. While compliance with the most stringent tier 3 final certification requirements would have no associated sales volume limit.

The opportunity to certify a hybrid conversion system to the less stringent tier 1 or tier 2 requirements would sunset in 2022 conversions -- for conversion systems that are not capable of 35 miles all-electric range, and in 2025 for conversion systems that are capable of 35 miles all-electric range.

After these tier 1 and tier 2 sunset dates, any additional hybrid conversion systems would have to meet tier 3 requirements.

This approach is intended to enable conversion manufacturers the opportunity to enter the market in the near term, while requiring they meet the most robust feasible OBD, warranty, and other requirements as they develop the necessary engineering expertise and the market has an opportunity to mature.

--o0o--
AIR POLLUTION SPECIALIST CALAVITA: That concludes our presentation on staff's proposed innovative technology regulation. We've received some written comments regarding staff's proposal and will work with stakeholders on any necessarily related 15-day changes. These include the applicable hybrid conversion system evaporative emission requirements, required duty-cycle and performance metrics for hybrid technology emission testing, and other technical details, as well as minor clarifying editorial updates.

--o0o--

AIR POLLUTION SPECIALIST CALAVITA: In summary, the proposed innovative technology regulation is structured to encourage manufacturers to voluntarily develop and certify innovative truck and bus technologies by providing targeted, short-term certification flexibility.

Staff's proposal is intended to encourage a greater diversity of advanced trucks and buses -- truck and bus technology potentially eligible for funding programs, and enable development of more robust advanced technology rule-making.

We believe this is a balanced approach to help accelerate development and market launch of the next generation of cleaner, more efficient truck and bus
technology that California needs to meet its air quality and climate goals, while maintaining a robust and effective certification process.

We worked closely with interested manufacturers and other stakeholders in developing this proposed regulation over the past 2 years, with 3 public workshops and 12 technical work group meetings in forming today's proposal.

Should the Board adopt the proposed regulation, staff will also monitor its implementation, including the types and volumes of technology certified, and update the Board within the next 2 years.

So, in conclusion, we recommend the Board approve the proposed innovate technology regulation for adoption, and direct staff to work with stakeholders to address outstanding technical issues as part of 15-day changes.

That concludes our presentation, and we would be happy to answer any questions you may have.

CHAIR NICHOLS: Thank you. This is -- It's on. Okay. Good morning everybody, and thank you for that presentation Mr. Calavita. We have 2 witnesses who have signed up to speak. But before we call on them, I just want to say a word. And I apologize for having missed the opening. My plane landed on time at 8:55, but that was as soon as I could get up here.
So what I wanted to comment on, and perhaps this just will underscore what was already said, is the fact that this rule-making, which is a significant, though very carefully tailored, change in our certification procedures designed to recognize the tremendous need that we have for innovation in the area of truck and bus technology, to a large extent was the result of input from industry.

And I remember several years ago being approached by one of the major manufacturers of heavy-duty vehicles and engines with the suggestion that our regulations were a deterrent to companies that wanted to try new things, because the burden and cost of going through certification was so high that people wouldn't risk it for things that they thought they could prove out in real-world use, but there was not ever going to be an opportunity to do that. That the time that it took to do that was just too long.

Staff picked up on that suggestion and started working on it. And this is the result, as you've just heard, of this process. I suspect that there will be people who think that we're still not giving them as much scope as they would like, and probably others will be worried that we may be losing a little bit of our control over the process, and might possibly let something out there into the world that wasn't as good as it would have been if it had been through the -- all the stages that we
used to require of people.

My impression is that what we're doing here is something that strikes a very good balance. And so I just wanted to really commend the staff for doing it, because it has to feel, at least in the early stages of working on a project like this, that you're, you know, losing some degree of control at the same time you're trying to accomplish something.

And we -- you know, we pride ourselves on the fact that we are a regulatory agency and our job obviously is to protect the public health at every step of the way, but at the same time we're very conscious of the fact that we're in the business of promoting new and better technology. So I just think it's a really noteworthy product here, and I wanted to take a moment to comment and -- Mr. Eisenhut, did you have your hand raised?

BOARD MEMBER EISENHUT: No, no.

CHAIR NICHOLS: Oh, okay, sorry. I thought maybe you wanted to speak at this point.

Well, if there's no objection, we'll call the 2 witnesses and then we can go to Board discussion.

So first is Dr. Brezny from MECA. Good morning.

DR. BREZNY: Good morning. Morning, Chair Nichols and members of the Board. I'm Rasto Brezny the executive Director for the Manufacturers of Emission
Controls Association. And MECA represents manufacturers of innovative technologies for both greenhouse gas reductions, as well as criteria pollutant reductions. And we have a long track record and proven track record for commercializing these technologies. And we certainly support this proposal and thank staff for bringing forward a creative policy in order to incentivize some of these innovative technologies in order to get early emission reductions.

And I think it -- you know, when I attended the first workshop that Joe held on this item, I thought this was a very creative approach that could apply to other areas, other policies, for example, greenhouse gas reduction technologies that may deliver CO2 reductions in the real world, but may not be obvious on the certification cycle, and so forth. So I think this is a very creative approach and I'm really glad that ARB has taken this initiative.

So in 2013, ARB adopted voluntary low-NOx standards for heavy-duty engines. And today at least one manufacturer has certified a natural gas engine to these very low 0.02 gram NOx levels. Because of the added complexities of diesel emission controls, no diesel engine has yet been certified to the 0.02 gram level. However, we believe that the combination of the voluntary
standards, these flexibilities, and incent -- and financial incentives is a multi-pronged approach that can motivate engine manufacturers in order to optimize their engines for meeting both greenhouse gases and criteria pollutants.

So MECA has partnered with ARB on this test program to demonstrate that diesel engines, as well as natural gas engines can achieve 0.02 grams of NOx, and we'll hear more about that later today.

But I just want to, you know, thank you for this opportunity, and look forward to working with staff and -- as we go on through this process.

Thank you.

CHAIR NICHOLS: Thank you.

Mr. Lawson.

MR. LAWSON: Good morning. Thomas Lawson with the California Natural Gas Vehicle Coalition. I just wanted to add our agreement with the Chair's comments and my previous colleague's comments in support of the proposed regulation. We obviously are very supportive of anything that ARB is proposing that's going to offer some certification flexibility for technology of new engines and conversions.

And we believe that the proposed rule is a very good step forward to achieving California's air quality
goals, and allowing companies that are members of ours, like Cummins Westport and Landi Renzo who are in the business of new engine and conversions to provide additional products quickly to support these goals, and we appreciate staff's thoughtfulness in this regard. And we look forward to working with you guys, and feel free to use us as a resource in the 15-day comment period.

Thank you.

CHAIR NICHOLS: Thank you. I guess, at this point, I need to close the record on this agenda item with the comment that the record will be reopened when the 15-day notice of public availability is issued, and that anyone written or oral comments received after today's meeting, but before the 15-day notice, will not be accepted as part of the official record on this agenda item. That when the record is reopened for the 15-day comment period, the public may submit written comments, which will be considered and responded to in the Final Statement of Reasons for the regulation.

So we now have a resolution before us, but I should stop and just ask if any Board members have any additional comments or questions?

Yes, Ms. Mitchell.

BOARD MEMBER MITCHELL: I think that this is a very good idea for our agency to undertake. I don't know
whether it was intentional, but I see that Dr. Sherriffs and myself are here at the end of the table. We both represent nonattainment areas, so we're the outliers here. (Laughter.)

BOARD MEMBER MITCHELL: But we need this kind of help, because heavy-duty trucks contribute a very large percentage to the air pollution in our districts, and represent a very big challenge for all of us.

So I think flexibility in getting certification is a good pathway to get where we finally need to go. And I know from my discussions in the past year or so with the truck manufacturers and we have -- they would like to see a path developed where both low-NOx requirements and the requirements of the phase 2, which federal government just enacted can -- that they can coordinate those two pathways. They would rather reengineer their engines only once and do that at the same time.

We know that a low-NOx regulation is in the works. Our agency will undertake that in the next few years. And the South Coast Air Quality Management District has petitioned the federal government to undertake a low-NOx regulation as well.

So we have formed a coalition that's not just California, but some other states across the United States that are interested in low-NOx technology. So I think
this regulation is a good pathway to finally get us there.
I thank staff for putting this together. We know no
regulation is perfect, but this is a good way forward.

So thank you, staff, for doing that, and I fully
support this effort.

CHAIR NICHOLS: Would you like to move the
resolution?

BOARD MEMBER MITCHELL: I will. I'll move the
staff recommendation and the regulation.

BOARD MEMBER SHERRIFFS: And I'll second.

CHAIR NICHOLS: Very good. You know, people have
been wondering for many years now what the seating
arrangements at the table --

(Laughter.)

CHAIR NICHOLS: -- actually mean. And they are
done by the Board Clerk. As far as I know, no one has
ever figured out.

(Laughter.)

CHAIR NICHOLS: So you can probably imagine
anything you like --

(Laughter.)

CHAIR NICHOLS: -- in terms of, you know, if
you're sitting closer to the center, does that mean that
you're under more control, and that those at the end are
fee to, you know, do whatever they want --
(Laughter.)

CHAIR NICHOLS: -- or is it -- are you in favor or out of favor, but --

(Laughter.)

CHAIR NICHOLS: -- maybe some will come up with a plan and be able to explain it to all of us.

All right. We have a motion and a second. I think we should call for a vote. Oh, I'm sorry. Yes, go ahead, Ms. Takvorian.

BOARD MEMBER TAKVORIAN: Quick question. I appreciate and support the action and the rule and appreciate the work that's gone into. I think it's important for environmental justice communities, especially those that impacted by heavy-duty vehicles, so I think that's really important.

My question is what happens when there are green lights and then new data comes available or the priorities change? I'm thinking both about technology in terms of green lights and the new data comes available that might slow the -- might have slowed the certification process down? I mean, how -- what happens for an industry that's invested based on this process versus the longer term one.

And then the second part of the question is, and what happens when our priorities change, and particularly thinking about natural gas and how that is a -- an area.
that we're examining more closely?

MOBILE SOURCE CONTROL DIVISION CHIEF KITOWSKI:

Let me start this. Your first -- the first question was really -- was really about as the manufacturer gets more experience as we -- as they develop their technology, and it moves further along, you know, what happens then? The certification requirements, the flexibility requirements are designed to expire on this, and that is intentional. It's designed not to be a get-out-of-jail-free card on our certification requirements which we count on extensively, but to provide that gap that gets them to the market.

And then the market will demonstrate the validity of the technology. Our incentive programs will help bring it along. Regulatory programs may push it along. At some point, they need to invest the resources to take that. They've done 90 percent of the work. We've given them flexibility on that last 10 percent. And then, at some point, that flexibility needs to go away and they need to be able to demonstrate that they're fully market capable, and that we see -- we think we've struck that right balance with the industry.

But as we go along as technology changes, the really difficult part is trying to come up with a regulation that anticipates technology, because people are
creative out there, they're clever, and so we've done our best with the regulation, and especially in consulting with industry. But what we completely understand is the technology will evolve in ways we don't understand right now. And we're prepared to monitor that, we're prepared to try and be flexible, to the extent we can, within a, you know, bureaucratic regulatory structure that we need -- we need to have.

So we are prepared to -- you know, I think some people asked if this could be like a living document. It can't be a living document in the truest sense and be a regulation. But to the extent we can, we want to have it evolve with the technology.

BOARD MEMBER TAKVORIAN: Okay.

MOBILE SOURCE CONTROL DIVISION CHIEF KITOWSKI:
And I think the -- I think that plays -- that same answer kind of plays into the second part. As we move along in the dynamics of more and more engines being low NOx, and zero emission -- and low NOx and advanced hybrids, as we move along and we see zero emission technology to playing a greater role, our priorities will change, our incentive programs will change, we'll just need to stay on top of that.

BOARD MEMBER TAKVORIAN: Yeah, so I appreciate that. I think it's eyes wide open on all sides, and so
we're not back here in a couple of years saying, yeah, but
you said this was okay to move in this direction when all
of what you just described changes.

So thank you.

CHAIR NICHOLS: Thank you.

Any other comments?

If not, I think we can call the question

All in favor of Resolution 16-20, please say aye?

(Unanimous aye vote.)

CHAIR NICHOLS: Any opposed?

Any abstentions?

Great. Congratulations. Thank you.

This is a nice room.

VICE CHAIR BERG: Isn't this lovely.

CHAIR NICHOLS: It really is.

BOARD MEMBER RIORDAN: All these wonderful

screens.

CHAIR NICHOLS: Yes, very helpful. It's a -- I
don't know if it -- well, I'm sure it doesn't seat quite
as many as Byron Sher, but I like being a little closer to
the people.

BOARD MEMBER SERNA: I said earlier, it's kind of

like a sports bar.

(Laughter.)

CHAIR NICHOLS: Well, there's that. Maybe that's
what it called to mind.

(Laughter.)

BOARD MEMBER RIORDAN: And he's going to -- he's going to run a couple of games everywhere.

CHAIR NICHOLS: Yeah, well, last night's was not too exciting for us Dodgers Fans, I'm sorry to say, but oh well.

VICE CHAIR BERG: But it gives the Cubs hope.

CHAIR NICHOLS: Yeah, it keeps hope alive, as they say, right?

All right. Do we have the team assembled?

EXECUTIVE OFFICER COREY: We do.

CHAIR NICHOLS: Great. Okay. We're now moving along to Agenda Item 16-9-3. And this is a report, not a rule-making, on a -- on the most recent activities at the federal level on heavy-duty engines and greenhouse gas emissions. And I think I'm going to cut to the chase here, which is that we worked hard to help make sure that these rules were as progressive as they needed to be to meet California's needs. We still have some concerns about how the federal government is going to move forward on NOx, as Ms. Mitchell previewed in her comments, because we need to be moving forward on all fronts here.

But I think it's important that we recognize that California's progressive efforts going back to the early
days of AB 32 have had an impact on the national program here, and that we now see opportunity to really move forward. So with that, Mr. Corey, would you please introduce this item?

EXECUTIVE OFFICER COREY: Yes. Thanks, Chair. And I'll be brief as well.

ARB staff coordinated closely with U.S. EPA and NHTSA, the National Highway Traffic Safety Administration staff, as the federal agencies developed the phase 2 standards over the last several years. The phase 2 standards are technology forcing, more ambitious, and longer term than those of the phase 1 standards. And the requirements begin with model year 2018 for trailers and model year 2021 for engines and vehicles.

Now that the final rule for the phase 2 greenhouse gas emission standards has been published, ARB staff is currently in the process of reviewing the 1,600-page plus phase 2 regulatory package. And as you'll hear, staff perhaps to propose for Board consideration standards -- next year standards harmonized with the federal agencies on the phase 2 structure and stringency. However, staff believes that there are specific areas where the standard should be strengthened.

And as a result, staff plans to return to the Board in 2017 with a California phase 2 proposal that will
also contain California elements. And with that, I'll ask
Alex Santos of the Mobile Source Control Division to give
the staff presentation.

Alex.

(Thereupon an overhead presentation was
presented as follows.)

AIR POLLUTION SPECIALIST SANTOS: Thank you, Mr.
Corey and good morning, Chair Nichols and members of the
Board.

Today's update will provide you a summary and
assessment of the recently finalized federal phase 2
greenhouse gas standards for heavy-duty vehicles. I will
also discuss ARB sponsored GHG-related resulted research
projects that will help provide the basis for further
heavy-duty truck GHG regulation in California.

--o0o--

AIR POLLUTION SPECIALIST SANTOS: Here is an
outline of my presentation. First, I will provide
background information on medium- and heavy-duty trucks
and the current GHG standards. That will be followed by
an overview of the federal phase 2 standards. I will also
discuss California's plan to adopt the phase 2 rule
creating a national harmonized program, and discuss
possible future California rule-makings that will provide
even more GHG reductions for targeted fleets.
Then I will provide a brief overview of research projects ARB is sponsoring that will provide data needed to support California's efforts to cut GHG emissions from trucks.

Finally, I'll go over plan next steps.

--o0o--

AIR POLLUTION SPECIALIST SANTOS: So let me start with some background. Addressing medium- and heavy-duty truck emissions is essential. Such trucks account for 1/5th of the GHG emissions from the transportation sector nationally, and are the fastest growing segment of the transportation sector in both the U.S. and worldwide.

Similar to their contribution on a national basis, medium- and heavy-duty trucks over 8,500 pounds in California, emit about a fifth of the total transportation GHG emissions, which is about 8 percent of the statewide total. That's why setting stringent phase 2 standards is so critical. Without controlling the significant source adequately, it will not be possible to meet our ambitious GHG targets of 40 percent below 1990 levels by 2030 and 80 percent below by 2050.

--o0o--

AIR POLLUTION SPECIALIST SANTOS: In 2013, ARB harmonized with the federal phase 1 GHG standards for heavy-duty vehicles. This harmonization, included making
our existing tractor-trailer GHG regulation consistent 
with the federal program. ARB's adoption of the phase 1 
gave manufacturers the ability to certify in California 
and gave ARB the authority to enforce the regulatory 
requirements.

The phase 1 rule was designed to get off the 
shelf greenhouse gas emission reduction technologies on to 
2014 model year and newer trucks. Phase 1 will reduce CO2 
emissions in California by 12 percent in 2030.

--o0o--

AIR POLLUTION SPECIALIST SANTOS: Now, I'll move 
on to discuss the federal phase 2 GHG standards in more 
detail starting with an overview.

--o0o--

AIR POLLUTION SPECIALIST SANTOS: The phase 2 
standards are the second phase of federal heavy-duty GHG 
standards and build upon the phase 1 standards. On August 
16th, 2016, the U.S. EPA and NHTSA released a 
pre-publication version of the phase 2 standards. The 
final version of the phase 2 rule, referred to as the FRM, 
or final rule-making, will be published later this month.

The phase 2 standards are technology forcing, 
affordable and flexible.

Nationally, phase 2 will save over 82 billion 
gallons of fuel, cut CO2 emissions by over 1 billion
metric tons, and save vehicle owners 170 million[sic] in fuel costs. Phase 2 will help stabilize the climate and reduce our reliance on foreign oil.

Phase 2 will dramatically improve fuel economy for heavy-duty trucks, particularly for long-haul tractor-trailers, for which fuel economy will increase from about 6 miles to about 9 miles per gallon.

All in all, the phase 2 program will represent the most comprehensive medium- and heavy-duty truck greenhouse gas and fuel economy program in the world.

--o0o--

AIR POLLUTION SPECIALIST SANTOS: Now getting into some of the details. Like phase 1, phase 2 has separate standards for the engines and the vehicles. The phase 2 engine standards are expected to achieve a 5 percent fuel efficiency improvement beyond what phase 1 required for tractor engines, and 4 percent improvement for vocational engines.

To meet the proposed engine standards, manufacturers are expected to use waste heat recovery, reduce parasitic losses, improve air flow handling, and apply other efficiency improving technologies.

--o0o--

AIR POLLUTION SPECIALIST SANTOS: Phase 2 builds on the phase 1 structure regulating line-haul and

J&K COURT REPORTING, LLC  916.476.3171
vocational vehicles and large vans and pickups. Phase 2 introduces trailer requirements and adds provisions that recognize the benefit of engine transmission integration.

As shown on the left, combination tractors are expected to reduce GHG emissions up to 25 percent from a phase 1 baseline. These reductions will come from aerodynamic improvements, engine, transmission, and driveline improvements, use of low -- lower rolling resistant tires, and idle reduction technologies.

The trailers they pull are expected to reduce their emissions further, up to 9 percent, primarily from aerodynamic technologies and low rolling resistance tires. Phase 2 marks the first time trailers are being regulated at the federal level for GHG emission reduction.

Vocational vehicles, as shown in the center of the slide, are expected to achieve up to a 24 percent reduction in GHG emissions via engine and transmission improvements, workday idle reduction technologies, and the use of low rolling resistant tires. In addition, up to 12 percent of vocational vehicles are expected to use mild highway technology.

For large pickups and vans shown on the right, the phase 2 standards are expected to reduce GHG emissions about 16 percent. To meet the standards, pickup and van manufacturers are expected to improve engines,
transmissions and aerodynamics; reduce weight; and produce gasoline hybrids. Phase 2 standards begin with the model year 2018 for trailers and model year 2021 for engines in vehicles. And ratchet down through the 2027 model year.

--o0o--

AIR POLLUTION SPECIALIST SANTOS: The phase 2 standards will result in fuel savings across the Board for owners of tractor-trailers, vocational trucks, and large pickups and vans. This fuel savings will more than offset the increased cost vehicle buyers will face. This slide shows expected payback time. For example, the typical owner of a new combination tractor-trailer is expected to recoup the extra cost of technology in 2 years through fuel savings. For vocational truck and large pickup and van owners, it could take a little longer, 3 to 4 years.

--o0o--

AIR POLLUTION SPECIALIST SANTOS: The U.S. EPA and NHTSA received extensive comments from ARB and many other stakeholders, including environmental groups, other states, engine manufacturers, vehicle manufacturers, and the impacted public.

ARB submitted comments on the Notice of Proposed Rule-making, or NPRM, in October of 2015. Our 170-page long package provided comments on all aspects of the proposal, and was the result of a thorough assessment by
ARB staff's team of scientists and engineers.

In consideration of these comments, and the newest data available, the federal agency strengthened the rule to achieve 10 percent more GHG emission reductions than the NPRM nationwide. I will show what this means for California later in my presentation.

--o0o--

AIR POLLUTION SPECIALIST SANTOS: As I just mentioned, ARB commented extensively on the phase 2 proposal, and a majority of our concerns were addressed in the final rule. ARB commends the U.S. EPA and NHTSA for establishing a technology-advancing program that will achieve significant GHG emission reductions. This slide lists specific areas where the FRM was strengthened in response to ARB's comments:

The tractor engine standards were increased in stringency from 4 percent in the proposal to 5 percent in the final.

The combination tractor, vocational vehicle, and trailer standards were made more stringent with the biggest gain in stringency for vocational vehicles from 16 percent proposed to 24 percent final.

A new section was created in the final rule that establishes PM emission standards and certification requirements for APUs, which will avoid potential
increases in toxic diesel PM.

Aggressive advanced technology multipliers were added per ARB's recommendation, to provide a much needed incentive to vehicle manufacturers, to manufacture these advanced technology vehicles.

And in the preamble to the FRM, U.S. EPA clearly states their commitment to develop a new harmonized national NOx-reduction strategy for heavy-duty on-highway engines, in close coordination with ARB and others. And just as a reminder in the presentation following mine, ARB staff will be discussing our planned activities to address NOx emissions further.

--o0o--

AIR POLLUTION SPECIALIST SANTOS: Now, I'd like to discuss the projected California benefits of the phase 2 rule. This graph shows the projected California GHG emissions from implementation of the standards, both as originally proposed and as included in the final rule.

The black line represents the baseline heavy-duty vehicle emissions from 2017 through 2050. That is the emissions that would occur if there were no phase 2 standards. The red line, NPRM, represents annual GHG emissions with the phase 2 standards as proposed by U.S. EPA last year.

The green line, FRM, represents annual GHG emissions.
emissions with full implementation of the more stringent final rule standards. The FRM achieves about 20 million metrics tons more reductions through 2050.

--o0o--

AIR POLLUTION SPECIALIST SANTOS: So how are we doing in achieving the ambitious GHG goals set by AB 32 and multiple Governors' executive orders? Those goals are shown as red dots on this chart, which assumes equal share GHG reductions from on-road sources.

The blue line illustrates the path we're currently on, taking into account the tractor-trailer GHG rule and California phase 1, as well as California's existing suite of clean vehicle fuel and transportation policies. Currently, we're on track to meet the 2020 GHG target with a further 20 percent reduction in on-road mobile source GHG emissions between 2020 and 2030 as illustrated.

However, further reductions will be needed to meet the 2030 GHG reduction target. In addition, beyond 2035, on-road GHG emissions begin to increase without adoption of additional policies, as growth in vehicle miles traveled outpaces vehicle fuel efficiency improvements.

The red line was added to show the impact phase 2 will have in meeting our AB 32 targets. As you can see,
phase 2 gets us closer to our goals. Reducing GHG emissions by 5 million metric tons in 2030, and 11 million metric tons in 2050. But there's still a long way to go to hit the goals, illustrating the need for further GHG emission reductions from other sectors, and for the use of renewable fuels.

--o0o--

AIR POLLUTION SPECIALIST SANTOS: I will now move on to discuss California's plan to harmonize with the federal phase 2 program.

--o0o--

AIR POLLUTION SPECIALIST SANTOS: First, we'd like to commend the U.S. EPA and NHTSA for working closely with us to create a phase 2 rule that we can adopt. U.S. EPA Staff met with ARB staff many times over the last year to discuss our comments in more detail and we appreciate all the areas where they changed their proposal in response to our input. The end result is a phase 2 program that California can adopt and that will allow manufacturers to continue to build a single fleet of vehicles and engines for the U.S. market.

Our plan is to present to the Board next October a California phase 2 regulation that harmonizes with the federal phase 2 program in structure, timing, and stringency. This is a critical and key component of our
AB 32 scoping plan for meeting our GHG emission goals.

It also provides ARB with the ability to certify engines and vehicles to the phase 2 standards and to enforce the requirements in California. There will be some minor distinctions between California phase 2 and the federal phase 2 rules. These differences are necessary to facilitate enforcement, align with existing California programs, and provide additional incentives for manufacturers to bring advanced technologies to the market.

At the same time that we bring the California phase 2 rule to the Board for consideration, we will also be amending our existing tractor-trailer GHG rule to remove redundant trailer requirements.

--o0o--

AIR POLLUTION SPECIALIST SANTOS: This slide identifies the areas where California phase 2 may differ from the national phase 2 rule. First, to encourage advanced engine technologies, lower NOx engines, and advanced technology vehicles, we may modify 2 of phase 2's flexibility provisions, including the optional transition flexibility for engine standards, and the vocational custom chassis provisions.

To reason enforcement in California, California phase 2 may require additional labeling requirements.
Other possible differences being considered include the criteria used to determine whether medium-duty natural gas engines are held to spark ignition or compression ignition standards, and whether closed crankcases would be required.

There could also be minor differences in the credit programs. California phase 2 may include additional credits for the use of low global warming potential refrigerants and sunset the phase 1 credits.

Our plan is to vet these proposed differences with affected stakeholders as we develop the California phase 2 rule-making. Our first workshop is scheduled for early next year.

--o0o--

AIR POLLUTION SPECIALIST SANTOS: As we were working with U.S. EPA and NHTSA developing the phase 2 rule, it became apparent to ARB staff that further aerodynamic improvements on some occasional vehicles and non-box type trailers had the potential to reduce GHG emissions in ways not recognized by the phase 2 program. The challenge is ensuring that the aerodynamic devices are only installed on vehicles and trailers that will benefit from them, that is those that spend enough time at high speed.

As we move forward, staff is considering the
development of targeted fleet rules that will allow us to
tailor requirements to those specific fleets that will
gain the most benefit. As shown in this slide, the first
California fleet rule we are considering is one that would
require aerodynamic equipment on nonbox-type trailers,
like flatbeds and tankers.

Currently, we're funding a study that will
collect tractor-trailer activity data in California. We
anticipate any fleet rule we develop would impact new
trailers only. It would not be a retrofit rule. The
tentative timeline for rule development is shown on the
slide. We expect to bring a proposal to the Board in 2018
or 2019.

--o0o--

AIR POLLUTION SPECIALIST SANTOS: At ARB's
request, U.S. EPA included credit in phase 2 for
installing aerodynamic devices on a few vocational
vehicles. However, we believe that additional GHG
emission reductions could be achieved as such aerodynamic
improvements were applied more broadly.

As a result, ARB is also considering requiring
aerodynamic equipment on certain vocational vehicles. In
support of this potential fleet regulation, we are
currently developing a scope of work to determine fleet
characteristics and activity of Class 4 through 6
vocational vehicles in California, particularly the
segment of the population of trucks that are driven at
high average speeds and could benefit aerodynamic devices
that reduce GHG emissions. This study will be discussed
further in the next slides.

There will be public workshop on November 1st, 2016 to begin discussing strategies to accelerate the
market for advanced clean truck technologies, as well as
data collection efforts to characterize vocational truck
fleets and identify vocational vehicles that could benefit
from aerodynamic improvements.

The tentative timeline for rule development is
shown on the slide. We expect to bring a proposal to the
Board in 2018 or 2019.

--o0o--

AIR POLLUTION SPECIALIST SANTOS: Now, I'll move
on to describe, in a bit more detail, some of the research
studies I've mentioned, as well as other projects underway
to support further reduction of GHG emissions from the
heavy-duty sector.

--o0o--

AIR POLLUTION SPECIALIST SANTOS: The first ARB
funded study I want to tell you about is the 390,000
vocational -- $390,000 vocational aerodynamic study
conducted by the U.S. Department of Energy's National
Renewable Energy Lab, or NREL.

To estimate the expected benefits of several common types of aerodynamic devices on select vocational vehicles and trailers, NREL performed fuel consumption and aerodynamic drag tests with and without aerodynamic devices. Results were then used to predict expected fuel savings over real-world vocational drive cycles.

The results are -- the results show that aerodynamic devices can reduce GHG emissions up to 8 percent, depending on duty cycle. A draft final report is available now with a final report due later this year.

As a follow-up to this study, ARB is planning to fund a $400,000 study to characterize vocational truck fleets and driving patterns for Class 4 through 6 trucks in California. This study would be jointly conducted by NREL and UC Irvine. We expect this work to be completed by early 2018.

--o0o--

AIR POLLUTION SPECIALIST SANTOS: Another relevant study we are funding for just under a half million dollars is the collection of tractor-trailer activity data study currently being conducted by UC Riverside CE-CERT.

This project will support the planned tractor-trailer GHG 2 rule I discussed earlier.
Researchers will collect and characterize activity and engine data from tractors pulling not box type trailers in California. From this data, ARB staff will be able to determine whether requiring aerodynamic technologies on these types of trailers would result in significant GHG emission reductions. This study is due to be completed by June 2017.

--o0o--

AIR POLLUTION SPECIALIST SANTOS: We have four other research projects underway that will help inform our heavy-duty greenhouse gas work.

The first 2 projects will be used to further our understanding of the potential to reduce greenhouse gas emissions from vocational trucks. The first, "Collection of Activity Data from On-Road Heavy-Duty Diesel Vehicles", is primarily designed to better understand the effectiveness of NOx controls on vocational vehicles.

However, this activity information will also be germane to better understanding the potential for GHG emission reductions from these vocations. About 100 vocational trucks will be instrumented as part of this project.

The second project, in-use emission testing and fuel usage profile of on-road heavy-duty vehicles will measure the activity and emissions of about 200 vocational...
trucks. This is a joint project funded by the South Coast Air Quality Management District, California Energy Commission, and SoCalGas with ARB contributing about $150,000.

The third project is designed to identify pathways to achieve near zero GHG emission levels from the heavy-duty truck sector. It will explore policies and incentives to achieve GHG emission reductions from renewable feedstocks, alternative fuels and technologies, and vehicle connectivity-related technologies. This study is budgeted at $500,000. And ARB staff is currently reviewing proposals.

And finally, ARB is conducting an in-house study to quantify the effect of speed on GHG emissions and the potential emission benefit of vehicle speed limiters. Three combination tractor-trailer rigs will be instrumented and tested at speeds up to 80 miles per hour.

--o0o--

AIR POLLUTION SPECIALIST SANTOS: As you’ve heard today, ARB has a lot going on in order to reduce GHG emissions from Heavy-duty trucks. I'll wrap up today's presentation with a summary of staff's next steps.

--o0o--

AIR POLLUTION SPECIALIST SANTOS: In February 2017, staff will hold the kick-off workshop for the
California phase 2 rule-making effort. About a year from now, we plan on bringing this Board a California phase 2 proposal for your consideration and approval. We will continue to explore 2 additional California fleet rules, vocational vehicle aerodynamics, and tractor-trailer GHG 2. We plan on bringing them to the Board for consideration in 2019.

Staff will also continue to work with U.S. EPA and NHTSA in monitoring GHG emission reduction technology development to continue to push for improvements in the years after the phase 2 standards are implemented.

Finally, staff will be directing significant time and resource toward the further development of lower NOx on heavy-duty engines, always in consideration of the impact on GHG emissions. My colleague, Daniel Hawelti, will be discussing all our activities to date and our plans for the future regarding NOx control in the next item.

Thank you. We would be happy to address any questions.

CHAIR NICHOLS: Thank you.

Comments, questions?

Yes.

BOARD MEMBER MITCHELL: Thank you, Madam Chair.

This is kind of a general question, and I preface it by
saying I'm not an engineer. I am, by trade, a lawyer and don't know that much about these engines.

But as we work toward our phase 2 rule that will harmonize with the federal phase 2, and we're also working toward low-NOx engines as well, does one of these create problems for the other of these, like what I'm indicating is if we get an engine that complies with the phase 2, is it likely to increase NOx, and vice versa?

DEPUTY EXECUTIVE OFFICER AYALA: Let me start to address your question, Ms. Mitchell. We are working very hard to make sure that we avoid that scenario. And one of the things that we are very careful about is when you look at what phase 2 is requiring, we could have gone further. We could have been more stringent for sure. And one of the things that we contributed in the technical process working with EPA and NHTSA on is to identify where we think we could go further with respect to more efficiency from these future engines.

However, when we consider the fact that we also need to lower NOx, we make sure that we have sufficient head space to make sure that we can create a single platform that can give us GHG as well as lower NOx reductions.

So all of the technical work that you heard about, all 6, 7 studies, as well as the technical analysis
that we're conducting, is predicated on making sure that we can achieve a future engine that will give us both the GHG and the lower NOx reductions we need.

We think there's no need to compromise one for the other. We think that we can achieve both GHG and NOx. And in the next presentation, you're going to hear a little bit more about how we're approaching lower NOx to get to exactly the point you're making.

BOARD MEMBER MITCHELL: Thank you.
CHAIR NICHOLS: Yes, Mr. Eisenhut.
BOARD MEMBER EISENHUT: Can the 177 states participate in this rule-making, and if so, could you describe your conversations with them?

DEPUTY EXECUTIVE OFFICER AYALA: Absolutely. And, in fact, they have been part of our process from day one. We made it a point to make sure that we facilitated getting information and updates to our State partners for two simple reasons. One, obviously, they are going to be in need of some of the reductions that we're speaking just as much as we are; and second, we need to strengthen the partnership with the State. So some of the efforts that we are contemplating, particularly on our lower NOx standards, we are working very closely with the states, and we think that we will have critical mass to essentially affect the industry in a direction that will
give us the lower emissions that we're seeking.

    CHAIR NICHOLS: Other comments?

    We do have one commenter. Oh, sorry, Dr. Sherriffs.

    BOARD MEMBER SHERRIFFS: Thank you. And from this end of the table, we'll keep hearing these cheers, "No more NOx. No more NOx."

        (Laughter.)

    BOARD MEMBER SHERRIFFS: Yeah, it's a great reminder. I mean these incredible changes in miles per gallon, the co-benefits in terms of greenhouse gases and NOx, but having to be very careful about how we actually do that, and being aware of the numbers. I'm wondering in terms of the research, because, for instance, on the trailers, focusing on potential regulations for new trailers. Well, the research may very well demonstrate, you know, if there's an 8 percent decrease -- increase in miles per gallon, it may be very worthwhile for people who are out there to retrofit older trailers.

        And I'm wondering how we get that information out, because I know, for instance, you know, in the ag world, there are various journals and so on that farmers see. "Oh, gee, maybe I should try this". I'm wondering how that works in this?

    DEPUTY EXECUTIVE OFFICER AYALA: I think that is
a great point. We are too early in the process to know the true potential of retrofitting some of these technologies. You may recall that the first tractor-trailer rule was essentially a retrofit rule, so we have shown that it can be done successfully.

I think in the new rule that we're going to be exploring, we certainly want to target original equipment to begin the process and the transformation towards lower emissions, but in that process we may very well be exactly where you're suggesting, which is identifying some unique opportunities.

And again, as Jack mentioned earlier, we have the opportunity to use our incentive programs. We have an opportunity to use some of our other programs to make sure that to the extent that there is a potential, we're certainly not closing the door on that potential.

CHAIR NICHOLS: Ms. Berg.

VICE CHAIR BERG: Thank you very much for a great report. On the additional research, just really would encourage -- these are great projects. I would really encourage things like our in-house vehicle speed limiter to reach out to industry. I'm thinking about a presentation at Asilomar where one of the major truck companies already has governors keeping their trucks to not exceed 65 miles an hour across the -- it's a
nationwide program. They already have statistical data showing fuel savings, safety savings. And so these are somewhat anecdotal, but actually great information to be able to back-up the information that you have. And it is real world, and it's nice when we can take research and really mesh it up to some success stories to further the thoughts.

Thank you.

CHAIR NICHOLS: All right. Thank you. Okay. Dr. Brezny, you're our only witness on this.

DR. BREZNY: Thank you again, Chair Nichols. I'm still Rasto Brezny with the Manufacturers of Emission Controls Association.

(Laughter.)

DR. BREZNY: I think this is an important activity. MECA certainly supported the federal phase 2 greenhouse gas standards, and we will continue to support ARB's efforts as well to align with those standards. And I want to take my time to maybe address some of the comments made by Board Member Mitchell around the importance of aligning these standards with some of the efforts that you're doing around the NOx activity.

And the engine and supplier industry have really demonstrated a great capacity to innovate in order to achieve both reductions in NOx and CO2. And just to give
you an example of kind of where we've come with our -- in this industry is if you look back, let's say from 2002 to 2009 on heavy-duty trucks when on-engine controls were really the main way to control NOx, then, yes, there was this relationship between NOx and CO2. And as you tried to reduce CO2 you ended up increasing NOx.

What happened in 2010 though is that SCR systems were introduced into the exhaust to expand that envelope of what engine manufacturers can use to achieve both criteria pollutant reductions and greenhouse gases.

So SCR reduces NOx primarily, right? So if you look at certifications -- engine certifications from 2010 to 2017, where we had both tighter NOx standards as well as tighter greenhouse gas standards under phase 1, then both pollutants were reduced simultaneously.

And so if we look at where we are today, today there's 7 engine families that are certified as 0.1 grams of NOx and below. They're achieving that. The standard is still 0.2, but they're achieving 0.1 and below. Three of those are as low as 0.06 grams of NOx, while still achieving greenhouse gas standards. Then there's 1 engine family certified today -- it's a vocational engine -- that's achieving 0.08 grams of NOx while also the 2027 greenhouse gas standards. So there's clearly evidence that, you know, if there's both technologies that can reduce NOx as
well as greenhouse gases.

So as we look at the next round of heavy-duty greenhouse gas standards, we need to consider that there is this significant compliance margin available on NOx. And if we only tighten down greenhouse gases without also tightening down on NOx, then you can't take advantage and get backsliding on the NOx.

So I think the point I want to make is that there -- technologies exist to achieve both. And I think, you know, both criteria pollutants and greenhouse gases, and these standards -- it's important to align these standards, so that the systems can be optimized once in order to achieve both NOx and CO2.

Thank you.

CHAIR NICHOLS: Thank you for those very encouraging remarks.

I might just add a few words as we're transitioning from this report to the next report on the NOx progress and process to say that unlike light-duty; vehicles in the heavy-duty field, the relationship between the federal and the State standards is a little more complicated, because almost by definition the purchasers are much more capable, in most instances, of ignoring California's regulations if they choose to do so.

The reality is it's -- there's more incentive and
there's more opportunity to evade a California-only program, which makes it more incumbent on us to have standards that are worth people's while to comply with. And certainly working with the 177 states is a big part of that. Making sure that we're addressing both the greenhouse gas and the criteria air pollutant problems is also a very important part of that kind of thinking.

And I also think it's important that we encourage and support, in every way we can, the federal government in their efforts to move forward in this area. And I think the combination of pressures and, frankly, praise, which we have given both of, in this case have been helpful in that regard, because this -- there's no place else in the country that has as great a need as we do for the NOx measures. And so we need the federal government to be supporting us and working with us on this.

At the same time, the federal government has -- and frankly, the industry has as much long-term incentive to improve fuel economy me as we all do. So this is a very interesting dynamic that we're involved in here.

And so far, I think we've done really well in -- you know, you heard about, what was it, 170 pages of comments that we filed in the EPA rule-making. I mean, it was a very substantive contribution to the federal
efforts. And, you know, they really did look to
California to give them that support that they needed on
this rule-making, and we were very gratified by the
results.

So I just want to, once again, give a shout-out
to EPA and NHTSA for having -- for having done the right
thing, but understand why it is that California has to
keep working on these issues and can't just rest on our
laurels.

BOARD MEMBER MITCHELL: And one more item is that
as we anticipate the stricter ozone standards that the
federal government is -- has adopted, we will see, I
believe, more states across the nation that are going to
be concerned about ozone in their own states. And, of
course, NOx being one of the precursors for ozone, I
think, will be concerned about the NOx issue as well.

So we do thank the EPA for all the work that
they've done. And we're very thankful that they included
in their phase 2 regulation a reference to the low-NOx
standard. So we'll just keep working on it, won't we, Dr.
Sherriffs?

BOARD MEMBER SHERIFFS: Absolutely.
(Laughter.)

BOARD MEMBER MITCHELL: Okay.

CHAIR NICHOLS: Thanks. Okay.
Shall we move on then to the next item.

The report that's Agenda Item 16-9-4. So in this previous item, we learned about staff's plans form harmonization with the federal phase 2 --

MOBILE SOURCE CONTROL DIVISION CHIEF KITOWSKI:
Excuse me, Chair Nichols?

CHAIR NICHOLS: Yes.

MOBILE SOURCE CONTROL DIVISION CHIEF KITOWSKI:
There was a resolution on --

CHAIR NICHOLS: There is, yes.

MOBILE SOURCE CONTROL DIVISION CHIEF KITOWSKI: I apologize.

CHAIR NICHOLS: Do you need a resolution?

Well, I guess you want one to bring that back.

Okay.

(Laughter.)

CHAIR NICHOLS: You need a resolution.

We'll give you a resolution.

BOARD MEMBER SERNA: So moved.

BOARD MEMBER MITCHELL: Second.

CHAIR NICHOLS: We move a motion, a second.

All in favor please say aye?

(Unanimous aye vote.)

CHAIR NICHOLS: Any opposed?

(Laughter.)
CHAIR NICHOLS: Hearing none, you've got it.
(Laughter.)
CHAIR NICHOLS: Thank you. Thank you.
Well, it just says keep doing what you're doing.
(Laughter.)
CHAIR NICHOLS: Okay. We told you.
We got the Board behind you. That's a good thing
to do.

Okay. Let's move then to the report on ARB's
efforts here to reduce oxides of nitrogen from the same
types of equipment that we've just been hearing about
here. I think we've pretty adequately covered how
important this is to us, but we do want to hear more
specifically about what's next on the NOx front.

EXECUTIVE OFFICER COREY: I think we'll just go
right to the staff presentation, because it was teed up,
as you noted, very well. So this is Stan Hawelti and --
with the Mobile Source Control Division.

And, Dan, if you can give the staff presentation.
(Thereupon an overhead presentation was
presented as follows.)

AIR RESOURCES ENGINEER HAWELTI: Thank you, Mr.
Corey and good morning Chair Nichols and members of the
Board. Today I am here to talk to you about ARB's efforts
to reduce NOx emissions from heavy-duty trucks. This is
an extremely important issue and one on which ARB staff has dedicated much of our attention and resources.

In fact, in the proposed 2016 State strategy for the SIP, which the Board heard about last month, low-NOx engines standards for heavy-duty trucks are the largest proposed ARB measure for NOx. Indeed, the SIP relies on heavy-duty low-NOx engines standards for over a quarter of its total NOx reductions.

--o0o--

AIR RESOURCES ENGINEER HAWELTI: Here is my -- here is an outline of my presentation. Today, I will first discuss the need for NOx reductions from on-road heavy-duty vehicles followed by ARB funded heavy-duty research programs and planned measures to reduce NOx emissions.

Finally, I will provide a summary of staff's next steps in our research and rule-making efforts.

--o0o--

AIR RESOURCES ENGINEER HAWELTI: California has made significant progress in improving air quality. However, many areas in California still do not meet the 2008 federal air quality standards. As shown in the top map on the slide, the South Coast and San Joaquin Valley air basins are the nation's only two regions classified as extreme nonattainment regions for the current ozone
standard.

In the South Coast, an estimated 80 percent additional NOx reductions are needed to meet the current ozone standards.

Heavy-duty trucks are major contributors to the NOx inventory, approximately a third of statewide NOx emissions, or 500 tons per day, come from heavy-duty trucks. Thus, we need major reductions in heavy-duty truck emissions to achieve our air quality goals.

However, significant NOx reductions are also needed by our partners in the northeast states, as well as other parts of the nation.

U.S. EPA recently strengthened the national ambient air quality standards to 70 parts per billion. As shown in the lower map on this slide, more areas in California as well as other states will be out of compliance. Federal action to establish national standards is therefore critical.

--00o--

AIR RESOURCES ENGINEER HAWELTI: The chart shows projections of heavy-duty truck NOx emissions in the South Coast Air Basin and indicates the importance of federal heavy-duty truck standards. As you can see the, 2010 heavy-duty engine standards and the fleet rules, such as the truck and bus regulation, are projected to
dramatically reduce NOx emissions through 2023.

However, even such aggressive regulations will not provide sufficient NOx reductions to attain federal ozone standard by the time frames required.

About 60 percent of the truck miles traveled in the South Coast are by trucks purchased outside of California. These trucks are not required to meet California new engine standards. That's why the emission reductions we can achieve through California-only standards, as shown -- shown as the yellow line, are so much less than what we can achieve if standards are adopted nationwide, as shown by the green line.

--o0o--

AIR RESOURCES ENGINEER HAWELTI: ARB staff have been making California's needs for lower NOx standards clear to U.S. EPA staff for the past several years, as we have been working with them on the phase 2 greenhouse gas standards, as you heard in the previous presentation.

As part of the phase 2 rule-making, many other stakeholders similarly asked U.S. EPA to take action to lower NOx standards.

In June of this year, the South Coast San Joaquin Valley, and Bay Area air districts as well as 9 other State and local air control agencies formally petitioned U.S. EPA to adopt such standards.
As part of U.S. EPA's as final phase 2 rule-making U.S. EPA agreed that, "A need for additional NOx reductions remains, particularly in areas of the country with elevated levels of air pollution." And they stated, U.S. EPA intends to work with ARB to double up such new standards and other associated NOx-control measures.

We are encouraged by U.S. EPA's commitment, and look forward to working with them and other stakeholders on the new national standards.

--o0o--

AIR RESOURCES ENGINEER HAWELTI: So how do we address NOx from heavy-duty trucks?

Reducing heavy-duty NOx is key to meeting the commitment of the State Implementation Plan. And, in fact, the proposed SIP requires truck emissions be cut about 90 percent. As we look to achieve 90 percent reduction in heavy-duty NOx emissions, we're, of course, looking to lower the emission standard, nominally from 0.2 grams per brake horsepower hour down to 0.02 grams. But real-life heavy-duty emissions depend on so much more than just the emissions standards.

Therefore, to achieve a 90 percent emissions reductions, we will also need to look at other significant measures, such as requiring manufacturers to build more
durable engines, and after-treatment systems, and requiring truck owners to maintain their trucks in-use.

As we look at the best ways to reduce overall NOx emissions, staff will consider creative solutions that go beyond just requiring clean engines. No potential measures or strategies are off the table at this point. For example, since our attainment problems are regional in nature, there may be creative regional solutions that utilize advances in vehicle connectivity, such as geofencing and telematics.

--o0o--

AIR RESOURCES ENGINEER HAWELTI: As depicted here -- as depicted here, many programs must work together to ensure that NOx emissions from trucks are controlled, not only when engines are new, but also in-use. The programs I'm talking about today are shown in yellow.

New Engine certification and durability demonstrations ensure that engines are as clean as the standards require when brand new and when aged out to the anticipated useful life. The test cycles used during certification, such as the FTP, are intended to simulate how vehicles are driven in the real world.

In-use compliance programs, in which manufacturers must test in-use vehicles during their normal operation, help confirm vehicles are really as
clean as intended. And, if vehicles fail, they can be recalled.

Manufacturers are required to offer warranties of their emission-related parts, so that if such parts break, truck owners can have them repaired at no charge to them.

Fuel standards ensure that fuels are available that are compatible with today’s advanced after-treatment. Fleet rules, like the truck and bus rule, are pushing fleets to turn over to newer, cleaner vehicles, and future fleet rules like the advanced clean transit rule will encourage use of advanced technology zero emission vehicles where appropriate.

Finally, we are working on develop a heavy-duty inspection and maintenance program analogous to the light-duty smog check program, that will help ensure vehicle emission control systems continue to be maintained and work properly.

--o0o--

AIR RESOURCES ENGINEER HAWELTI: To support our regulatory efforts going forward, ARB is currently sponsoring various research programs related to heavy-duty vehicle emissions. Activity and emissions data collected from these programs will also be used to improve our emissions inventory.

The research that we're funding, and conducting
in-house, is providing a lot of valuable information. For example, recent studies have shown that engine load, and how vehicles are driven, can significantly impact the performance of emission after-treatment systems, and that today's regulatory procedures do not adequately address vehicle real-world emissions.

Next, I will provide a brief summary of ARB's heavy-duty research activities currently in progress.

--o0o--

AIR RESOURCES ENGINEER HAWELTI: The first area of research is aimed at demonstrating the feasibility of reducing NOx emissions from heavy-duty engines. Two projects are currently in progress with the Southwest Research Institute as the contractor, the Stage 1 and Stage 2 low-NOx projects.

Stage 1 is a $1.6 million project that involves studying 2 heavy-duty engine platforms: A diesel 13 liter engine and a natural gas 12 liter engine. The goal is to demonstrate NOx emissions -- emission levels significantly lower than the current standard with a target tailpipe NOx emission rate at or below 0.02 grams per brake horsepower hour.

In addition to maximum NOx reductions, an additional goal is to achieve minimal fuel consumption. Stage 1 is almost done with an expected completion date of
December 2016.

--o0o--

AIR RESOURCES ENGINEER HAWELTI: In Stage 1, multiple technologies and strategies were evaluated, which included engine calibration strategies to increase exhaust gas temperatures during cold starts, and advanced after-treatment systems to further reduce engine out NOx emissions.

Southwest Research Institute screened more than 30 potential technology configurations and determined that there are multiple potential ways to achieve 90 percent or more reduction in NOx emissions.

--o0o--

AIR RESOURCES ENGINEER HAWELTI: The technology configurations with the highest potential to reach low-NOx emissions were ranked based on NOx performance, fuel consumption impact, cost, complexity, and durability. Four of the top performing configurations were then selected and further optimized on an engine dynamometer. NOx levels well below 0.02 grams per brake horsepower hour were demonstrated on a technology package that is now in the process of being demonstrated on aged parts.

Final results are expected by the end of November.
AIR RESOURCES ENGINEER HAWELTI: As a follow-up Stage 1, ARB is also sponsoring a $1 million Stage 2 project which the objective of further optimizing the diesel engine after-treatment system for low load duty cycles typical of city driving.

A second objective of Stage 2 is to develop a supplemental low load certification cycle that will, with the FTP, ensure NOx control under nearly all driving conditions.

ARB, in partnership with U.S. EPA, the Manufacturers of Emission Controls Association, or MECA, and local air districts, is also planning to complement the Stage 2 effort with testing on an additional engine that is representative of likely future engine configurations. This last planned project will flesh out even further how manufacturers could meet a NOx standard at or belows 0.02 grams per brake horsepower hour level.

AIR RESOURCES ENGINEER HAWELTI: Other research activity currently underway will help improve our understanding of emissions during real-world driving. As listed here, we have multiple projects with both universities as well as in-house studies aimed at collecting activity and emissions data, and developing the
capability to monitor heavy-duty truck emissions at the ports and other locations.

Results from these projects will, for example, allow us to understand SCR functionality, and the low load driving and why NOx emissions are higher in the real world than during certification. This information is vital for our planned rule development efforts.

--o0o--

AIR RESOURCES ENGINEER HAWELTI: Another area of research is aimed at supporting the development of a comprehensive heavy-duty inspection and maintenance program. ARB is conducting an in-house study to assess the durability of repairs made to heavy-duty emission control systems.

In this project, ARB will repair high-emitting vehicles and then bring these vehicles back to our lab after 6 to 12 months to be retested. This will help us assess the effectiveness of any required repairs, which will be a key issue during the development stage of this program.

Another project contracted to the University of California, Riverside will evaluate alternative approaches, technologies, and costs for development of a heavy -- comprehensive heavy-duty inspection and maintenance program, and pilot test the recommended
program design.

--o0o--

AIR RESOURCES ENGINEER HAWELTI: I have now completed my description of heavy-duty related research. I now would like to talk more about our planned rule-making efforts that research is intended to support. ARB's proposed SIP contains 2 heavy-duty NOx measures, establishing low-NOx engine standards, and improving in-use emissions performance, which I will-- which I will describe in the next few slides.

--o0o--

AIR RESOURCES ENGINEER HAWELTI: As background, heavy-duty engines are currently required to meet the 2010 engine standards of 0.2 grams per brake horsepower hour. In 2013, ARB adopted optional NOx standard that are 50 percent, 75 percent, and 90 percent lower than the current standard. The optional NOx standards were developed to pave the way for mandatory standards by encouraging the development of low-NOx engines and incentivizing the purchase of these low-NOx engines.

To date, 2 engines have been certified to the optional NOx standards. An 8.9 liter natural gas engine is certified to the most stringent standard of 0.02 grams per brake horsepower hour, and a 6.7 liter natural gas engine is certified to 0.1 grams per brake horsepower hour
NOx standard. Both engines are currently commercially available.

--o0o--

AIR RESOURCES ENGINEER HAWELTI: As previously discussed, one of the most important measures proposed in the SIP is the development of a comprehensive heavy-duty low-NOx engine standard with a new low load cycle. ARB staff plan to work collaboratively with U.S. EPA to establish the low-NOx standard. This item is scheduled for Board consideration in 2019. It's expected that the standards will be phased in between 2023 and 2027.

--o0o--

AIR RESOURCES ENGINEER HAWELTI: In addition to the low-NOx engine standard, improving in-use emissions performance is also a critical strategy to meet our NOx reduction goals. Rule-making's planned as part of this measure include revising the warranty and useful-life requirements, revising the manufacturer run in-use testing protocol, and developing a new comprehensive inspection and maintenance program.

The Board hearing dates for these measures are scheduled between 2017 to 2020 with implementation between 2023 and 2027.

I will go into a little more detail on each of
these measures in the next few slides.

--o0o--

AIR RESOURCES ENGINEER HAWELTI: ARB is considering lengthening the required warranty and useful life period for heavy-duty vehicle emission control systems, because the warranty and useful life periods do not reflect the real-world longevity of heavy-duty vehicles. For example, as shown in this chart, Class 8 vehicles frequently operate upwards of a million miles before a major overhaul is needed.

But under ARB and U.S. EPA regulations, they are required to be warrantied for only 100,000 miles and the useful life over which manufacturers demonstrate compliance with emission standards is only 435,000 miles.

With longer required warranty and useful life periods, manufacturers would need to design more durable emission control systems and components. More durable components would improve the emissions performance of these vehicles, and would reduce maintenance costs and downtime for truck owners.

--o0o--

AIR RESOURCES ENGINEER HAWELTI: Another way we encourage manufacturers to build emissions systems that last is through our in-use compliance program. Manufacturers must demonstrate compliance within the Not
to Exceed, or NTE, control area of the engine map by measuring emissions on trucks as they drive.

However, the NTE control area includes a number of conditions that exclude many operations, such as during low temperature and low load. As shown in the pie chart, for a typical heavy-duty vehicle only 5.8 percent of the engine activity fell within the NTE protocol. This means that for over 94 percent of the time this truck was operating, the NTE requirements did not apply.

Because of these current limitations, the current in-use compliance program is not adequate for ensuring that emissions are controlled during the majority of in-use operations, especially during low load conditions.

We therefore are currently considering modifying the test protocol in order to more effectively cover all driving conditions.

--o0o--

AIR RESOURCES ENGINEER HAWELTI: As briefly mentioned earlier, a new heavy-duty inspection and maintenance program is also needed to improve the emission performance of heavy-duty vehicles. Just like we all take our cars in periodically to be smogged -- to be smog checked to make sure the emissions systems are working, there is a need to ensure heavy-duty trucks' emissions systems are well-maintained and functioning as originally
designed.

We are looking at I&M program designs that take advantage of the on-board diagnostics, or OBD, systems on modern trucks. There may be ways to make heavy-duty inspection and maintenance extremely convenient through the use of remote communications, submit real-time OBD data from the vehicle to regulatory agencies.

The measure may require heavy-duty repair shop licensing as well as licensing of mechanics for competency.

It may also utilize remote sensing systems, such as those being evaluated in the research I discussed earlier, to identify high emitters and ensure after-treatment systems are operating properly. This program is scheduled for Board consideration in 2020.

--o0o--

AIR RESOURCES ENGINEER HAWELTI: In my presentation today, I have worked through many research activities and planned rule-makings, all intended to better understand and control NOx emissions from heavy-duty trucks. This slide summarizes staff's next steps for research and for rule-making.

For research, the low-NOx standard State 1 project will be completed by December of this year, and Stage 2 by the end of 2018. The heavy-duty inspection
maintenance and repair durability studies will be completed by the end of 2017.

These research programs are going well, and strongly support further regulatory action for heavy-duty engines. For rule-making, we will be reaching out to affected stakeholders to share information and get their input. We will conduct our first public workshop on low-NOx standards and the warranty change next month on November 3rd, and we will have more workshops through 2019. Board dates for the various measures are scheduled between 2017 through 2020.

The work I have described here today is expected to yield benefits via cleaner trucks and cleaner air in California and nationwide for decades to come.

Thank you. We would be happy to address any questions.

CHAIR NICHOLS: Thank you. Are there any questions before we hear from the witnesses?

Yes, Dr. Sherriffs.

BOARD MEMBER SHERRIFFS: Just a clarification. There are those 2 engines that are certified to the optional standards, the 8.9 liter at 0.02 and the 6.7 at 0.1. Are they in commercial application?

MOBILE SOURCE CONTROL DIVISION CHIEF KITOWSKI: Yes, they are both commercially available today.
And as a matter of fact, the funding plan, which you're
going to see later on today, will be providing funding for
some of those engines.

BOARD MEMBER SHERRIFFS:  Great. Thank you.
CHAIR NICHOLS:  There's a lot going, a lot going
on. This is a big program. Thank you for the
presentation.

Let's hear from first, Mr. Hogo.

MR. HOGO:  Good morning, Chair Nichols and
members of the Board. Henry Hogo, Assistant Deputy
Executive Officer with the South Coast Air Quality
Management District.

I'm here today to urge moving forward with the
plan measures as proposed by staff. We believe these are
very important and critical measures needed for the South
Coast region to attain air quality standards by 2031.

I also want to show our appreciation to the ARB
staff for working closely together in collaboration on
research and development projects over the years. And we
are very optimistic that all engines can meet this
ultra-low NOx standard based on the research that's being
done today. And we look forward to actually working with
your staff on a Stage 2 project as we move forward.

I also want to mention that we've been
sponsoring, along with the Energy Commission, and ARB has
been part of this work on a 12-liter natural gas engine at 0.02 grams, and the research then is coming along very nicely. And we believe that that engine prototype will actually be available sometime next year. And we hope that that engine will be commercialized shortly thereafter. So that is a very encouraging sign on the natural gas side, and we believe diesel engines can step up to that level also.

I also want to mention we're very optimistic on a national level on our petition with U.S. EPA. And we appreciate the support that the Air Resources Board have shown with the petition. We've been contacted by U.S. EPA, in terms of a discussion on formally moving forward with a response to the petition, and is a very positive, at least indication from EPA, that they will move forward with some form of rule-making shortly.

And so with that, I just want to say we look forward to working with your staff as you move forward with developing the new emission standards, and also the in-use performance standards are absolutely critical in order to make sure that the emissions do not degrade. So thank you.

CHAIR NICHOLS: Thank you. Thanks for the role that your district has played in helping to fund and test out all these new technologies.
MR. HOGO: Thank you.
CHAIR NICHOLS: It's a great partnership.
Okay. Now, we hear from Mr. Miller.
Yes.
MR. MILLER: Good morning, Chair Nichols and Board Members. My name is Chris Miller. I am the executive director of the Advanced Engine Systems Institute, also known as AESI. It's a trade association that advocates on behalf of its members that make criteria and greenhouse gas emissions control technologies.

My members supply and work our customers, the truck and engine and vehicle manufacturers, to provide clean, affordable, and efficient technologies that reduce air pollution, and help achieve compliance with the most stringent air quality standards in the world.

As you know, better than most, these protective standards are key to making our cities and communities livable, and a healthy engines of strong economic growth. As you've heard, numerous cities, states, and air quality management entities across the country have joined in support of the petitions to EPA and by San Joaquin Valley APCD, and South Coast for a national standard to reduce NOx emissions from heavy-duty trucks to 0.02 grams per brake horsepower hour a 90 percent reduction.

The support for a new more stringent standard has
come from various places around the country, including the northeast, the mid-Atlantic, and the ozone transport region, and elsewhere. Those areas have made it clear publicly, in our many conversations with them, that they needed significant additional NOx reductions from heavy-duty on-road vehicles soon to achieve ozone attainment deadlines.

San Joaquin and South Coast have also pointed out that a California-only standard is insufficient to meet their requirements under the attainment deadlines.

The petitions and their supporters have also expressed the view that regulations should align, or harmonize, the implementation of the heavy-duty phase 2 greenhouse gas standards with a new ultra-low NOx standard, so that engine makers can simultaneously optimize for reductions in both pollutants.

As the Board may know, and as my colleague, Dr. Brezny pointed out, the introduction of SCR technology in 2010 allows the co-optimization of fuel economy and NOx emissions. There no longer needs to be the CO2-NOx tradeoff, because designers can consider the powertrain or the whole vehicle, and take greater advantage of SCR's effectiveness.

This technology is an example of the tremendous capacity that the supplier industry has to innovate
working with the OEMs to achieve stringent regulatory targets.

We are confident, given the results of the research thus far and the suite of engines already being certified for 2016 and 2017 at very low levels, that the 0.02 standard is one that we innovate to meet or outperform with a good margin and in a very cost-effective manner.

The 0.02 standard will require an evolution in control technologies, not a revolution. The cost of the improved technologies likely to be in the $500 to $1,000 range when added to a new compliant heavy-duty vehicle.

From an air quality manager's point of view, that ballpark at about 37 -- 3,750 per ton of NOx removed. Most managers that we talked to consider that to be very attractive and substantially less in dollar terms than many of the stationary source controls that might otherwise have to be employed.

Thank you very much

(Laughter.)

CHAIR NICHOLS: Perfect. Well done.

And we hear once again from Dr. Rasto Brezny, who does not need to identify himself again.

DR. BREZNY: Thank you, again. I guess this is my hat trick boring hearing.
So -- and this -- there are a number of important items to our industry and that's why I feel compelled to contribute, but -- and participate. But, you know, I think California put out the optional standards, the voluntary NOx standards. And that's a good start. But nothing motivates the industry and engine manufacturers to work together to achieve these goals than a mandatory standard.

So I'm really glad that ARB is now in the process of doing that. And we certainly support your efforts and we'll support the federal efforts as well to turn this into a national standard. And to kind of emphasize the importance of this on a national level, MECA did some moves modeling, emissions inventory modeling of what a 0.02 gram heavy-duty NOx standard would look like across the country outside of California.

And we estimate that that would reduce NOx from heavy-duty engines by over 750 tons per day, which is a huge inventory benefit to areas like the northeast, the mid-Atlantic, and midwest, and so forth that are struggling with ozone.

So another way we've been supporting ARB's efforts is through the low-NOx test program, which we heard about from staff. And our members have provided over a dozen different systems into this program in order
to demonstrate that the technology can achieve the
optional low NOx 0.02 gram level.

And what's interesting is that over 40 to 50
percent of that reduction was achieved simply by improved
calibration of the engine with no new additional hardware
required. So we almost got half of the way there just
through that.

And then, you know, some of the technologies that
our members have provided really represent a evolution of
existing technologies that are on the road today. So
we're talking about improved substrates, improved
catalysts, bringing the SCR closer to the engine by
putting it right on the diesel particulate filter in order
to allow it to warm up sooner, improved urea injection
strategies so that ammonia can be delivered to the SCR
catalyst at a lower temperature, so that it not only
benefits cold start, but it also benefits low temperature
operation. And that's why MECA will be partnering again
with ARB on the Stage 2 program to address the challenges
that vocational engines have at low speeds and low loads.

So the emphasis I want to highlight that all
these evolutions have occurred since 2010 on SCR systems,
and at the same time the systems that we have on the road
today are 60 percent smaller, 40 percent lighter, and 30
percent cheaper than what we had in 2010.
And so there's a lot of evolution that's gone on already, and I think that's going to continue in order to achieve these 0.02 gram levels. So I want to echo the numbers that my colleague Chris Miller mentioned, that we believe that this can be done on the order of $500 to $1,000 per truck on what we have, in addition to what we already have on the trucks today.

So it's not a revolutionary redesign of the entire system. It's really just improvements. And a lot of these improvements are already on light-duty vehicles in Europe. So it's just bringing them over to the heavy-duty sector.

CHAIR NICHOLS: So I'm going to ask you a question, which I realize calls for speculation --

(Laughter.)

CHAIR NICHOLS: -- but one of the things that we have found with our efforts with the heavy-duty sector in the past is that there seem to be ways that owners and operators of vehicles can, I'll just say, interfere with their emissions performance, perhaps deliberately, maybe not, but in any event, that they don't always meet the standard that they were designed to meet, even with very good, durable, well-designed technologies.

Is there anything out there in the works or anything that would help give us some indication that
there's a way to deal with that issue?

DR. BREZNY: Well, I think, you know, ARB staff
is addressing those issues. And we certainly -- there's a
number of MECA members that develop OBD sensors. So the
OBD system is one obvious way to help alert operators that
things aren't working quite right. And then the
heavy-duty inspection and maintenance, I think, is an
important effort to bring those requirements down to match
the technologies that are in trucks -- on trucks today.
And I think it needs -- you know, once California has kind
of defined what this might look like, I think it's going
to be a model for the rest of the country in order to help
other states in establishing heavy-duty IM programs.

CHAIR NICHOLS: Great. Thank you.

DR. BREZNY: So I think it's a process, but, you
know, there's -- before -- you know, although light-duty
vehicles, passenger cars, have had catalysts on them for,
you know, 40 years, you know, heavy-duty trucks have only
had them really since 2007. So there's a lot of learning,
not just, you know, for the -- I mean, for the industry,
but also for the owners, in order to understand how do
these -- how do these system -- what's needed to maintain
these systems, so --

CHAIR NICHOLS: That's very helpful. Thank you.

DR. BREZNY: Thank you.
CHAIR NICHOLS: We do have one more witness who signed up. John Boesel.

MR. BOESEL: Madam Chair and other members of the Board, thank you for this opportunity. I -- we also --

(Thereupon the timer beeped.)

MR. BOESEL: Wow.

(Laughter.)

MR. BOESEL: Okay.

CHAIR NICHOLS: That's it.

(Laughter.)

MR. BOESEL: Thank you very much.

(Laughter.)

MR. BOESEL: I think this is a very interesting and exciting area for regulation and also for technology innovation. We've been very impressed by the state of innovation and the way the industry is rising to this challenge. It's very impressive that there already is this certified ultra low-NOx engine available, two of them.

I think Cummins Westport will soon have the 12 liter available, which particularly here in the San Joaquin Valley, I think that engine size will be able to really address a much larger segment for the industry here.

The economics of natural gas are looking very
promising, and I think there's also going to be some really interesting synergy with the passage of Senate Bill 1383 and methane -- and the control of methane emissions, and the opportunity to really start moving ahead with renewable natural gas and bringing that into the transportation sector.

So I think that the way the Board is moving ahead now, and we'll hear the motion later on, about providing incentive funding to get these ultra-low NOx engines into the marketplace, I think that's really important to help play that early role in building confidence with the fleets to understand that this technology works, it is reliable, and that's where incentive funding is going to be important to move that forward.

So a very important area, and I -- I'm just encourage by the state of play that we see among our 160 member companies to develop the innovations, develop the technology, and make this viable.

CHAIR NICHOLS: Thank you.

This one does not have a resolution.

Just checking.

(Laughter.)


Thanks for the report. Thanks for again the encouraging news and collaborations that are afoot. It's really great
to hear. And obviously, all of this is critical for the place where we are today, the San Joaquin Valley, where even more than elsewhere, the State transportation is a critical element in the air quality problems that are experienced here, and that is the next item that we're taking up.

So we'll have a brief shifting of personnel here. Thank you, Mr. Hawelti, and talk about the particulate matter SIP of the San Joaquin Valley.

This is the right place to be to be hearing this item, and --

CHIEF COUNSEL PETER: Chair Nichols?
CHAIR NICHOLS: Yes.
CHIEF COUNSEL PETER: The court reporter would like a 5-minute break.
CHAIR NICHOLS: I'm sorry.
VICE CHAIR BERG: Five minute break.
CHAIR NICHOLS: Okay. I didn't hear you. Yes, let us take a break then. Five minutes enough?
THE COURT REPORTER: (Nods head.)
CHAIR NICHOLS: Okay. We'll take a 5-minute break. Thanks, everybody.

(Off record: 11:15 a.m.)
(Thereupon a recess was taken.)
(On record: 11:30 a.m.)
CHAIR NICHOLS: Let's reconvene. It was a long 5 minutes, but we've been having some good conversations here on the side. So I'll welcome everybody back. This meeting will come to order eventually.
Yeah, I need that. Okay. I don't have a gavel. I need a gavel of my very own.
BOARD MEMBER SERNA: Have a gavel, will travel.
CHAIR NICHOLS: Exactly. Exactly.
Okay. We're moving on to the reason why we're here today, actually in particular, which is the matter of consideration of the 2016 particulate matter SIP for the San Joaquin Valley. And before we take up the staff report on this item, I would be remiss if I didn't thank Dr. Sherriffs who not only serves on our Board, but serves on the San Joaquin Valley Board, and who, I think, ought to at least be allowed a few minutes of introduction here before we take up this item.
BOARD MEMBER SHERRIFFS: Thank you for that.
Yeah, I'm the homeboy. This is my neighborhood.
(Laughter.)
BOARD MEMBER SHERRIFFS: And welcome to my neighborhood. And I really do want to thank everybody for coming and thank Seyed and the Air District for helping out make this possible.
You know, I think it's a great example. You
know, we get to see some faces we don't usually see. Sacramento is a long way away when people testify. And it's great for the Board to have an opportunity to go to different districts and get input from people who may have much more difficulty coming to Sacramento to testify, although we always welcome written comments.

But it's also an example, I think, of our Board making its best decisions when we get that broad input. And another example of that was the opportunity by coming here that Board members had yesterday to tour and learn more about biomass industry issues, and also to tour with the dairy industry looking at methane digesters. And I think that kind of depth of understanding leads to much better decisions from here.

So again thanking all. And I do have to shout out Kevin Abernathy with Dairy Cares for his organization of the tour with the dairy yesterday. I think we all found it very, very helpful, very enlightening.

So thank you all for coming and...

CHAIR NICHOLS: Thank you so much, and for the warm welcome we've received here. We are grateful. I'm really sorry I personally wasn't able to attend the tour yesterday because biomass is going to be a topic of conversation --

BOARD MEMBER SHERRIFFS: I have 83 pictures that
I could --

(Laughter.)

CHAIR NICHOLS: You can send them to me as a file.

BOARD MEMBER RIORDAN: Madam Chair, if I might?

CHAIR NICHOLS: Yes.

BOARD MEMBER RIORDAN: I echo the great opportunity that we had yesterday, and as well today, to meet with this district's residents and -- but yesterday, the tour that Kevin arranged through with Dr. Sherriffs was very valuable. And he just said to me, as I thanked him again for that opportunity, that he would make that available again for Board members that weren't able to go. Timing was critical. Sometimes flight patterns are very difficult for people to get to Fresno at the right time, because there's a limited number of planes. And so he's made that offer, and I would encourage everybody to take that offer --

CHAIR NICHOLS: Thank you.

BOARD MEMBER RIORDAN: -- and with him.

CHAIR NICHOLS: Thank you so much.

If there are people in the audience here who have not signed up to testify and who are planning to testify, or think they're going to testify, I would really encourage you to put your name on the list, because we
need to organize our time here to make sure that we have
enough time and, that we can, if at all possible, consider
this entire item as a package before we take a lunch
break.

So now, I think we should probably begin.
Mr. Corey, would you introduce this item?
EXECUTIVE OFFICER COREY: Yes, Chair Nichols.
And the Clean Air Act sets out a step-wise
planning process for developing PM 2.5 State
Implementation Plans. This process starts with a moderate
area SIP with an initial attainment deadline within 6
years. If the attainment within this time frame is
impractical, EPA classifies the area as serious, and
requires a second SIP that must show attainment within 10
years.

PM2.5 levels in the valley have shown overall
improvement since 2001. However, weather conditions
associated with the recent California drought held up
progress towards attainment. These drought-impacted PM2.5
concentrations make it infeasible for the valley to attain
the 12 microgram per cubic meter annual standard by 2021
moderate area deadline.

The 2016 PM2.5 SIP was therefore developed to
fulfill the first step established in the Clean Air Act
planning process. The plan includes an impracticality
demonstration and a request to be classified as a serious nonattainment area.

Looking beyond today's item, ARB staff is working with the San Joaquin Valley Air District on evaluating the region's attainment needs. Today's presentation will explore the nature of the Valley's PM2.5 problem and contributing sources, setting the stage for your consideration of a serious area attainment plan next year.

I'll now ask Webster Tasat, Manager of the Central Valley Air Quality Planning Section in the Air Quality Planning and Science Division to get the staff presentation.

Webster.

(Thereupon an overhead presentation was presented as follows.)

AQPSD CENTRAL VALLEY AIR QUALITY PLANNING SECTION
MANAGER TASAT: Thank you, Mr. Corey. Good morning, Chair Nichols and members of the Board.

--o0o--

AQPSD CENTRAL VALLEY AIR QUALITY PLANNING SECTION
MANAGER TASAT: Meeting PM2.5 standards over the next decade is the valley's most critical air quality challenge. In today's presentation, I'll begin with an overview of the approach for defining a comprehensive attainment strategy for the region that staff and the Air
District will be working on over the next 12 months. Next, I'll discuss the SIP before you today and the role it plays in this broader planning process. The focus of the remaining presentation will then look at the nature of PM2.5 in the valley and how this science is informing the strategies that will be needed.

Finally, I'll highlight several broad new initiatives that are supporting the valley's transformation to a cleaner, more sustainable future.

--o0o--

AQPSD CENTRAL VALLEY AIR QUALITY PLANNING SECTION

MANAGER TASAT: I'll start with an overview of the valley's path to attainment and how today's SIP gets into the Clean Air Act's planning framework.

--o0o--

AQPSD CENTRAL VALLEY AIR QUALITY PLANNING SECTION

MANAGER TASAT: The Clean Air Act sets out requirements for establishing air quality standards as well as the plans for meeting them. EPA is also required to periodically review standards to ensure they remain protective of public health. Based on this review, EPA has established increasingly health protected PM2.5 standards.

This includes both a daily standard to protect against short-term exposure, and an annual standard to
address chronic health effects. Over the next decade, the valley must meet the daily standard of 35 micrograms per cubic meter, the original standard of 15 micrograms per cubic meter, and the most recent revision, which lowered the annual standard to 12 micrograms per cubic meter.

Rather than individual strategies for each standard, we are working to develop a comprehensive strategy on an accelerated schedule addressing all of these standards. This will build on current progress.

For example, annual levels have dropped over 15 percent since 2001, and peak daily levels have decreased 25 percent. The Clean Air Act's health-based air quality standard's meaningful deadlines and requirements for a comprehensive plans have been the tool for achieving this air quality success. The Act's flexibility to tailor control strategies to best fit California's needs also provides an effective framework for future planning.

The valley's PM2.5 attainment strategy will need to include both regulatory efforts and incentive programs reflecting comprehensive actions by both ARB and the district. Work has already begun to identify key sources and the types of strategies will be needed as I'll highlight today.

Over the next year, this information will provide the basis for developing specific regulations and other
actions that will be required to achieve healthy air. Development of the strategy must also include a robust public process to engage all valley stakeholders. ARB staff are committed to working with the district to initiate the public process as soon as possible.

--o0o--

AQPSD CENTRAL VALLEY AIR QUALITY PLANNING SECTION

MANAGER TASAT: As we continue to work on the comprehensive attainment strategy, there are also interim requirements for individual standards. The proposed action today addresses that interim step for the most recent annual standard of 12 micrograms.

Under the Clean Air Act, areas with more severe air quality are provided more time to attain, along with more stringent control requirements. However, unlike ozone, which sets specific attainment deadlines before the planning process begins, establishing an appropriate attainment date for PM2.5 is a step-wise process, which begins with preparation of a moderate plan.

The moderate SIP must include all controls that can be implemented within a 60-year time frame, and an evaluation of whether they can provide for attainment by 2021. If a longer time frame is necessary to implement strategies to achieve the needed reductions, a second SIP is required demonstrating how the area will meet the
standard by the serious area deadline of 2025.

Today's SIP represents the first step required under the Act's phased planning process. The moderate SIP was approved by the district board last month.

--o0o--

AQPSD CENTRAL VALLEY AIR QUALITY PLANNING SECTION

MANAGER TASAT: Between now and 2021, ARB and the district will continue to implement an aggressive suite of control programs that provide significant reductions. For example, the truck and bus regulation is a key program to reduce NOx and diesel PM emissions. The regulation represents a multi-year effort to turnover the legacy fleet with nearly all trucks meeting a 2010 engine standard by 2023.

For PM2.5, the district's wood-burning curtailment rule and Burn Cleaner Program to reduce wood-burning devices -- to replace wood-burning devices with cleaner units are providing ongoing PM2.5 benefits.

Incentive programs are also enhancing the transformation toward cleaner technologies. Since 2009, over $400 million in private and public funding have been invested in the replacement of older agricultural tractors with newer, cleaner models. By 2021, ARB and the district control programs will reduce NOx by nearly 40 percent and PM2.5 by over 5 percent.
The moderate area SIP requires a modeling assessment to determine the benefits of these substantial emission reductions. This modeling is a collaborative effort between ARB and the district and draws on the scientific studies conducted in the region.

The modeling also reflects the increases PM2.5 levels that have occurred due to weather conditions associated with the drought.

As shown in the graph on the right, implementation of current control programs will result in significant progress. However, the modeling demonstrates that additional reductions are headed to ensure public health protection under the potential recurrence of drought-type weather patterns.

As I'll be discussing in the remaining portion of the presentation, these reductions are achievable and will rely on new actions over the next 10 years. A serious classification provides the suitable time frame under the Act to develop and implement these comprehensive new measures.
the Clean Air Act planning process, and sets the stage for a broader, multi-standard strategy development. The SIP includes a request that EPA classify the San Joaquin Valley as serious with an attainment deadline of 2025.

The SIP also includes all requirements for a moderate area, including assessment of controls, and elements that ensure ongoing progress, including reasonably available control measures, reasonable further progress, and contingency measures.

--o0o--

AQPSD CENTRAL VALLEY AIR QUALITY PLANNING SECTION MANAGER TASAT: As we move forward on the next step, I'll highlight how our understanding of the nature of PM2.5 in the valley is informing strategy development.

--o0o--

AQPSD CENTRAL VALLEY AIR QUALITY PLANNING SECTION MANAGER TASAT: As I mentioned earlier, over the next decade, the valley must meet a suite of PM2.5 standards. Actions to address these standards are interrelated, and therefore an integrated strategy provides for more efficient planning and progress towards attainment.

An integrated strategy must consider the multiple source types that contribute to both daily and annual PM2.5 levels, as well as sources that contribute at different times of the year.
Specific measures will be identified as part of the planning process based on continuing modeling, analysis, technology assessments, and stakeholder input. However, in today's presentation, I'll highlight the key sources that contribute to PM2.5 in the valley and potential strategies for each source.

---o0o---

AQPSD CENTRAL VALLEY AIR QUALITY PLANNING SECTION
MANAGER TASAT: Defining an effective strategy begins with understanding the nature and magnitude of the challenge. The valley's topography and weather patterns are especially conducive to the formation and accumulation of PM2.5. Mountain ranges on the east and west sides of the valley and the Tehachapi mountains to the south trap air pollution year round.

During the winter, long periods without rainfall coupled with cool temperatures and stagnant winds lead to PM2.5 levels that build over days to weeks. While these factors produce elevated concentrations valley-wide, the highest PM2.5 concentrations are typically measured in the central and southern portions of the valley, as illustrated in the map on the right.

---o0o---

AQPSD CENTRAL VALLEY AIR QUALITY PLANNING SECTION
MANAGER TASAT: Weather conditions and seasonal emission
activities also lead to PM2.5 levels that vary throughout the year. The graph on the right illustrates monthly average PM2.5 concentrations in Bakersfield, the area with the highest levels.

While PM2.5 concentrations are highest during the winter months, almost every month has average concentrations above the 12 microgram annual standard.

Meeting this standard therefore requires a year-round strategy with controls on the specific sources that contribute in each season. I'll describe how we identified these sources and associated strategies in the next series of slides.

--o0o--

AQPSD CENTRAL VALLEY AIR QUALITY PLANNING SECTION
MANAGER TASAT: Let's start by looking at the winter months of November through February highlighted in purple in the graph on the left. Ambient PM2.5 levels are made up of many constituents that can be either directly emitted, such as soot and dust, or formed through reactions of NOx, SOx, and ammonia.

Routine measurements of these constituents are made at 4 sites in the valley, supplemented with more extensive measurements during intensive field studies.

Examining the makeup of PM2.5 at different times of the year helps determine contributing sources and
identify effective control approaches. The pie chart on the right shows the average contribution of different constituents to wintertime PM2.5 levels in Bakersfield. Ammonium nitrate, shown in red, and carbon shown in blue, are the two largest contributors. Together, they comprise nearly 80 percent of measured PM2.5, and thus both must be reduced to lower wintertime PM levels.

--o0o--

AQPSD CENTRAL VALLEY AIR QUALITY PLANNING SECTION

MANAGER TASAT: So what are strategy approaches for ammonium nitrate?

Ammonium nitrate is a secondary pollutant which formed — forms through the reaction of NOx with ammonia. Extensive studies conducted in the valley demonstrate that controlling NOx is the most effective way to reduce ammonium nitrate.

Mobile sources comprise over 80 percent of NOx emissions in the valley, thus measures in ARB's Mobile Source Strategy will be the foundation for the cleaner technologies needed for attainment.

Key measures include the new low-NOx standard for heavy-duty trucks, as you just heard in the prior item, requirements for more stringent locomotive engine standards and specifications for low-emission diesel fuel. Incentive programs will also be critical for accelerating
the pace of cleaner technologies within the 2025 time frame.

The low carbon transportation funding you will hear about next is one such program, but meeting the valley's needs will require looking beyond current State funding mechanisms. The San Joaquin Valley and South Coast boards have already be gun working together to develop funding plans to meet the combined needs of both regions.

--o0o--

AQPSD CENTRAL VALLEY AIR QUALITY PLANNING SECTION
MANAGER TASAT: Wintertime PM2.5 is also made up of large amounts of carbon combustion particles, as shown in the blue slice. Chemical markers that are unique to different sources are used to identify the sources of these particles. These markers demonstrate that both wood burning and commercial cooking operations are significant contributors, as well as diesel PM for mobile sources. In designing the control strategy, it is important to know that reducing these directly emitted particles is up to 10 times more effective in reducing PM than controlling NOx.

Strategies for these combustion sources will need to consider the stringency and effective implementation of the district's wood burning curtailment program and continue an expansion of incentive programs to replace...
older wood stoves and fireplaces.

Enhanced education and outreach efforts on the use of cleaner burning alternatives, especially in disadvantaged communities will also be important. The district is also working with restaurants demonstrate new technologies for reducing the emissions from char-broiling.

Finally, programs to reduce diesel PM will be important for both PM2.5 attainment and in reducing near-sources exposure.

--o0o--

AQPSD CENTRAL VALLEY AIR QUALITY PLANNING SECTION

MANAGER TASAT: Next, let's look at the summer and fall months, which are now the purple highlighted bars in the chart on the left. Although concentrations are lower than in winter, monthly average concentrations remain above the annual standard. Thus, strategies for sources that predominate in the summer and fall are also needed to meet the standards.

As shown in the pie chart on the right, ammonium nitrate and carbon particles still play a role with carbon particles becoming even more important, but fugitive dust particles, shown in orange, also become a significant contributor during the summer and fall.

--o0o--
The contribution of fugitive dust to PM2.5 has typically been small. However, with longer air pollution episodes, drier soil conditions associated with the drought, and an increase in fallow fields, fugitive dust levels have increased in recent years.

Reducing PM2.5 concentrations in the summer and fall will therefore require evaluation of opportunities to reduce dust emissions from a variety of sources, including paved and unpaved roads, agricultural operations, and construction areas.

Reducing PM2.5 in the summer and fall will also need to include strategies for other constituents. Mobile source NOx reductions provide year round benefits for ammonium nitrate. The same is true for strategies to reduce combustion particles from commercial cooking and diesel PM.

Other more seasonal strategies, however, include contributions from managed burning and biogenic emissions that form secondary organic aerosols.

Implementation of the district's smoke management program helps minimize the impacts of burning, but efforts to continue to develop non-burning alternatives for waste
residues will also be important. Addressing ammonium sulfate will be more challenging as the sources are smaller and more widely distributed, but the attainment strategy should evaluate potential opportunities for further reductions.

--o0o--

AQPSD CENTRAL VALLEY AIR QUALITY PLANNING SECTION

MANAGER TASAT: In addition to the specific strategies I just discussed, there are a number of new valley initiatives that will provide broad environmental benefits improving PM2.5 and ozone levels, as well as reducing greenhouse gases.

These initiatives support the valley's transition to more sustainable development, greener technologies, and beneficial use of the valley's biomass resources. The next few slides briefly highlight a few of these programs.

--o0o--

AQPSD CENTRAL VALLEY AIR QUALITY PLANNING SECTION

MANAGER TASAT: The Transformative Climate Communities Program recently signed by Governor Brown provides grants to fund neighborhood level planning that includes projects to address climate change and provide other community-scale benefits, particularly for disadvantaged communities.

Under the program, $70 million was recently
proposed for Fresno and will be invested in numerous projects that will help reduce emissions through regional transportation development and by encouraging the use of public transit and other modes of transportation. This is an exciting opportunity for the city, and can be the foundation for long-term transformation and development.

--o0o--

AQPSD CENTRAL VALLEY AIR QUALITY PLANNING SECTION

MANAGER TASAT: ARB will also be partnering with multiple stakeholders to develop both short-term and long-term strategies for transitioning away from biomass combustion to more efficient and cleaner technologies and disposal methods.

A biomass utilization action plan will explore the opportunities to better utilize biomass for composting and generating renewable fuels in bioenergy, both agricultural and forest biomass.

This effort, led by Board Member Florez, will include a biomass summit planned for next spring. The first of several comprehensive planning meetings took place just yesterday in Bakersfield. The initial focus of this effort will be on developing near-term solutions for alternatives to agricultural burning in the San Joaquin Valley.

--o0o--
The increased use of renewable natural gas also has the potential to provide significant benefits in the valley. Actions include a number of pilot projects to demonstrate the viability of producing renewable natural gas from agricultural, forestry, and other biomass waste streams.

Renewable natural gas can displace fossil fuels and use organic waste from a variety of sources including landfills, wastewater treatment plants, and livestock operations.

For example, a major biogas project deriving energy from dairy waste is currently in operation in Tulare County. Efforts to bring pipeline distribution of renewable natural gas to rural residents in the valley could also provide opportunities for meeting home heating needs through a cleaner fuel source.

Over the next year, ARB will be working with the district to develop specific measures as part of an integrated attainment strategy. The strategy will need to reflect a comprehensive portfolio of actions targeting the diversity of sources that contribute to PM2.5 throughout the year.
The actions and cleaner technologies that will be needed are already underway. ARB staff will be holding the first workshop on development of the low-NOx truck standard next month, and EPA has signaled their intent to work with ARB on a harmonized national approach.

Cleaner wood-stove standards established by EPA will be in place by 2020, and research projects are underway to demonstrate new methods for controlling emissions from commercial restaurants.

At the same time, incentive programs and broad initiatives such as the Transformative Climate Communities, are integrating efforts to support both air quality and climate goals.

Combined, ARB and district action will be essential in achieving healthful air. ARB rule-making over the next few years, as outlined in the Mobile Source Strategy, will establish requirements for cleaner engine standards and zero emission technologies.

Incentive programs will need to complement these efforts by accelerating the deployment of cleaner technologies to meet PM2.5 attainment time frames.

District actions must consider strategies for sources under local jurisdictions, such as wood burning and fugitive dust, along with strong partnership with ARB in implementing incentive programs.
AQPSD CENTRAL VALLEY AIR QUALITY PLANNING SECTION

MANAGER TASAT: In closing, staff will continue working with the district on an accelerated schedule for development of a comprehensive attainment strategy for the valley that we will bring back for your consideration next fall. This will include initiation of a public process to actively involve all valley stakeholders.

Staff also recommends approval of the moderate PM2.5 SIP for the 12 microgram standard as required under the Clean Air Act to address the first step in the planning process.

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

CHAIR NICHOLS: I think we should probably hear next from the district, and then we can have our questions.

MR. SADREDIN: We accommodate short people here.

(Laughter.)

CHAIR NICHOLS: I need one of those.

BOARD MEMBER RIORDAN: We should have one.

MR. SADREDIN: Thank you, Madam chair, members of the Board. Let me also officially welcome you on behalf of the Air Board here, valley residents to be here in San Joaquin Valley. Thank you for being here. Please come
back again. We really value our partnership. The great work that you do for us, both in terms of holding our feet to the fire to do everything possible within our means, and then doing everything that you can to make sure we save lives in San Joaquin Valley.

Your work over the years to save lives in San Joaquin Valley does not go unnoticed, and there has been a lot of progress that we are grateful because of your assistance.

I also wanted to specifically thank Richard Corey for always paying attention to our needs, all of my colleagues through CAPCOA, the California Air Pollution Control Offices Association. We really appreciate the time and devotion that he has shown in understanding our issues and helping us move forward with all the things that we need to do.

Now, with respect to the Item that is before us today, if you could put the PowerPoint up.

(Thereupon an overhead presentation was presented as follows.)

MR. SADREDIN: Thank you.

This item, by the way, was unanimously approved by the Board. Dr. Sherriffs was there. It came with a -- together with -- after a lengthy public process, a number of public hearings, public meetings, where everyone's
input was taken into account. And at the final hearing last month, my friends from the environmental advocacy groups were here, and no one had any opposition.

They did not even ask for a delay, because sometimes my friends there -- but when they cannot come up with a specific objection that they have, they say, well, let's just delay it and think about it some more. At that meeting, there was no objection to the plan, and there was no ask for delay.

Now, this plan that is before you, as your staff very well articulated, a big part of it is a demonstration that attainment is impracticable. That's the legal requirement.

We also have to show that we have Reasonably Available Control Technology. As you know, both the district and you, we have been in a perpetual planning mode for PM. And EPA just last year made a ruling that we have Reasonable Available Control Technology. In fact, we have Best Available Control Measures, which -- or so-called BACM, that go well beyond reasonable control technology.

In my opinion, this is a bureaucratic process that we have to go through. And I'm hoping today, we don't spend a lot of time on that part of it. I want to show you some charts that deal with the impracticability...
issue, but my hope is that we can spend a lot of our time today on doing things that actually save lives in San Joaquin Valley, reduce air pollution, moving forward to actually get some things done.

--o0o--

MR. SADREDIN: So with that, let me just show you this chart. The bar to the left is the baseline inventory where we are, 2021 is where we're going to be with all the measures that you have put in place, and all the things that we're doing locally.

As you can see, the orange part, which is the stationary source emissions make up only 15 percent of the total pollution, and that is all of agriculture, all of oil industry, operations, dairies, every business that you can think of in San Joaquin Valley. That's the total air pollution that we get from stationary sources. As you can see, trucks are a big part of our inventory. Over 85 percent of the pollution comes from mobile sources. And as you can tell, not only it's impracticable, it's really physically impossible to show attainment by 2021.

And that red bar is where we need to go to reduce air pollution, NOx emissions. To show attainment, as you can tell, if I eliminated all of our stationary sources in San Joaquin Valley, we're not going to be able to attain. If you eliminated all the trucks, we're not going to be
able to meet the standard. We need a lot of reductions in emissions from all source categories.

--o0o--

MR. SADREDIN: Now, if you approve this item that is before you, and we send it to EPA, then the deadline of 2025 is not a lot easier. But at this point, we're not ready to raise the white flag and say it's impossible. I think we have to do everything we can to see if we can. But there are some people that say even 2025 might be impossible, but we have high hopes that we can get there. As your staff said, technology might be there. The infrastructure needs a lot of work to be able to get to zero emissions.

But basically, for the valley to meet the standard, we need to get to a point of zero emissions from fossil fuel combustion.

Now, I'm not talking about banning fossil fuel combustion, but we need the technologies where we can get to pretty low emissions from fossil fuel combustion. So hopefully that's very clear that, you know, this is not an unnecessary delay.

For the ozone, for instance, EPA has already put implementation rules in place that says if you are an extreme non-attainment for a much easier standard, when they publish the tougher standards, you, by default, are
considered to be extreme for the more difficult standard. Here, the valley has already been designated as serious nonattainment for the 1997 standard, serious nonattainment for the 2006 standard, and really to spend a lot of time to prove the obvious that, oh, by the way, we also should be serious for the much tougher standard. To me, you know, that -- we should not spend a lot of our time, you know, wasting in that regard.

--o0o--

MR. SADREDIN: Now, I just wanted to bring to your attention some of our timelines that we're dealing with. As I talked to Kurt Karperos, Richard Corey, I've complained that I -- sometimes I feel that EP -- that ARB sometimes does not pay enough attention to what we need in San Joaquin Valley. There's a lot of focus on South Coast's timelines, the ozone timelines.

And they said here is your opportunity to get the Board to really see what you're dealing with. So I just wanted, just by way of background, give you just a quick list of what are the standards that we're facing, what are the timelines.

The 1-hour ozone standard, I think that is a great indicator of what might be achievable and what we really can do. If you recall, just a few short years ago, we were extreme nonattainment for the 1-hour ozone
standard. At that time, we thought it was impossible to meet the 1-hour ozone standard.

Earlier this year, EPA, after having 4 years of -- 4 consecutive years of no violations, finally deemed the valley to be in attainment. Thank you for all the help that you gave us. And we are the first region in the world that has gone from extreme nonattainment to actually reach attainment. And that's what gives us hope that, you know, maybe some of what looks impossible for PM, maybe I'll be here, or somebody else younger than me will be here, in a few short years and tell you, remember, say I told you it's physically impossible. Look, we're there. We're in attainment. So we want to, you know, look with that many optimistic perspective.

We are on track to also meet the 1997 ozone standard, 84 parts per billion. That was another standard that we extreme non-attainment. We had the black box. We could not identify how to get the reductions. Today, we have no black box. We are on track. If you stay the course with the mobile source reductions that EPA -- ARB has in place, we will reach attainment before the 2023 deadline with no black box.

We just submitted the plan that your Board approved and sent to EPA that the 75 parts per billion standard we're going to meet it on a timely fashion in
So when it comes to ozone, there is a lot of progress that has been made. We are seeing clearer improvement in ozone levels and that's a good story with respect to ozone. The 70 parts per billion we're doing the modeling. EPA has not published the implementation rule, but we're going to need massive reductions for the 70 parts per billion. But some of the early indications by ARB is that once you reach 75 parts per billion, it's downhill and it will be a lot easier to get into the 70, so that's what we're hoping for.

--o0o--

MR. SADREDIN: Now, the tough problem in San Joaquin Valley, and that's the part that I believe ARB maybe needs to pay a little bit more attention to is our challenges with respect to PM2.5. I don't have to tell you -- I wish Dr. Balmes was here, PM2.5, as you know, is a lot more dangerous to your health. We lose a lot of lives every year through premature death with PM2.5. Not as much with ozone, but PM2.5 is a much more severe problem, much more costly problem with respect to public health.

We have a 1997 standard, a 24-hour standard, of 65 micrograms per cubic meter. We were on the verge of meeting that standard in 2012 before the drought kicked
in. Then we got huge numbers up and down the State. As you know, even Bay Area had nonattainment numbers, and a lot of other areas. We were no -- we were not spurred from that.

We had a little bit of a mishap with EPA, first approving an extension, and then failing to act. So they retroactively gave us a deadline this year of December 2015 for meeting that standard. So unless we could put a time machine in our black box, there is no way to meet that standard, but because they -- you know, at least with that timeline 2015.

Right now, we have to send -- work with your staff and send EPA a 5 percent plan. We are -- I think we can do that. We have a couple of years where we're at 4.8 percent reductions per year. I think we're going to be in attainment of that standard in 3, 4 years at the most, but we need to be able to put together a 5 percent plan. We're at 4.8 percent.

The reason I mention is that you've heard us complain when, you know, there are rules perhaps for climate change that maybe add a little bit to our NOx inventory, and we say, hey, we're extreme nonattainment. We're serious nonattainment. We cannot afford any NOx increase. We're basically at 4.8 percent. Any small increase in emissions would kick us over that 5 percent.
So we think we can put a 5 percent plan together and send it to EPA in a few short months.

The 2006 standard, which is 35 micrograms per cubic meter. That requires almost as much reductions in emissions as does the standard that is before you today, the 2012 standard. The plan -- the attainment deadline is 2019. And as you know, to show attainment, when they say the deadline is 2019, you need 3 years of clean data. So 2019 really means 2017.

So the plan is due 2017, and we have to be in attainment immediately, because you need all of those reductions in 2017 to show attainment with a 35 percent plan. We're hoping to be able to put a plan together to do that. It's going to be very difficult at this point. Just look at the measure that you have in place already. The truck rule, the off-road rule, they will not be fully implemented till 2023.

So to even, without those, measures be in attainment in 2017 through 2019 may not be possible, but you know, we're going to give it a good shot and see what we can put together.

And then the plan that's before you today, I already talked about the -- you know, the attainment deadline is 2021. If you approve the action today and EPA ultimately approves it, then the deadline is extended to
2025, which really means 2023. Twenty-three, 24, 25, you have to have 3 years of clean data, clean air to show attainment.

--o0o--

MR. SADREDIN: Before I get into now -- so that's all I have to say in terms of, you know, what -- how difficult the problem is. I want to talk a little bit now about what we're hoping to do, what is our ask of you, what is -- what we're going to do locally, and what we're hoping the federal government can do to reach attainment.

Here -- here's the chart just since 2000. And if you go back further, there's even greater reductions that have been made. As you can see, hundreds of tons of NOx have been reduced in San Joaquin Valley. The dotted line shows where we think we're going to be with respect to the regulatory measures that are in the hopper and will kick in in that time.

As you can see, we're still short about 150 tons or so from meeting the standard. And that last 150-plus ton is a lot harder to achieve than the six, seven, eight hundred tons of emissions, where we had a lot of low-hanging fruit that we could get to.

--o0o--

MR. SADREDIN: Now, we need transformative control measures. Despite major reductions in emissions,
it's impossible to reach attainment without transformative measures. We not only need the technology, we need the infrastructure. We need to get to low emissions, no emissions, combustion devices, transportation technology to get to the standards that we need, but we need 90 percent reductions basically by 2025 to meet the latest PM2.5 standard.

And as your staff said, most of those reductions have to come from mobile sources, which unfortunately we don't have regulatory authority over. The district has put together indirect source review rule. The only air district in the State that has that.

I was talking to my friends in South Coast. They're trying to see if they can do something similar to that in that region. We're doing what we can through incentive-based measures to indirectly reduce air pollution from mobile sources, but we need your help, EPA's help to reduce mobile sources a lot further.

Now, as we move forward, we need to leave no stone unturned at the local level, at the State level, at the federal level to reduce emissions from all sectors of our economy. And we also need incentive-based strategies to be able to get those reductions in a timely fashion.

I just want to list some of the things that we're doing locally, then I'll talk about the federal
expectations that we have, and then I'll finish with what
we're hoping to get from your board and from the State.

--o0o--

MR. SADREDIN: At the district, we have our full
commitment, my Board's commitment that we will leave no
stone unturned in identifying every possible reductions in
the stationary source emissions that we can get. And by
that I mean manufacturing, agriculture, all the sources
that we have regulatory authority over.

But unfortunately, as you saw, the total
inventory is 15 percent. If we go crazy, we might be able
to get another ton or two with some, you know, very
draconian measures that we can put in place. But as you
know, we need hundreds of tons of emissions, and 1 or 2
tons from a stationary source is not going to -- not going
to get there.

We're going to do -- fully investigate
opportunities to reduce directly emitted PM2.5 from all
sources that we can think of, agriculture, fireplaces,
incentive programs. But there is a lot of science that
needs to be pursued in that area, both in terms of the
inventory, in terms of the modeling. You know, you see it
maybe dust from almond harvesting. Is it really PM10? Is
it PM35? Does it settle? Is it really a big contributor
to our PM2.5? There are a number of unanswered questions
that we need to answer and then take action to reduce those emissions.

Our board has already approved the Healthy Soil Initiative, where we will do our best to not only capture carbon, help with the climate change efforts that we support, but also improve, per the activity of the farmers by increasing the carbon content of the soil. We know it works for some crops and not for all others. There are some water quality issues, as you know, bury some of that carbon back into the soil, and what does it do to water quality?

So we have to look at it from all perspectives, but we're committed to work with our agricultural industry here to find every opportunity possible to promote Healthy Soils Initiative that will reduce emissions, reduce NOx emissions, reduce carbon emissions, and make farmers more productive.

Conservation management practices. We have a very successful program, where it acknowledges that the variation that various farms and crops face in San Joaquin Valley and gives them opportunities to tailor control measures to reduce pollution most effectively from them. We have learned quite a bit from that process. We're going to engage our farmers and find any available opportunity to find conservation management practices that
further reduce particulate matter -- directly emitted particulate matter, but also something that the farmers can do effectively -- cost effectively and with technological feasibility.

As your staff mentioned, we have spent a lot of money, and we're trying to find a way to get a few more ounces of reductions in emissions from char-broilers, the under-fired char-broilers. And it's been very difficult, but, you know, we're still working on that, but we're leaving no stone unturned.

This measure if we're very successful after spending millions of dollars we will get perhaps a 0.1 or 0.2 tons of PM reductions, but we're working on it.

And then funding. In a minute, I will talk about what our funding hopes are at the State and federal level, but at the district we will also explore any potential opportunities for securing funding at the local level.

DMV funding, my board, the only air board in the air district voted for extra DMV funds. Unfortunately, those funds in the State will sunset in 2024, because when Senator Florez gave us the authority to impose those DMV dollars at the time, we were looking at the standard that -- extreme ozone standard. The deadline was 2024, thought that's it.

But as you know, we got, you know, 5 new
standards since then. So I'll be going to my board to ask for legislation or support for legislation to extend that authority. And hopefully, we'll get legislative support to continue bringing those resources. I saw it not only reduces emissions by impacting the design of development, but also brings in funding. We have worked very hard with developers to even go beyond ISR and have them put mitigation measures, high-speed rail for instance.

We had concerns about the construction phase emissions. They've agreed to contribute $30 million to reduce pollution from construction phase of these measures.

So these are just some of the measures that we're looking at, but we're continually looking at other opportunities, and would welcome your help and your guidance on what more we can do.

--o0o--

MR. SADREDIN: The federal government, as you heard, we have filed a petition to ask EPA to establish a national standard for heavy-duty engines. South Coast has done the same. Our petition goes a bit further. We ask also for controls on locomotives. They make up 10 percent of our air pollution in San Joaquin Valley. I know ARB is doing some inventory work maybe to impact -- it is a little bit lower than previously estimated, but still
every ounce of NOx emissions counts.

We are asking EPA to not only do new standards for new locomotives, but also for remanufactured locomotives and for in-use locomotives. And this is an area that even ARB says you don't have the full authority. We appreciate what you tried to do with the MOU with the railroads. We supported that. We still want to help whatever opportunities are there. But given that we have to address all pollution sources, we're hoping for your support on the locomotives.

We had a call this morning with a few of the other stakeholders that have signed on with -- on these petitions. When it comes to locomotives, there is a bit of a fracture in the coalition. Some of the industry groups, for instance CCEEB, they have indicated that since they have railroads as their members, they may not be supportive of the locomotive controls. So we really need your stature, your support for everything that we can do to also pressure EPA to do locomotive controls.

And then funding. If you really care about public health, if you really want to get to clean air as quickly as possible, you should be supportive of incentive-based control measures. Let's say we were extremely successful, and tomorrow EPA says, oh, great, we're going to do national standards for locomotives, for
trucks, and we have it next month.

Unfortunately, waiting for the natural attrition to get to the reductions that we need will be way too late. These locomotives, these trucks last 20, 30, 40 years as you know. So even if the regulation is there, which we think needs to be there to force people to take advantage of incentives, we need funding.

South Coast has come forward with a funding plan. We had a board-to-board meeting, South Coast and San Joaquin, not too long ago. We're trying to work together to not only advocate for the funds that are needed, but also see how we can pool our resources. There are some of these trucks, locomotives that travel both regions, can we work together, share our resources, and reduce pollution more effectively?

And then finally, we need your help and we need EPA to update their policies to allow for incentive-based reductions to be used. I think we have come a long ways. And without it, there's no way that we can put an approvable SIP that gets us to the attainment.

And then finally, just a list of demands or hopes and wishes from you, that I will finish a couple of slides here.

First, I have to tell you as a local air pollution control office, and sometimes when I talk to my
colleagues, sometimes we get a little bit anxious, a little bit worried that is ARB still caring about the SIP needs, and, you know, doing what it takes with respect to reducing criteria pollutants and toxic emissions.

I heard Senator Florez a few months ago says let's save up lives in California, and not before we save the world, or something to that effect.

Now, I don't think those are two mutually exclusive objectives. We applaud you for taking leadership globally to reduce climate change impact, and do what you can to get other, you know, nations and other states even within the United States to come on board. So we support all of those measures. But I think we have to do it in a way that also takes full advantage of the co-benefits that we talk about. It cannot just be a lip service that we will just get co-benefits or an afterthought. It has to be something that is really part of our ARB's strategy.

And I have a couple of specific suggestions here. You saw your staff's presentation before this, when we were talking about the NOx emissions and from trucks 2025 to 2021 timelines that we're looking at with respect to PM was not a big focus of that. We were looking at ozone emissions to pass through 2031. We'll be looking at, you know, some of the climate change goals in 2030, 2050.
I have to tell you, you know, last year, when the legislature unfortunately was not able to, you know, pass those goals to reduce gasoline usage by 50 percent. As ambitious as that was, and they were not to do it, it fell way short of what we need and way too late, even if they were able to do it.

2050, 50 percent reduction in gasoline usage. It sounds like, "Oh, my God", you know, what -- it's minuscule in terms of what we need and when we need it. So I'm hoping today after you approve the bureaucratic part of this to say all right, let's send this plan and let's go to work on reducing air pollution. You also direct your staff and take a position to come back with a couple of new proposals.

One is, let's re-examine the -- your Mobile Source Strategy. I know it's been folded into the SIP strategy, but that Mobile Source Strategy looks at 2031 and beyond. Let's take a close look at 2025. If at the end of the day, you say, well, there's nothing possible in that timeline, you know -- I'm not going to say we can fully understand that, but, you know, it would be -- it would be something good to take to the public when we tell them the valley now cannot meet the standards in 2025. We're going to be subject to devastating federal sanctions. We need to be able to make a showing that ARB,
the district, EPA we gave it our full effort to get all
the reductions that we can.

But right now, 2025 was only a word on a slide
when the -- when the item came before your Board, and I
complained about that. And here's my opportunity, I'm
taking advantage of your advice, Richard, and Kurt to make
sure your Board --

(Laughter.)

MR. SADREDIN: -- full appreciates the 2025 is a
real timeline that you really need to look at and pay some
attention to.

Now, we've talked about super pollutants, and,
you know, short-lived pollutants. I think that provides
the greatest opportunity for harmonizing criteria
pollutant, toxic pollutant objectives with the climate
change strategies.

Of course, the real super-pollutant, as you've
heard from, you know, Dr. Sherriffs and Supervisor
Mitchell -- or Board Member Mitchell is for us in South
Coast and San Joaquin it's NOx. That's the
super-pollutant. So we want to make sure we don't lose
the focus on reducing NOx.

It should not be a struggle for us to convince
people that in an area that is extreme nonattainment for
ozone, serious nonattainment for PM don't resort to
oxidizing methane as a control measure for climate change.

And oxidizing is a fancy term that people use, but we're talking about incinerating methane. Flaring methane generates NOx, generates PM. We should not do that. I know people have come to us, and I know Aliso Canyon is a big problem big disaster down there that we don't want to -- we want to make sure we do things so it doesn't happen, we want to mitigate its emissions, but let's be careful with not setting in place reactionary policies that have unintended consequences.

We have been approached by some that say they want to come to the valley to mitigate emissions, the methane emissions in response to Aliso Canyon. And they want to -- they said the cheapest way, the easiest way to do it is come here and burn methane.

That's not something that we would welcome. As you know, I've always asked you to bring dollars to the valley, spend them here, but this is not the kind of investment that we need in San Joaquin Valley. Come in here and burning methane, or writing a rule later on that forces the dairies to flare their methane is not -- you know, is not good for us.

The best way to deal with methane would be to capture it, send it back to pipelines that will reduce methane emissions. Like make it a renewable fuel will
reduce black carbon. Black carbon is where we think you
need to go, where we need to go to reduce emissions.
Let's open the door to spending Prop 1b dollars on clean
diesel engines right now. We're not able to do that.
Let's force the 0.02 standard through incentives. We're
getting some support on doing that.

The ag burning, we definitely don't want to be in
a position where we don't have options. Let's help us.
And thank you, Senator Florez, for the meeting yesterday
for setting us on track to find alternatives to avoid open
burning. So I'll stop preaching there. I'll move on.

And then one last comment, don't go too far on
relaxing the portable engine rule. Your staff is
currently working on rolling back the portable engine rule
and we understand that. Some of the technologies that we
have hoped for that would be available now or next year,
they're not available. So we're not saying well, right,
maintain a rule that is impossible to comply, but we have
been talking to your staff. We're moving in the right
direction. I think we're going to be able to get -- come
to your Board and support that rule.

It still needs a little bit more attention to the
NOx needs. It should not -- I think it should only allow
the time that's needed for this technology to be -- to
come about and then require it as quickly as possible. I
know your staff is trying to be responsive to the industry needs. And, you know, we're sensitive to that, but we cannot allow anymore reduction -- increases in -- or hold back reductions in emissions from that source category beyond what is needed to just -- for the technology to come about.

So don't wait too long. Don't give them too much time to maintain those engines -- cleaner engines once those clean engines are available. Right now, we're not quite there. We're getting a good response from your staff. I think they understand our concerns, and I'm hoping that we can get there.

--o0o--

MR. SADREDIN: And then finally, funding is a big -- as we've said is essential. If you care about public health, there's no way to achieve the public health goals without funding. We ask you to continue to use the CalEnviroScreen to target funding in areas that have air quality issues, and have a whole host of other problems. And I think this -- and also, we don't object to Bay Area getting some funding to the extent that some of the pollution from the Bay Area impacts us. And if we can reduce those --

BOARD MEMBER GIOIA: Vice versa.

(Laughter.)
MR. SADREDIN: Or vice versa, yes.

If we can help, you know -- so I'm not saying give -- you know, there is a lot that be could done in Sacramento, in Bay Area, because we do transport back and forth, and we can help reach other. So I'm not saying don't give money to Bay Area, but the focus should be disadvantage communities, which unfortunately we have quite a few in areas that are nonattainment.

Work with us. Hopefully, you can do some advocacy at the federal level to -- and hopefully at the State level through education to bring about some additional funding. The cap-and-trade funding even if it -- even if all the original big estimations stand true is not going to be enough. We need more dollars, more funding. ARB should get more funding for air quality as opposed to all these other agencies that right now some of the cap-and-trade funding goes.

But let's also look at finding -- finding more sources. Technology advancement, we already have a big working group at EPA on yourself to advance technology, but that's really the key, and then finally recognize the valley's need for near zero emissions. Because of the timeline that we're talking about, the geography of having to be able to have a truck climb the Grape Vine and go 200 miles, it may not be doable in the timeline that we're
talking about with electric vehicles, electric trucks. So near-zero emissions, natural gas in particular, we want a little bit more openness to using natural gas. We think it can be a great bridge to renewable natural gas.

And with that, I thank you for the time that you gave me. And if you have any questions or comments, I'll be here.

Thank you.

CHAIR NICHOLS: I'm sure we will want to talk to you further, but I think we should probably move on at this point. That was quite a tour de force actually. You covered a lot of ground.

And I think it's easy to get confused by the layered requirements and deadlines of the Clean Air Act, and the plans that are overlapping each other, and filed on top of other plans. I'm suffering from a little bit of déjà vu personally, because I was appointed to my current position, as most of you know, by Governor Schwarzenegger after my predecessor, Bob Sawyer was summarily fired. And the issue had to do with this district and the question of whether they were going to be bumped up to a higher level in order to give them more time to achieve the ozone standard, but it also had to do with the very strong -- it was really based on the very strong objections by the
environmental and environmental justice communities in this region to, what they felt, was inadequate amount of activity that was going on in the district.

That is they felt the rules were not sufficient, and that the district wasn't doing everything that it could at that point. A lot has happened since then, and much of it is very good. But we find ourselves still in a position where we're concerned that the plans that exist need improving. And this is not just -- you know, I'm not pointing fingers here. I'm just saying we're not -- we don't have everything we need at the moment.

And so I want to get us to focus on the fact that what's before us today is a recommendation that we send a plan forward to EPA that our staff concedes is not an adequate plan, and then work to make it better, and, you know, in the future.

And I guess I'd like to know before we turn to the witnesses here whether there's any realistic alternative to that approach that you've given us that could perhaps get us further faster.

EXECUTIVE OFFICER COREY: Yes, Chair. And just for the record, I don't recall advising Seyed, but --

(Laughter.)

EXECUTIVE OFFICER COREY: But to your point, and it's right on point, staff has presented a procedural
approach process called for or allowed for under the Clean Air Act, really which is consistent with historical practice, but directly to your point are there other options? And there's at least one, and I'm going to ask Kurt Karperos to lay out that, because I think it will be useful going through, just as you noted, the follow-on testimony.

DEPUTY EXECUTIVE OFFICER KARPEROS: So Chair Nichols as you noted, staff as we -- as staff covered in their presentation, the SIP in front of you today does meet the minimum requirements of the Clean Air Act.

As a -- as the first step in the step-wise process, the requirements for this SIP are, however, admittedly lower than what they would be for a full on attainment SIP.

A full attainment SIP requires a detailed demonstration that the control strategy in place will provide all of the emission reductions needed for attainment. And that's not -- that's not the goal of this thing. It's -- as you've sort after alluded to, Chair Nichols, it's unsatisfying. It doesn't get you to attainment.

Even though the staff has concluded that this plan does meet the minimum requirements of the act, we do believe you have options within the broader context of the
planning requirements of the Act, should you choose to go
down a different path.

You could direct staff to conduct additional
public review and exploration of programs and regulations
to further reduce emissions toward attainment,
particularly with an eye toward what will be needed to
attain. The review, the standard for the SIP in front of
you is whether or not it has Reasonable Available Control
Measures. And to be perfectly frank, Reasonable Available
Control Measures in the San Joaquin Valley is not
sufficient.

Mr. Seyed referred to Best Available Control
Measures. To be perfectly frank, an attainment SIP for
this region will actually have to push the standard of
Best Available Control Measures. So you could direct us
to go back and spend some time looking at just how far we
need to go with the sort of controls and emission
reductions needed for the region.

If such an effort would -- we would imagine would
include ARB staff holding public meetings here in the
region. We would be working obviously very closely with
the district staff, but meeting with all valley
stakeholders, the public, the agriculture and other
critical stakeholders here in the valley.

I think as part of that, one of the things we
would want to focus on is not just the measures, but the
science and emission inventory that underlie the SIP.
That allows us -- would allow the discussion here in the
valley to be thinking about what these measures need to
look like in the context of attainment, not just in the
context of what are the minimum requirements needed for
this current first step in the PM planning.

If you were to take a path like that, we would
recommend that you give us -- you direct us to come back
to you in some relatively short amount of time, perhaps 3
to 4 months, with findings out of that effort and
recommendations for how you could proceed at that point.

Lastly, it's sort of a housekeeping item, I would
say, the moderate SIP is due this month. So if we were to
take a path like this, we would reach out to U.S. EPA, so
that they were clear and understood what the process was
that we were going through here, that it was focused on
attainment. And they -- we believe with that sort of
communication between ourselves, and them, they would have
the discretion to not immediately have to take any action,
in terms of the State hasn't taken the action that's on
its plate.

So, yes, you do have an option. You do have
options in terms of how you want to handle the plan today,
even though it does meet the very minimum requirements of
CHAIR NICHOLS: Well, I'm not speaking for the Board, because the Board hasn't had this discussion, but I thought it was important before we heard from the witnesses who were here to have a sense of what might be possible.

So with that -- yes, Ms. Berg. Yes, please.

VICE CHAIR BERG: Could I just ask one clarifying question?

So in having the moderate SIP due this month, and we're looking at serious attainment designation, then how do those 2 intersect?

DEPUTY EXECUTIVE OFFICER KARPEROS: In our communications with -- the plan that staff alluded to that we're going to develop in an accelerated process with the district over the next 12 months would be focused at the serious area attainment deadline. And we would communicate with EPA that that was the intent. That's how we thought this -- their region would be going, and that a request for the serious attainment deadline would come later, but in a timely fashion.

VICE CHAIR BERG: But then as part of the process, we still do turn in a moderate SIP is part of the process still?

DEPUTY EXECUTIVE OFFICER KARPEROS: EPA will look
at its checklist, and even if we were to turn the serious
area plan in in September of next year, they would ask
have turned in your moderate area plan too. And so they
would have to review that, determine, yes it's
impracticable to attain by 2021. We now reclassify you to
serious. They move that plan to the side of their desk.
They would already have a serious area plan. Then would
then put that in the middle of their desk and start that
review.

VICE CHAIR BERG: Okay. And I don't want to
delay our lunch, but then my understanding is that U.S.
EPA did reject some portion of a plan. Where are we in
that in this layering?

DEPUTY EXECUTIVE OFFICER KARPEROS: So for one of
the other standards that we were talking about, the region
was pursuing what's called a Most Stringent Measures Plan.
And that is one of the allowed paths within the Act to
gain additional time to further reduce emissions.

EPA -- we've worked very, very closely with EPA.
And, unfortunately, at the very end, they concluded that
for a couple of measures that we had not provided all of
the documentation that they would need to be able to
conclude whether or not the region had most stringent
measures. They did not determine the negative, that they
weren't most stringent measures, but they didn't have the
information in front of them to make the positive conclusion.

VICE CHAIR BERG: And where are we?

DEPUTY EXECUTIVE OFFICER KARPERSO: That then takes us in --

VICE CHAIR BERG: Are we providing more information?

DEPUTY EXECUTIVE OFFICER KARPERSO: That action by EPA takes us into the 5 percent emission reduction plan that Mr. Seyed referred to.

VICE CHAIR BERG: I'm just trying to connect the dots.

CHAIR NICHOLS: No, no, believe me. You need a map.

DEPUTY EXECUTIVE OFFICER KARPERSO: Perhaps this why you want 3 to 4 more months to explain this.

(Laughter.)

VICE CHAIR BERG: No, it's okay, but that's very helpful to me. Thank you very much.

BOARD MEMBER RIORDAN: Thank you for asking.

CHAIR NICHOLS: Okay. We do have 9 people -- actually, Seyed is not a witnesses. He's a -- he's the head of the district, so we don't count him. So we have 8 more people, however, who wish to testify and have 3 minutes a piece. I think we should hear from them.
So we'll begin with Genevieve Gale.

MS. GALE: Hello, Board members. Thank you all for coming down to Fresno. I really appreciate it. My name is Genevieve Gale. I'm here on behalf of Young Fresnans for the Environment. And also the Central Valley Air Quality Coalition.

I really appreciate the discussion that just happened. It warms my heart truly to hear that there are options available to us. If we really want to extend this deadline, as we've all agreed it will be necessary to put together a really good plan. We need to make sure that this moderate attainment SIP is legally defensible and will be approved by the EPA.

And unfortunately, at present, there are 3 reasons for why it won't be approved by the EPA, and for -- and why we need more time to include those in there.

The first is that this plan does not include all Reasonable Available Control Measures. The EPA sent back the 2015 plan for the 1997 PM standard for failure to include the most stringent measures. EPA suggested measures they could include. The environmental justice community has suggested measures to include. They haven't been included. This 2016 plan does not include any new addition information, so it will be denied like the last
one was.

The second reason is that this plan does not include any contingency measures. ARB states that the plan can meet contingency measure requirements based on emission reductions that could go beyond those needed for the reasonable further progress demonstration. However, the EPA has clearly stated that quote, "Crediting an area for excess emission reductions to satisfy the contingency measure requirement is not allowable for moderate areas that cannot attain the statutory attainment date", end quote.

And there is a history of not including contingency measures and thus getting disapproved by the EPA. The same 2015 plan was sent back for failure to include contingency measures. In 2011, EPA approved all elements of the 2008 PM plan, except for the contingency measures, which they have disapproved.

In 2009, the EPA disproved the 2004 ozone plan, because it did not meet the clean air requirements for contingency measures. In 2002, the EPA issued a finding of failure to submit contingency measures. So we don't have in here. And if we don't put them in, in the next couple months, the plan will be denied, and we won't get that extension that we so need.

The third reason that this won't pass is there
was a lack of a public process. There was not one public
workshop on this plan held in Fresno. And I know -- I'm
well aware of ARB's process and really appreciate all of
the workshops that you host. And you come all across the
state to host them. And unfortunately, there wasn't one
on this plan. There was only updates given at Board
meetings. So there was -- we haven't seen the modeling.
We haven't seen the measures, and Dolores will talk more
about that.

So the Board has a decision whether to pass this
plan or not. And I believe we should take some time and
put in the measures so that it can be approved by the EPA.

    Thank you.

    CHAIR NICHOLS: Thank you.

    Okay.

    MR. HAMILTON: Good morning, Madam Chair, members
of the Board. Thank you all for being here today. My
name is Kevin Hamilton. I'm the executive director of
Central California Asthma Collaborative. And I serve as a
San Joaquin Valley member of your Environmental Justice
Committee working on the greenhouse gas scoping plan. And
I thank you for the opportunity to do that work.

    And I want to assure Mr. Sadredin that EJAC is
very concerned about the issue of reducing greenhouse gas,
not further exacerbating the criteria pollutant issues
here in the valley. And I really feel assured that the Board feels the same way about this and will work in that direction.

I want to agree with the comments made earlier by Kurt and Richard. I really felt strongly that this process was not vetted through the normal public process we would take a plan of this magnitude through. Myself -- I considered myself very aware of what's going on. I did not get a chance to actually look at the modeling here until just a few weeks ago. I had some questions about that. Happily, Dr. Magliano has been really good about answering some of those. But that wasn't a public process. That wasn't an area where everybody got to talk about that.

And then I look at EPA's rejection of the 2015 PM plan, and their take on this idea of NOx limitation within the valley, and they don't seem to agree with that. Their documentation, in fact, seems to go the other direction, or for some other reason they're calling out additional ammonia controls feeling that -- and the VOCs and secondary VOCs.

And we -- again, we would like to see a workshop where ARB assigns staff and EPA staff are in the same room and they hash this out, and we get an idea of, again, what the unified idea is going forward. And then we don't see
the plan go forward with, I won't call it, defective
modeling, but modeling that the approving agency does not
agree with, and will likely -- in fact, I could predict
with certitude -- send back to us again with a refusal.
And again, as Genevieve pointed here, we have a
long history of this, of plans going to EPA, being turned
around and sent back. And we really can't afford that
kind of delay, because we talk about a short delay here,
maybe 3 to 4 months to go through this public process.
But when we talk about the EPA rejecting plans, we're
talking about years of delay happening.
So let's get it right the first time. And so
this is not a typical the environmentalists aren't going
forward another delay for the sake of delay. You know, it
great I agreed with almost everything Mr. Sadredin said
today after his opening remarks.
(Laughter.)
MR. HAMILTON: So -- and I think there's been
some great work done here, as a matter of fact. And we
have great work lying before us. So we need to tools to
do that. They should be contained within these plans, and
right now, they don't.
So thank you very much for your time today.
MS. DIETZKAMEI: Thank you Chair Nichols and
Board. My name is Janet Dietzkamei. And to me, this
issue is urgency. I have a label. I am an asthmatic. And I'm speaking for those of us whose population grows daily in this valley.

I realize I was asthmatic one day when I went to -- out to walk my dog. I knew the air was bad. I put on a mask. During the walk, I almost passed out on the sidewalk. I was very fortunate. I managed to get home. My second evidence of being asthmatic in this -- and these are before I was diagnosed was I reacted to smoke in the air. I developed acute bronchitis going into pneumonia. It took quite a while for to get over that.

Now, I start my day by going to Valley Air, Real Air Quality Advisory Network and see what the particulate level is at the time before I even step outside of the house. If I want to walk my dog, I have to see that the particulate level is below 15. If I go out above a 15, I wear a mask. I can't go out at all when it goes above 30.

Just now, as this presentation was being made, particulate level in my area was 27 micro units. That happens frequently and it will become more frequent during the winter months. I am an outdoor person. I spend a lot of my time in the house. I like to ride my bike. I like to go 15 miles. Rarely I can. Since the rain, I have been able to go out a few days to ride my bike.

During the winter, when everybody is going to be
using their fireplaces, I won't be out much at all. The
smoke particulates are lethal to me. If I don't take care
of myself. If I don't go to the run, and check the
particulate levels, I will end up in the emergency room as
I was with the bronchitis or worse.

This asthma is a very serious condition. You can
die with asthma. This valley needs to clean up its air.
All of us are being affected by this. Maybe we're not all
asthmatic, but we are all breathing this air, and our
health is being jeopardized by it.

Thank you.

DR. LEE: Good morning, Chair Nichols, Board
members. My name is Dr. Janelle Lee. I am an emergency
medicine resident physician at UCSF Fresno. I work at
Community Regional Medical Center in downtown Fresno. I'm
here today to speak on behalf of patients and to voice my
concerns about the air pollution here in the valley.

I -- as you know, particulate matter has serious
effects on both respiratory and cardiovascular health.
I've lived here now about a year and have met countless
patients who have suffered from the poor air quality here.

Today I'd like to share just a couple patients
stories with you. I've changed their names for anonymity
sake. I met Jack. He's an 8-year old boy. He happens to
have asthma. He has to take expensive control air
medication just to keep his asthma symptoms at bay.

I met Jack one day in the ER. It happened to be a poor air quality day. He was playing soccer and nearly passed out from a severe asthmatic attack. His mom, a single parent, had to leave work, pick him up from school, rush him to the ER, so that he can get life-saving breathing treatments.

Unfortunately for Jack, mom decided to pull him out from soccer because the air quality was so bad and she couldn’t risk him dying on the soccer field.

The second patient I’d like to talk to you about, her name is Sarah. She and her husband moved to the valley about a year ago. Unfortunately for her, she used to have childhood asthma, never had symptoms afterwards, but her asthma flared up once she moved to Fresno. It was so severe she had to quit her job, go on medical leave indefinitely. Her lungs unfortunately had reactive scarring from the air quality here, and had to be placed on supplemental oxygen at all times.

After speaking with Sarah, she said that while she loved her new life in the valley, her husband loved her new job, her pulmonologist told her you need to move out of Fresno, get out of the valley, move back to the Bay Area to save your life. She said the air is literally suffocating me to death.
I shared these stories with you today to remember that the decisions we make here today have life-long impacts on the people here in the valley. And we all need better air. Better air means better health, fewer hospital visits, fewer visits seeing me, and more soccer practice, more hard working individuals who choose to stay in the valley and want to say in the valley.

So I urge the Board today to really think about and reconsider approving this plan before the right contingency matters are in place. Thank you very much.

MS. WELLER: Well, good afternoon, Chair Nichols, Board members. My name is Dolores Weller. And I am the director for the Central Valley Air Quality Coalition. We're based here in Fresno and we are a partnership of organizations throughout the San Joaquin Valley that work on air quality policy, and you will find me here at this air district office very often.

I'd like to talk a little bit about the public process, or lack thereof, on this particular item. As Seyed opened up his remarks, he mentioned there was a robust public process, and I disagree with that. This plan, from the beginning, has been described as we're not going to meet this standard. There is almost -- it's useless to get into the details of it. That's the tone of the planning process for this plan.
The modeling became available from ARB late July. The air district provided an update to the Air Board members in August, and in September the plan was adopted. And it was essentially a plan to not do anything.

We have made recommendations in the past on previous plans, as other speakers have commented, that this is a little bit of déjà vu agreeing with Chair Nichols. I recall the 2000 -- in 2013 in Bakersfield, where ARB was approving the PM plan there. Countless people spoke about their personal experiences living here in the San Joaquin Valley, and also asked for that plan to be rejected.

And as other speakers have mentioned, that plan has been rejected by EPA. And EPA has given clear recommendations on what the district can further -- they can do further. We are pleased that the district has taken a different approach with ozone. The Central Valley Air Quality Coalition proposed a work group made up of the environmental justice community, industry, and along with EPA ARB and the district representatives. And together, we worked on the 2008 ozone plan.

And we were hoping that the district was going to follow through and keep with that process with a PM plan. It was during that planning process we all agreed that the real work where we were really going to roll up our
sleeves was with PM.

And so we're really looking forward to that process for this plan, and we ask that you hold off on approving this plan and direct the staff to conduct a public process over 90 days to really be able to look at the modeling and what further controls can be included.

Thank you.

MR. MAGAVERN: I love this podium.

(Laughter.)

MR. MAGAVERN: Let's see how high it goes. All right.

(Laughter.)

CHAIR NICHOLS: You're just showing off.

(Laughter.)

MR. MAGAVERN: It's just so great to be here in fresno, and have podium that goes up.

Bill Magavern with the Coalition for Clean Air.

Thank you for the opportunity to make some comments. As the testimony from Janet and Janelle reminded us, we're here today to talk about particulate matter. And the reason why we're here to talk about particulate matter is that it is making so many people sick. And this Board has done a lot over the years to reduce PM.

We know that PM causes lung disease, heart disease. It causes illness and premature death. And, in
fact, it seems like every year there are more and more studies showing us that particulate matter is even more hazardous to our health than previously thought. So it seems like we really need to throw everything that we have at this problem. And that's why I urge you to exercise the option that Mr. Karperos outlined. And I really thank you, Chair Nichols, for eliciting that at the beginning of this discussion, because I think it really helps to frame it.

So we heard, both from ARB staff and from the district, about a number of measures that are in development, and we support all of those. Glad to hear that there's a biomass plan in a preliminary stage. We support renewable natural gas. I think that could be very beneficial for the valley. And we certainly agree that we all need to roll up our sleeves and try to think of feasible ways to raise the enormous amounts of incentive dollars that will be necessary to turnover the fleets rapidly enough to help both South Coast and San Joaquin Valley come into attainment.

But all of that said, I think there is more that can be done. And we've outlined in our letter 8 possible measures, including reductions in flaring, controls on agriculture equipment, limits on open burning, which Senator Florez has been a leader on for many years.
And so I think the choice you have now is whether to go forward, as quickly as possible, to exercise all those available options, which is the way that I understand the option that Mr. Karperos outlined, or to say, no, we're going to wait on that. We're going to put it off and say, you know, right now it's just too hard, and put it off some years into the future.

So we would urge you to move as quickly as you can, and put everything we have into solving this problem for the people here in the San Joaquin Valley.

Thank you.

MR. CUNHA: Good afternoon. Thank you very much.

Manuel Cunha, president, Nisei Farmers League. Also a member of the USDA task force that was set up in -- way back with Jan Sharpless.

Kurt and Richard, Karen, Lynn Terry, and I can name a host. Agriculture has been there to do the research. In '93, took out of EPA's hide, Region 9, 300,000 to start the first -- under Jan Sharpless, to deal with the air quality of PM. If we think, as people said, maybe this plan didn't go through the full process. But I remember June 30th of 2015 -- 2016, or 29th, I get a call from Kerry Drake, we've denied your plan, so tomorrow you guys -- you've got until December 2015, I think to -- but EPA has held onto the plans for years of comments.
It's only the San Joaquin Valley. No other air
district gets -- except for the South Coast, and I
remember being electrocuted by Barry Wallerstein when he
invited me into his office with coffee.

(Laughter.)

MR. CUNHA: So this time we didn't go down there.
I let the district go.

(Laughter.)

MR. CUNHA: But the problem is is that Mr. Florez
was down here. I didn't even know you were doing a
biomass. I didn't even know the Almond Board was all
involved. And yet, we set the first research and spent
3.5 million before you ever became involved.

If that's the process, in the environmentalist,
then I've got a complaint. We didn't have fair process
even this week to sit down and talk about biomass, because
your Water Board -- or the State Water Board, Madam Chair,
is going after agriculture for all the nitrates. You have
compost regulations by the State Water Board conflict with
this.

You talked about a truck length rule, you know,
modernization, Phase 2. I do know that the CHP cited a
bunch of my farmers because the truck was too long,
because the tractor they put the new configuration in made
the trailer a little longer. So we got a citation because
the trailer is too long with the tractor. And, Kurt, we
spoke about that.

So if we're going to go forward -- and I
understand the process -- I don't want a repeat of 700
series, because the agriculture industry -- and Madam
Chair, if you can indulge a second please -- the ag
industry has been a great supporter of research. We've
spent a lot of money together. Edwards Air Force Base.

And Madam Chair, I remember you at -- with Carol
Browner and you were a great Vice Administrator of the EPA
at that time. And we've always held our word that we will
do the research, but don't do research that says that my
farmers can't milk their cows because today is a bad day.
No farm days, no drive days because of the air, because
that's going to be the solution.

I would hope, Madam Chair, that you would ask the
staff -- and I know that Richard, and other folks, and
especially Karen, if we're going to look at research,
let's do it right. Let's do it so we don't hurt the jobs.
Dr. Florez -- not -- excuse me. Dr. Tellis, if you
remember, said, the worst thing is not air quality, it's
when a person loses their job, and they don't have a job.

CHAIR NICHOLS: Thank you for that.

MR. CUNHA: So I want to thank you. Madam Chair,
I would ask that if some of the Board members would like
to be on a tour of our valley and this State, that even
our own board members of this valley include some of the
folks that have been here for a long time, that have
helped raise $70 million plus. And incentives are
important. And we will do everything to help you get
those monies, and we will do that.

CHAIR NICHOLS: Thank you.

MR. CUNHA: Thank you for allowing me the extra
few minutes and --

CHAIR NICHOLS: We appreciate it.

MR. CUNHA: -- if Kevin would like some of those
time --

CHAIR NICHOLS: You -- a lot of progress has been
made. A lot has happened.

MR. CUNHA: Thank you very much.

CHAIR NICHOLS: And you've been part of it, so
thank you.

BOARD MEMBER EISENHUT: Mr. Isom.

MR. ISOM: Good afternoon. My name is Roger
Isom. I'm president and CEO of the Western Agricultural
Processors Association, and the California Cotton Ginners
and Growers Association.

And at this point, you know, our goal today was
to support the plan as written. We can go back and forth.
EPA is not here to defend themselves, but I can tell
you -- I can assure you that the air district continues to come at us with every possible rule and regulation. They've never let us off the hook. And I can assure you we're the most regulated ag industry across the country without a doubt.

But let me tell you what I did want to say, and that is -- that we -- the incentives are definitely a critical piece of this. We want to commit to work with you as we did with Arambula's bill. We were at the forefront of that in getting that additional dollars.

The result of that is, and it's -- it was really timely because NRCS -- USDA, NRCS did a press release during the middle of this meeting touting the ag emission reductions from the tractor incentive program. That, as you recall, back in 2008 when ARB adopted the SIP that required ag tractor reductions to get 5 to 10 tons reductions beginning in January 2014 to have that done by January 1 of 2017.

In that press release, and I'm sure the district can verify this, we already have 12.49 tons of reductions in NOx on a voluntary basis, as a result of those incentive programs.

They work. You don't have us up here bitching and moaning about it. They're done. They're already in place. We need to continue that, whether it's Carl Moyer,
working with Board Member Berg, working on the farm bill, working on DIRA, as we've been back to D.C. to push for more funds there. We use all of those programs.

And the thing to remember too though is, is that the farmers have put in our share. More than 50 percent of that money came from the farming community to do that. So I just want to say that we're here to commit to work with that, and continue that effort on that, as well as the research that Mr. Cunha brought up.

The last thing is I know I've just got a couple -- a minute, is on the biomass and biogas. We were unaware of this summit. But let me tell you something, I'm not sure that there's anybody in -- else out there that knows as much as we do about the biogas industry and what we're doing, because we're not just talking about it.

Our organization has a project in Woodland. It's a commercial scale research project. It's a syngas, synthetic gas biogas plant. And for the last 2 years we run every kind of agricultural by-product through it that we can, from rice straw, to cotton stocks, to almond shell, walnut shell, almond hulls. You name it, we've tried it to prove that the -- A, that the technology works, B, that it's cost effective, and C, and most importantly for the air district, that it's going to meet the NOx emissions on the other end.
And so we've tried different engines, catalysts. We've proven the technology. Where we're at today is that we've got a walnut operation in the valley that's actually doing an interconnect study with PG&E that we are moving ahead. In fact, we met with the air district 2 weeks ago on the permitting process to start going down that road. So it's not just talking about it.

We also have an almond operation up in Sacramento Valley looking at the same type of thing. So we're moving forward with that trying to get you the answers that you need. And we've been heavily involved in that.

Thank you.

CHAIR NICHOLS: Thank you. Our last witness.

Yes, Sarah.

MS. SHARPE: Good afternoon, Chair Nichols. Good to see everybody. I'm happy to have you here in Fresno. I'm Sarah Sharpe. I currently work with Central California Asthma Collaborative. And I've been a part of this air quality advocacy movement since 2005. And I also am feeling some déjà vu.

And I've worked closely with many of you on the Board, and some of you are new. And it's good to see the new faces. I really want to welcome you to Fresno. We would like you to come more often.

As you can see, you just got a really good
sampling of the wide range of issues that we're dealing
with here and the severity of the problem, and why we
continue to have to bring these issues up at your Board
and all the other boards that we can.

We know everybody is doing the best that they
can. And, you know, we have in the past found with many
of the examples given by my colleagues that when we go
back and revisit a plan, we often do come out with a
better plan. And that's what we're asking for today, a
little bit more time to make sure we get the best outcome
possible for every -- for my children who still play
soccer and don't have asthma. Myself have asthma and
we've had some really bad days lightly.

Also, I want to mention that we've been asking
for many years for the ag equipment rule to happen. Roger
just reminded me -- I think it was Roger or Manuel --
that, you know, we've been asking the ARB to really make
progress on the ag equipment rule. And that's one of the
last sources of diesel that haven't addressed as a State.

And I know it's difficult. We all know that our
jobs are important, and nobody wants anybody to go without
a job or without a healthy life, you know, or -- there's
just -- we don't see the need to choose between the two,
and it shouldn't be that way anywhere in California.

So in closing, I think just on behalf of all the
people that I work with and have worked with, and I serve on the Air District's Citizens Advisory Committee and have served on many boards. But we would really ask you to grant the district a 90-day period to correct the following -- the deficiencies that have been mentioned previously and kind of go along with what Kurt mentioned as the other option. We just feel like there's a little bit more work to be done.

Thank you.

CHAIR NICHOLS: Thank you. That concludes our list of witnesses. And so we will close the record for official purposes at the moment, but we will have now some time for Board discussion. And I'm happy to recognize any of my fellow Board members who might have a suggestion as to what they'd like to see us do next starting with Senator Florez.

BOARD MEMBER FLOREZ: Thank you. Very much appreciate it.

First, thank you to the Chair and to the staff for clarifying at the beginning the options. So I think that, you know, obviously helps a lot listening to the testimony. Second I would say that I would definitely like to have the 90 days just from the input point of view.

This was, in some sense, you know, kind of put on
us. The EPA gave us a very short time. We created a
model in July and we sent it to the district. The
district had a month. September 15th voted on it, and we
find ourselves here the next month. So I just think in
that process, you know, giving our environmental justice
folks a little more time to have some concrete, and some
very good conversations with this district.

And I would say, just for the record, that, you
know, it would be really not a good thing to spend 90 days
and have nothing come out of it, so -- and that's more of
a challenge to both, the EJ community and to the district
to try to figure out how much more we can eke out of this.
Even, I think, as Seyed said, there's a -- there's so many
more larger things to solve. It would seem that as we
work towards this, that we should hold, allow those 90
days.

And I'm not sure how to frame that, Madam Chair,
in terms of a motion, so I will leave that to staff to
figure out the right way to do this, because I heard very
clear that we also have to contact EPA, and let them know
exactly what our thought processes are, and when they're
likely to see something, because we are going from a
moderate plan to an extreme plan. And I was very happy to
hear -- and I always thought the process worked that way,
the check-off list, but every thing still has to be on the
BOARD MEMBER FLOREZ: So the moderate plan has to be completed. At the same time, they have to very seamlessly go onto the more extreme plan, which I think would be of value to have these 90 days to make sure that at least is inclusive of what the environmental justice groups are asking for.

And I will say just to Mr. Cunha and to Roger Isom, who I both worked with for many years, on the biomass conversation we had yesterday -- Mr. Corey was there. Thank you for being there, and staff who were there -- let's reset that as well, to make sure we have those groups, as we are doing today, you know, have a more inclusive conversation.

So I think, in some sense, opening up both processes would be a good thing as we move forward. So I would just say we did have a lot of good conversation, but I don't think we necessarily set anything in stone. So I think in both senses opening those up would be a great thing. That's my only comment.

CHAIR NICHOLS: That's excellent.

I'd like to call on Mr. Serna and then I understand that Mr. Sadredin would like to come back up and have a few words.
BOARD MEMBER SERNA: Thank you, Chair.

First of all, I want to thank the folks that testified this afternoon. I find your testimony very compelling. And any time I hear about accounts of public processes not materializing the way that constituents had hoped, and it's very consistent testimony about that, my antennae tend to go up, and that goes for all the various hats that I wear, and I know some of my other elected colleagues up here also understand.

And so I'm definitely, first of all, prepared to support a motion, if it comes from Senator Florez or others, that would include at least 90 days to explore some of the options that -- or all the options that Kurt mentioned in his remarks.

And, you know, I just want to stress -- it kind of goes without saying, but I'll say it anyway -- this is -- this is just too important not to exhaust a healthy conversation, no pun intended, between the constituency that is really focused on public health. And I'm glad we had some folks come all the way down from Sacramento to be here as well, and a local district that has, you know, obviously a very, very tough challenge in front of them.

So we have to get this right. We have to, I think at the end of the process, look back with some sense of pride, knowing that we didn't short-change ourselves,
we didn't short-change the public.

So I'll be prepared to second a motion should one of my colleagues decide to make it and frame it that way.

(Laughter.)

CHAIR NICHOLS: Just to be clear, I want to make sure that we heard correctly, that I heard correctly, the staff's view that there are ways in which this plan can be strengthened, not just rolled over into the next plan, because obviously there is going to have to be a much more ambitious plan in about a year.

So, you know, you don't want to, in effect, waste time, but at the same time, people here are anxious to see progress, and that includes, I assume, some specific things that they would like to have added to the current plan.

VICE CHAIR BERG: And, Mr. Corey, could you also address the time frame? Do we have the time frame to be able to look at this today, the additional 90 days?

EXECUTIVE OFFICER COREY: We do, in that the follow up that Mr. Karperos said we need to do with EPA, we will lay that out. But the process that you laid out -- and we will lay this out to EPA as well, but just to be crystal clear and go to the Chair's question, what I'm hearing is direction, one, not to act on the staff proposal to direct staff to hold in the region a public
process.

And in my mind, that probably translates -- I think that translates into more than one workshop. I think it translates into a series of work group discussions, and they're focused on really -- the central focus is additional opportunities for NOx reductions and PM from mobile and stationary sources. And this would require a -- not only a close work with the regional stakeholders, but with the district, and to return back to the Board. And I'm going to say February, because the process that I'm talking about --

VICE CHAIR BERG: You have holidays.

EXECUTIVE OFFICER COREY: There's holidays and there's also -- it's more than one workshop, because the process is going to be a really important element of this, and a report back to the Board in February to the point that was raised -- we want action to come out of this -- is what the discovery that came out of that process, where are there additional opportunities for NOx and direct PM from mobile and stationary, and to the Chair's point, how many of those live in the moderate plan versus the serious comprehensive PM plan that we'll return to the Board later in 2017?

So I think it's a report on what was the result of that discovery and what is the recommendation, specific
actions with respect to the moderate plan and what may
live there versus the more comprehensive plan that will --
on PM that returns to the Board in fall.

CHAIR NICHOLS: Mr. Gioia had his hand up.

BOARD MEMBER GIOIA: I think Mr. Corey answered
my question. I think the motion was intended not just
about the public review, but direction to explore, as you
put it earlier, additional programs and regulations to
further reduce emissions toward attainment, and you gave
some examples. I just was clarifying that.

BOARD MEMBER SERNA: If I can just put -- Chair
Nichols --

CHAIR NICHOLS: Yes.

BOARD MEMBER SERNA: -- if I can just put a finer
point on both what my colleague, Supervisor Gioia, and
what Mr. Corey just mentioned. I don't want us to
forget -- I think it was the last thing that Kurt
mentioned, which is if we're going to really look at
aggressively tackling NOx, it's going to require looking
at this SIP actually being the pressure that raises the
bar.

In other words, it's going be -- have to be --
involve innovative -- some innovative thinking. And that
has to be part of what's going to happen in the next 3 to
4 months, I would imagine.
EXECUTIVE OFFICER COREY: That's correct. But not to confuse this, but I think it -- hopefully, if I say this correct, it will help clarify, and that is, currently, the agency has out for public review a mobile source SIP strategy. A -- and I would characterize it, and I think I checked. I did dome fact checking here.

(Laughter.)

BOARD MEMBER SERNA: That terms is overused right now. I'm sorry.

(Laughter.)

EXECUTIVE OFFICER COREY: That it's the most comprehensive, ambitious mobile source NOx package that we've ever put together. This is a package that will be coming to the Board as part of the mobile source attainment strategy next year -- early next year. So that maps directly into this conversation. So if the conversation is are we missing opportunities? And the discussion down in the valley is going to be both about NOx, again on mobile and stationary, as well as direct PM, mobile and stationary.

CHAIR NICHOLS: So I have both Ms. Mitchell and Mrs. Riordan we'll hear from both of them. I think what -- you know, we understand that legally your initial approach, which was to say, yeah, this meets the standard for a moderate plan, so let's just turn it in, and get on
with it, was probably legally defensible. Although, I've heard some statements that might make one wonder whether that was really true or not.

But even assuming that it was, that just doesn't seem like the process that we would like to see followed, given the severity of the problem, but go ahead. We've got other Board members from other districts here who have --

BOARD MEMBER MITCHELL: Thank you. Thank you, Madam Chair.

And one thing I think that we cannot emphasize too much is that when we are talking about turnover of heavy-duty trucks, really the only way that we're going to get there is that combination of incentives, plus regulation. And as part of our petition to the U.S. EPA on our low-NOx regulation, we also ask the federal government to think about developing a Superfund for air.

You have Superfunds for, you know, soil contamination, and other kinds of contamination, and water even, but we don't have anything for air. And I think this is an effort that we really ought to be pursuing as well, when we talk about low NOx and the challenges that we face here.

We need to not impact agriculture and business to such a degree that we're losing jobs. We can't do that in
this economy. We need to be very cognizant of keeping a
vibrant economy. And there's no reason why we can't do
both. But I think a dedicated fund that keeps coming into
a super -- sort of a Superfund for clean air is one way we
can do that.

And we need a broader -- a broad coalition. It
can't just San Joaquin Valley, district, and the South
Coast District. We need all of California, all of our
districts to help with this. We need the coalition of the
northeaster states. We really need to be working on this
in a very broad, broad way.

So I just wanted to say that, because I know that
Dr. Sherriffs and I, and the San Joaquin District and my
district have worked together and are talking right now
about how are we going to get the incentive funding for
these plans that we are now working on? So that is a
really important part of that.

CHAIR NICHOLS: Mrs. Riordan.

BOARD MEMBER RIORDAN: Yes. In thinking about
groups that are affected and contributing to some of the
pollution here, I've not heard a lot of talk about not
only local government but State government. And I thought
of this yesterday as I was driving up. I saw quite a bit
of dust. And thought, oh, well, somebody is out plowing a
field. It wasn't. It was Caltrans.
(Laughter.)

BOARD MEMBER RIORDAN: And, you know, none of us want the, you know, problems with the ultimate problem of not having our roads plowed, because we tend to get the tumbleweed problem. And if anybody has ever hit a tumbleweed again, you don't want to hit a tumbleweed again.

So I understand what the focus should be, but I also remember, and maybe you've taken care of this, not only do they plow, but they burn at times those tumbleweed, you know, piles that they put together.

CHAIR NICHOLS: Whatever you call them of tumbleweeds.

BOARD MEMBER RIORDAN: So I really think that there are government agencies that should be involved. I mean, it sounds like a small thing, but in the aggregate, we may be contributing quite a bit as we operate our government. So I would encourage you to include them in the process of what we might do more to help this air pollution control district.

CHAIR NICHOLS: Ms. Takvorian.

BOARD MEMBER TAKVORIAN: Thank you. I just wanted to thank CARB staff, and the district staff, and all of the public members who have been here today. I really appreciate it, and I would support the motion.
I'm hoping that in this next period of time --
and I want to say that I appreciate that you're --
Richard, that you're actually looking at how long it's
going to take. And I think even that's an abbreviated
time period, but it's really important to think about more
than one workshop, to think about a work group that can
kind of dig in and, you know, meet for a long period of
time. So I really appreciate that.

I think one of the things that I've heard is that
there are specific milestones. And I know that's stated
in here there are quantitative milestones, but one of the
things I think is really important is for us to see that
what -- what are we projecting as those milestones that
can then accompany both the regulations and the
incentives, because I think that those things all need to
go together.

And without those, I don't know that we'll have
robust support for the incentives. I really like the
transformative climate communities. And I would like to
see what the actual PM2.5 reductions would be, because
while I think that's a really important project, and one
that I know we supported going forward in the legislature,
it would be important to look at the fact that it doesn't
seem like that's where the major sources are for PM2.5.

It will be a benefit, but where are there other
transformative measures? Perhaps to Judy's point of where else can we get that kind of major infusion, so that we can transform in the ag industry, for instance, to really help?

So I hope that we can look at the project that way going forward. And I'm sure that everyone will really put their best foots[sic] forward and put a lot of time into this in the next 3 or 4 months.

Thank you.

CHAIR NICHOLS: Seyed, I know you've been Anxious to speak. I had to give everybody a chance to get their views in.

MR. SADREDIN: I really want to thank you thank your staff for the direction that this discussion is going. What you're suggesting to do here is really what we wanted to do from the beginning. We didn't think -- the reason I, you know, criticized this process for being just bureaucratic, to show, oh, yeah, let's prove the obvious and meet the bare minimum requirements. If that's all we're doing, I was not in favor of delaying it.

But I'm glad that Richard is not mad at me --

(Laughter.)

MR. SADREDIN: -- and Kurt is not mad at me. And we're going in the right direction. Let's take more time. That's what we wanted to do, because, you know, when EPA
failed to act right away, they did not disapprove our plan. They just failed to act by deadline.

What had happened, it only gave ARB, the district time. We met in Region 9. I said let's not send the plan. Let's wait. Let's wait. And Region 9 and others, they said, oh, no, we don't want to miss -- let's do a plan, put a plan together quickly and send it through. So that's what you had.

So I only want to mention a couple things. I'm hoping this is not just 2, 3, 4, 5 months of, you know, a reshuffling the deck and sending you back the same exact plan. I ask that you direct your staff that the plan that comes back to you has to have more reductions from mobile sources than it -- the plan that is before you today, whether it comes from regulatory measures, whether it comes from incentive measures. Let's put more reductions into this plan and move the ball forward, not just, oh, here's -- we went through it and, you know, nothing can be done and let's move forward.

Let's direct the staff to amend the mobile source control strategy to take into account the 2021-2025 attainment deadline. As one of the Board members suggested, let's make this set the standard for the State. What we need in San Joaquin Valley, let's have that be the part. So if it takes 3 months or 6 months, let's do it
good.

But one other issue that you have to be careful, and we all have to be careful, and I'm happy Rich said let's communicate with the EPA. As we speak, I'm going around San Joaquin Valley talking to elected officials warning them about potential sanctions on San Joaquin Valley. Because even if we got this, you know, extension, as you all saw, it is a very difficult plan to put together ultimately.

So we're preparing the valley for facing the sanctions, for facing the federal implementation plan, which some people say would be months of no farm days, no drive days, and things like that. The valley needs to be ready to deal with that, if we're not able to put a plan together.

So let's communicate with EPA that we are working on this, because the sanction clock will not begin until EPA makes a formal finding that you failed to meet the deadline. So let's do everything we can, working with EPA, to make sure the sanction clock doesn't begin too quickly. Because once the sanction clock begins, the clock you can never turn off until you're in attainment or meet the obligations.

So let's make sure we don't put the valley's disadvantaged communities in jeopardy of losing billions
of dollars, and having EPA come here and say let's shut
down, you know, the freeways and the farms.

So as long as we do that, I'm hoping that we can
work together. One last point about contingencies, that's
something we have to be careful, because, you know, for
people that, you know, just look at this without, you
know, looking at the full impact, it's a little bit
misleading, the contingency. It's a -- you always want to
have contingencies. But in an area where we've thrown the
kitchen sink in the plan, and we can still not show
attainment.

People that ask for contingency, what measures do
they want us to hold back, to take it out? Oh, let's not
do it now. Let's save that for contingency for later.

That, too me, is detrimental to air quality.

That's why it has been a big problem for ARB, for South
Coast, for us to meet the contingency requirements,
because we're throwing everything in the mix. We're not
saving something for later, so we don't have
contingencies. It's hard to have contingencies when
everything that you have already is not enough.

So let's set the expectations correct. So
hopefully, your direction to the Board -- to the staff
would be let's take our time, come back with a plan that
moves the ball forward. Let's make sure the plan that
comes back has more reductions from mobile sources, any reductions that we can get from stationary sources. Let's have a full public engagement about those rules and the regulations that we have to do.

But it's -- as you saw, 85 percent of the pollution comes from mobile sources. So the plan coming back hopefully will have 85 percent more reductions from mobile sources.

And with that, I encourage you to -- as long as we can work with the sanction clock with EPA to follow what Senator Florez has suggested by way of, you know, taking more time to do it right.

CHAIR NICHOLS: Thank you.

Ms. Berg, you had, I think some -- you've been taking notes busily here, and I think you had a thought about sort of process.

VICE CHAIR BERG: Yeah. Thank you, Madam Chair. I would like to move to table our 16-9-5 and instruct ARB staff to prioritize an additional public review, including the district, with full public engagement looking at our Mobile Source Strategy and coming back to the Board, February --

EXECUTIVE OFFICER COREY: (Nods head.)

VICE CHAIR BERG: -- 2017 with a full review as to putting more detail behind the current moderate plan
along with explaining layering into the serious plan as you indicated, Mr. Corey. We also would like to instruct that you would communicate, as you indicated, with U.S. EPA to make sure we mitigate any consequences for taking the additional time, and really want to encourage all stakeholders, our health advocates, our community advocates, and our business advocates, because we know that those constituents keep this valley healthy, and we need to do that.

CHAIR NICHOLS: Okay. That's a motion that's on the table.

Do we have a second?

EXECUTIVE OFFICER COREY: One question to clarify, and I understood it to be part of your direction, in terms of the closer look at NOx and PM -- direct PM reductions, it's mobile and stationary that we're looking at.

CHAIR NICHOLS: Not just mobile.

VICE CHAIR BERG: Right.

EXECUTIVE OFFICER COREY: Correct.

VICE CHAIR BERG: Mobile and stationary.

BOARD MEMBER MITCHELL: So do we also want to talk about or include in the motion that advancement to 2025? Do we want -- that was suggested. You know, instead of looking as far out as 2031, we need these
improvements in air quality by an early date, by 2025.

CHAIR NICHOLS: An earlier date, yes. I think that's sort of implicit in the motion yeah.

BOARD MEMBER MITCHELL: I think we should also include that in the motion to look at that.

VICE CHAIR BERG: Yes, that would be included that we're looking specifically as to measures that can obtain by the 2025.

CHAIR NICHOLS: Does that meet the intent that you had, Mr. Florez?

BOARD MEMBER FLOREZ: Yes. I mean, you can either include it in the moderate plan, or you can iterate towards the, you know, the larger extreme plan. But it seems to me if we start with the most immediate, that's more of a conversation, I think, with staff -- local staff and the groups who are affected. So it really -- I think you've phrased that right.

Second.

CHAIR NICHOLS: Thank you. That's what I was hoping for.

BOARD MEMBER TAKVORIAN: And does that assume --

CHAIR NICHOLS: Further discussion. Yes.

BOARD MEMBER TAKVORIAN: -- benchmarks in between? Does that assume benchmarks? Do we have to add -- would we need to add that to the motion?
CHAIR NICHOLS: Can you --

EXECUTIVE OFFICER COREY: I don't think so. I think we're clear that the report back to the Board is the process in terms of the discovery of additional opportunities for NOx and PM, and then the -- and then where do they live?

BOARD MEMBER TAKVORIAN: Okay. Yeah. Thank you.

VICE CHAIR BERG: Thank you for that.

CHAIR NICHOLS: If that's --

BOARD MEMBER EISENHUT: One quick comment.

CHAIR NICHOLS: Yes, Mr. Eisenhut.

BOARD MEMBER EISENHUT: Not intending to add this to the motion, but in your notes, Mr. Corey, there's been discussion about making sure we explore possibilities for incentives. And while Ms. Mitchell's idea of a Superfund is intriguing, it's not going to happen by February.

(Laughter.)

BOARD MEMBER EISENHUT: And so I would just request that your notes include an emphasis on that as we move forward.

CHAIR NICHOLS: I think we all understand that incentives are an essential part of any package for attainment here.

All right. Without further ado then, I'm going to call for a vote on the motion.
All in favor, please say aye?

(Unanimous aye vote.)

CHAIR NICHOLS: Opposed?

Abstentions?

Terrific. Thanks, everybody, for a very, very good discussion. We were scheduled for a lunch break, and I think people need to eat lunch, but I'm not going to go forward with a plan for an executive session. We don't need one, and it would take more time. We don't need to be briefed on any pending litigation at this moment, so we will waive that.

And we will try to be back in a half an hour, if at all possible, because we've got a lot of people who want to speak this afternoon.

BOARD MEMBER SERNA: We'll just inhale our sandwich.

CHAIR NICHOLS: Oh, come on. Half an hour. If we say half an hour, it's likely to be 45 minutes. I know. All right. Send the marshals out to round us up if we don't come back in time.

(Off record: 1:34 p.m.)

(Thereupon a lunch break was taken.)
AFTERNOON SESSION

(ON RECORD: 2:14 P.M.)

CHAIR NICHOLS: All right, ladies and gentlemen. We do have a Board. We have witnesses. We have staff. We have everything we need. Let's have a meeting.

(Laughter.)

CHAIR NICHOLS: Okay. We are now turning to the last item on our agenda for today, which is a very important one, because it has to do with the spending of money.

VICE CHAIR BERG: Which we actually have.

CHAIR NICHOLS: Which we have to spend, right. That's even better. So we're talking about modifications to the fiscal year 2016 and '17 funding plan for low carbon transportation investments. When we approved this plan back in June, the $500 million in auction proceeds funding for low carbon transportation was still pending before the legislature, so the plan was may contingent on appropriation of the funds.

The legislature has now appropriated $363 million to ARB for the program. So today, we're going to hear staff's proposal for how we can revise the plan in light of the somewhat lower funding that has been made available.

So I'll turn it over to Mr. Corey for a staff
EXECUTIVE OFFICER COREY: Yes. Thanks, Chair Nichols. So as you heard at the June Board meeting, there was considerable demand for advance technology incentive funding, even exceeding the original $500 million proposal. So scaling back the funding is going to leave some unmet demands. And as part of the budget appropriation, as you know, the legislature provided specific direction on how these funds will be appropriated among ZEV rebates, CARB scarp and replace, and other light-duty equity projects and heavy-duty vehicle and off-road equipment projects.

So staff's proposal aims to keep as much of the previous Board-approved funding plan in tact as possible, while working within these legislative directives.

You heard Board support -- broad Board support for the funding plan in the public testimony at the June Board meeting, so we believe this is the best approach for making the necessary changes.

So as part of the presentation, staff will also review for the Board a number of changes to the Clean Vehicle Rebate Project mandated by the legislature in an associated budget trailer bill.

And with that, I'll ask Andy Panson of the Innovative Strategies Branch to give the staff
presentation.

Andy.

(Thereupon an overhead presentation was
presented as follows.)

AIR POLLUTION SPECIALIST PANSON: Thank you, Mr.
Corey. And good afternoon, Chair Nichols and members of
the Board.

Today I'll present our proposed modifications to
the funding plan for low carbon transportation and AQIP
now that the legislature has approved our final program
budget.

--o0o--

AIR POLLUTION SPECIALIST PANSON: As the Chair
noted in her introduction the $500 million in proposed low
carbon transportation funding was still pending when the
Board approved this year's funding plan in June.

The plan includes contingency provisions to
address this budget uncertainty including a direction that
staff return with proposed modifications if the final
budget is less than 400 million. I'll note that the $29
million AQIP budget had already been approved by the
legislature at the time of the June Board meeting, so
we're not proposing any changes to that part of the plan
today.

--o0o--
AIR POLLUTION SPECIALIST PANSON: At the end of its session, the legislature passed, and the Governor signed, a cap-and-trade auction proceeds budget appropriating funding to 10 different State agencies for various greenhouse gas reduction programs. ARB received $363 million for low carbon transportation projects.

We also received $5 million for a new black carbon wood smoke reduction program, which is not part of today's proposal.

ARB's low carbon transportation appropriation includes specific direction from the legislature on how we allocate these funds. And the legislature also passed a companion budget trailer bill mandating a number of changes to CVRP. I'll summarize the statutory direction before presenting our proposal.

--o0o--

AIR POLLUTION SPECIALIST PANSON: This next slide shows a comparison of the project category allocations approved by the Board in June along with those specified by the legislature in the budget. In some cases, such as CVRP, the legislature gave ARB no discretion in how to allocate funds. In others, such as the light-duty vehicle equity projects, and the heavy-duty vehicle projects, the legislature specified a funding total, but gave ARB discretion on how we divide the funding up among projects.
In the case of the very low carbon fuel production incentives, a new category in this year's plan, the legislature did not ultimately allocate any funding, so we will unfortunately not be able to implement this project.

As you can see, the legislature scaled back funding in most categories in order to trim the overall budget. An exception is the light-duty vehicle equity projects, where the legislature increased funding by $30 million relative to our funding plan.

--o0o--

AIR POLLUTION SPECIALIST PANSON: The legislature also passed a companion bill mandating 5 changes to CVRP. These include cutting the income cap by 40 percent to the annual income levels shown on this slide, and increasing rebates for low income applicants by $500, so they now range from $3,500 for a plug-in hybrid up to $7,000 for a fuel cell vehicle.

These are available to consumers with household incomes less than 300 percent of the federal poverty level, which equates to an annual income of just under $75,000 for a household of 4.

--o0o--

AIR POLLUTION SPECIALIST PANSON: This new legislation also limits CVRP eligibility for plug-in
hybrid vehicles to those with an electric range of at least 20 miles. Following the certification procedures we use for determining credits in the ZEV regulation this will eliminate 2 currently eligible models, a Volvo and Mercedes-Benz.

The last 2 changes are requirements for outreach to low income households to increase consumer awareness and prioritized rebate payments for low income applicants.

--o0o--

AIR POLLUTION SPECIALIST PANSON: With that background, let's now move on to our proposal for how we would modify the funding plan to address these changes.

In developing our proposal, we followed the guiding principle of trying to keep as much of the Board-approved funding plan in tact as possible, while addressing the smaller budget and additional legislative direction.

As you heard in the testimony at the June hearing, there was broad support for the funding plan. Many commenters noted that additional funding is needed, but there is a general recognition that the funding plan was carefully crafted to balance the available funding with the needs across all project categories. We'd like to maintain that balance.

--o0o--
AIR POLLUTION SPECIALIST PANSON: First, I'll go over the changes to CVRP. The $133 million allocation and new eligibility limits are set in statute. So no further Board action is needed. The legislature specified a November 1st 2016 effective date for these new provisions.

We're incorporating these changes into the CVRP application, and terms and conditions. And we held a public work group in September to go over the implementation details and start to get the word out, so there are no surprises when these new requirements take effect.

With respect to the new requirements for outreach to low income households, and prioritized rebate payments to low income applicants, we already incorporated these provisions into the funding plan that the Board approved in June. So again, no further Board action is needed.

The statutory requirement for these changes sunsets on July 1st, 2017, but we intend to keep them in place beyond that date. Any further revisions would be done through a public process and with Board approval in a future funding plan.

--o0o--

AIR POLLUTION SPECIALIST PANSON: You're likely wondering how the $133 million compares to projected demand, given that it's so much lower than the $230
million that we had included in the June plan.

   First, I'll remind you that the 230 million was a
6-month allocation intended to meet demand through next
September. We did that to provide a funding buffer
between budget cycles in the event that an auction
proceeds budget is not signed by the start of the fiscal
year.

At the time, we had estimated a corresponding
12-month funding need through next June to be about $170
million. We've since reevaluated the funding need in
light of the new eligibility criteria and rebate demand
through September. The lower income caps alone may reduce
demand by about a quarter.

We now estimate that between 125 million and 135
million is needed through next June. That's enough for
fifty to sixty thousand rebates. And this includes
payments to applicants currently on the waiting list.
Thus, the $133 million allocation should meet demand
through the fiscal year or at least through the vast
majority of the year, so we're not proposing any further
changes to CVRP beyond those mandated by statute. We may
need to use a waiting list if our projections are off and
we run out of funding earlier.

   At this funding level, however, we likely won't
have a buffer to keep paying out rebates past June if
there is another budget delay.

--o0o--

AIR POLLUTION SPECIALIST PANSON: One more point on CVRP. There are consumers that have been waiting since June to receive their rebates. We've taken a number of steps to expedite payment now that the budget has been signed. We added $55 million to the existing CVRP grant contingent with the approved funding plan. As soon as the State Controller's office releases these funds, we'll start paying out rebates and we'll make sure the first checks go to low income consumers.

We've also released a competitive solicitation to select a project administrator for the rest of this year's funds. So we should have a new grant in place before we exhaust the initial $55 million.

--o0o--

AIR POLLUTION SPECIALIST PANSON: Let's move on to the next category, which is light-duty vehicle equity projects. The legislature directed $80 million to this category with the requirement that at least 60 million be allocated to the EFMP and EFMP Plus-up scrap and replace programs and up to $20 million for the other equity projects.

The Board has 2 decisions before it: First, how much to direct to scrap and replace; and second, how to
distribute the remaining funding among the other equity projects.

We propose $60 million for scrap and replace, which doubles the allocation we had included in the June funding plan. This should ensure that the existing San Joaquin and South Coast programs have funding through and beyond the 2016-17 fiscal year, in addition to providing funding for other air districts interested in starting programs.

We propose no changes in the project allocations for the remaining 4 equity projects shown on this slide. Each would retain its full allocation from the June plan. This follows our guiding principle of keeping the existing plan in tact where possible.

--o0o--

AIR POLLUTION SPECIALIST PANSON: Because this is such a large increase in scrap and replace funding, we propose a phased approach to awarding funding as shown on this slide. We'd make $40 million available upon Board approval of our proposal, with the bulk going to the 2 existing programs. We'd reserve the remaining $20 million to allocate next spring based on air districts' funding need projections.

We've talked to each of the districts that runs or is interested in starting a program and they support
this approach.

Looking beyond this budget cycle, new legislation which changes the requirements related to investments in disadvantaged communities may impact the geographic reach of these programs in future years.

--o0o--

AIR POLLUTION SPECIALIST PANSON: Now, moving on to heavy-duty. The legislature appropriated $150 million for heavy-duty vehicle and off-road equipment projects, $25 million less than we had included in the funding plan.

The legislature did not specify how we should modify the plan to reflect the lower funding level. They left that decision to the Board. The funding plan allocates funding to 7 project categories. These include pre-commercial advanced technology demonstrations, early commercial pilot deployments, and voucher incentives. We believe each of these categories could benefit from additional funding. However, demand is greatest in the early commercial pilots and the voucher incentive projects, as documented by the greatly oversubscribed zero emission truck and bus pilot commercial deployment solicitation, where we have already selected projects and are just waiting for funding, and the current HVIP waiting list.

We also heard this in comments received during
plan development and at the June Board meeting. These represent the most "shovel-ready" projects which can be implemented and deliver emission reductions more quickly than the demonstration projects. Since each of these project allocations are based on projected demand, scaling them back would result in funding shortfalls.

Thus, we propose leaving these projects at their full funding plan allocations, and reducing funding for the advanced technology demonstration projects by $25 million.

While there's significant interest in these demonstration projects, we have not yet released solicitations for them. We believe good projects could still be funded even at this reduced funding level, and we recommend primarily focusing these demonstration funds on projects that support our sustainable freight effort.

We also propose to increase the maximum incentive amount for low-NOx engines with renewable fuel to cover the full incremental cost up to $25,000. This is based on public comments and Board input received during the June board meeting.

--o0o--

AIR POLLUTION SPECIALIST PANSON: This next slide visually displays the proposed changes I just described. As you can see, there are no changes to 6 of the 7 project
categories. This maximizes funding in areas with the clearest documented demand, and follows our guiding principle of minimizing changes to the plan where possible.

Taken as a whole, these investments support a broad range of clean and efficient vehicle technologies with funding opportunities for diesel, hybrid, natural gas, battery electric, and fuel cell engine technologies, as well as engine efficiency improvements and use of renewable -- of low carbon renewable fuel.

--o0o--

AIR POLLUTION SPECIALIST PANSON: Before closing, I'd like to briefly review how the full suite of investments covered in this funding plan is part of our coordinated strategy to make progress towards ARB's multiple climate change and air quality goals.

Most of our funding comes from cap-and-trade auction proceeds. Hence, there's a primary focus on investments that reduce greenhouse gas emissions and benefit disadvantaged communities. But we have also designed these investments to support the Governor's climate pillars of short -- of reducing short-lived climate pollutants and petroleum use, provide emission reductions for the SIP and the Sustainable Freight Action Plan, and reduce diesel toxics emissions. As this slide
shows, most of these projects achieve multiple co-benefits.

Stepping back, I'll note that we develop all of our funding programs with the objective of achieving multiple co-benefits where possible. Looking ahead, as we integrate VW mitigation funds into our suite of funding programs over the next year, we'll continue designing our incentive portfolio, so that each program complements one another.

--o0o--

AIR POLLUTION SPECIALIST PANSON: In closing, our proposal addresses the smaller budget appropriation and additional legislative direction while keeping much of the already approved funding plan in place.

We recommend that the Board approve the proposed modifications. This concludes my presentation.

CHAIR NICHOLS: Thank you. Well, considering that we definitely took a haircut, it seems like you've found a way to allocate it that preserves the thrust of all of these programs and does it in a way that reflects priorities. So I think that's -- I see that most of the people who've signed up are also supportive, which is always good to see, but we obviously have a few how aren't. And in any event, we need to hear from everybody. So why don't we just start the list.
BOARD MEMBER GIOIA: I have a staff -- a question of staff just to understand something?

CHAIR NICHOLS: Certainly. Go ahead.

BOARD MEMBER GIOIA: So quick question. On the so -- on the scrap and replace program on slide 12, I want to make sure I understand. The -- of the $4 million that will be immediately allocated, what -- I understand there's clearly an income eligibility, but what percent of the funds need to be spent either in or to benefit a disadvantaged community? Because the issue of whether they live in the disadvantaged community or not, they're eligible.

AIR POLLUTION SPECIALIST PANSON: That's a good question. A hundred percent of these funds must be spent to benefit disadvantaged communities, meaning the person who would be applying either lives in a disadvantaged community census tract or a zip code that contains a disadvantaged community census tract. That was a requirement in the June plan that was approved, and we haven't changed it in this plan.

BOARD MEMBER GIOIA: Right. So the definition of benefit in this case is living in the same zip code as the disadvantaged community, even if they're not technically in the disadvantaged community.

AIR POLLUTION SPECIALIST PANSON: Yes, that's
correct.

BOARD MEMBER GIOIA: Okay. And so -- so -- and that raises an issue on the 10 million reserve for other districts. And I'll just take the case of the Bay Area. There's been this ongoing issue of whether there CalEnviroScreen reflects appropriately all the disadvantaged communities in the state.

And because such a small geographic area within the Bay Area are within these disadvantaged -- or within disadvantaged communities, it really limits the ability to implement a program like this in the Bay Area, because while there may be a lot of lower income residents adjacent, near, they're not in or in the same zip code.

So that really raises the question of the CalEnviroScreen tool. Yeah. So -- but I understand it. I wanted to get clarity here. It -- so it limit -- it will -- this will limit the applicability of the program.

Can you tell me a little bit -- just bring us up to date on the recent -- or maybe not recent, but the view forward about looking at the EnviroScreen tool? And I know it's gone through several iterations. We're in a new version. There's been new issues that have been raised again, so what are we looking at in terms of the view on that?

DEPUTY EXECUTIVE OFFICER CHANG: So the
CalEnviroScreen tool is developed by OEHHA.

BOARD MEMBER GIOIA: Right.

DEPUTY EXECUTIVE OFFICER CHANG: And CalEPA, under statute, uses that to identify the disadvantages communities. And that's the criteria that we use in the Greenhouse Gas Reduction Fund Programs.

OEHHA is actually right now in the process of updating CalEnviroScreen. They did a series of workshops, I think, last month throughout the State to look at new -- you know, they have some updates to the criteria. Some of it was related to some of the concerns that have been expressed by some of the regions in California about how well CalEnviroScreen represents different communities in different regions.

They are in the process of finalizing, and I think they're supposed to finalize either towards the end of this year or early next year. After that, the Secretary of CalEPA would have an opportunity to update the CalEnviroScreen disadvantaged communities for the purposes of greenhouse gas reduction fund.

BOARD MEMBER GIOIA: And the other question I have, I know we're kicking off a pilot program on financing clean cars for low-income residents again in disadvantaged communities. I'm familiar with that. And so on slide 11, the $6 million that's listed for
low-income financing assistance. Maybe I didn't understand when it indicates that -- oh, okay, so that -- that's set amount. That's -- that is the category of $20 million on this page, the car sharing mobility options down through low-income financing assistance are going to be specific allocations.

And again, what -- and all of those are -- need to be spent to benefit disadvantaged communities as well?

AIR POLLUTION SPECIALIST PANSON: No.
BOARD MEMBER GIOIA: No.

AIR POLLUTION SPECIALIST PANSON: Yeah, that's another good question. In the case of the low income financing assistance, last year, the $1 million that went to that did have the requirement that it benefit a disadvantaged community.

Looking to grow the program, we realized there's benefit in helping low-income consumers regardless of where they live.

BOARD MEMBER GIOIA: Right.

AIR POLLUTION SPECIALIST PANSON: And so that low-income financing assistance program would be statewide -- available statewide --

BOARD MEMBER GIOIA: Got it. Got it.

AIR POLLUTION SPECIALIST PANSON: -- with an income limit.
BOARD MEMBER GIOIA: So this 6 million of low-income financing can assist -- which really helps broaden the program statewide to low-income residents anywhere in the State. Whereas, the amounts under the $60 million allocation, which we're allocating 40 immediately to scrap and replace, must be to benefit disadvantaged communities.

Okay. And is it the same with these other 3 -- these other 3 categories? Are those all -- these are all then to eligible individuals, but not necessarily in disadvantaged communities or not?

AIR POLLUTION SPECIALIST PANSON: No, the low-income financing assistance is the only one where we relaxed the requirement. The others are a benefit --

BOARD MEMBER GIOIA: That answers my question. I appreciate that. Okay.

BOARD MEMBER TAKVORIAN: Can I ask a follow-up now that --

CHAIR NICHOLS: Yes.

BOARD MEMBER TAKVORIAN: So in regards to the low-income financing assistance, what's the eligibility threshold?

AIR POLLUTION SPECIALIST PANSON: That's a program that is still under development. We're going to release a solicitation -- a competitive solicitation for
it, but it's going to be open to those with incomes of 400 percent or less of the federal poverty level. And that matches the income limits for the EFMP Scrap and Replace Program. We think those 2 programs could, and we hope that they link up, and so it makes sense to have the eligibility -- the income eligibility limits link up as well.

BOARD MEMBER TAKVORIAN: Okay. And for the scrap and replace, is it -- is it the 25 percent -- the CalEnviroScreen and the top 25 percent?

AIR POLLUTION SPECIALIST PANSON: Yes. It's the -- when OEHHA identified the top 25 percent, there are maps associated with that. And, in this case, it's open to people living in zip codes that contain those census tracts. And those zip codes are listed on our webpage, and there's a -- there's a map associated with that. So it's very clear to potential applicants what zip codes are apart of the program.

BOARD MEMBER TAKVORIAN: Right, but I was just -- I was just confirming that it was the top 25 percent as indicated by CalEnviroScreen.

AIR POLLUTION SPECIALIST PANSON: (Nods head.)

BOARD MEMBER TAKVORIAN: And that would be the new version?

AIR POLLUTION SPECIALIST PANSON: This year's
money would operate under the old version, the current
version. The new version hasn't been finalized yet. And
so we're already a third of the way into the fiscal year,
we need to get moving with this money. And so we're
operating under the version that really is the final
approved version at this point in time. I believe that
the new version would apply to next year's money.

BOARD MEMBER TAKVORIAN: Okay. Thank you.
CHAIR NICHOLS: Other questions before we hear
from witnesses?

BOARD MEMBER GIOIA: Thank you for letting us ask
those questions.
CHAIR NICHOLS: Okay. Thank you. All right.
We should start with the San Joaquin Valley
District actually. Because although they signed up late,
we're in their home district. So Mr. De Young, would you
come to the podium and then we'll go to Larry Greene.

MR. De YOUNG: Good afternoon, Madam Chair,
members of the Board. My name is Todd De Young. I'm the
grants program manager here at the San Joaquin Valley Air
District. And again, it's a pleasure to have you here
with us today.

First, I'd like to start off by saying that the
district supports the proposed modifications to the low
carbon transportation and fuels investment, and the AQIP
programs. We're appreciated working with your staff on
crafting a well thought out and reasonable plan for
allocating these important funds, with a continued focus
on benefit to environmental justice in disadvantaged
communities.

However, in light of the recent discussion in the
previous item regarding the district's PM2.5 plan, and to
show your support for this new policy position, we would
urge you to direct staff to craft these programs that
dedicate additional funding to the valley to provide
additional meaningful reductions to our PM2.5 plan, in
areas such as additional funding for low-NOx engines, for
renewable fuels and advanced technology demonstrations and
school buses.

The San Joaquin Valley has been very successful
in competing for and administering a variety of projects
utilizing these critical funds, including the highly
successful Enhanced Fleet Modernization and Plus-up
Programs.

However, there are still significant
discrepancies in funding allocations through programs such
as CVRP, where only 2 to 3 percent of those funds actually
come to the valley through this program.

We'd like to continue to work with your staff in
the coming months to ensure that the valley's significant
needs are addressed in the planning effort.

Thank you very much.

CHAIR NICHOLS: Thank you. Mr. Greene.

MR. GREENE: Good afternoon. I'm Larry Greene. I'm the director the Sacramento Metropolitan Air Quality Management District. We very much support the staff recommendations to fund the Low-Income Transportation Program and Fuels Infrastructure Program. Our program that I'm here to speak to is the Sacramento Regional Zero Emission School Bus Deployment Project, and it's part of this investment.

We very much appreciate the work that staff has done in helping us put this together. They've been instrumental in us getting to this point. This pilot project will place 29 zero emission school buses on routes in disadvantaged communities in the Sacramento region. We have many partners in this project. We're putting up 1.6 million in match. Elk Grove, Sac City, and Twin Rivers Unified School Districts are putting over $4.5 million in match and in-kind investments, and SMUD has agreed to put -- to fund all of the infrastructure for new equipment, for charging infrastructure, and any required upgrades. So they will fund that. They put up to a million dollars in their budget to cover that.

The project is ready to go pending your approval,
and staff's completion of their guidelines. And we will -- we're -- we think SMUD is inputting infrastructure in today, getting ahead of the power curve.

We look forward to implementing this program. We think it's the largest electric school bus program in the nation. We also are implementing an electric car share program. And we very much are interested in the EFMP Plus-Up Program. We're one of those other districts. And we've already been working with staff extensively to prepare ourselves, so that we're ready to go with that program, and we will implement that.

And we may be able even to implement that in some of the other low-income areas in our region. We're just started talking about that as we sat back here.

So thank you very much.

CHAIR NICHOLS: I see these meetings have multiple benefits.

(Laughter.)

MR. GREENE: They do.

CHAIR NICHOLS: They're not just single purpose.


MR. HOGO: Good afternoon, Chair Nichols and members of the Board. Henry Hogo with South Coast AQMD.

I just want to offer the South Coast AQMD staff support of the revised funding allocation plan. It's a
very important plan to move forward.

I do want to speak a little bit on the EFMP Program. And it's been a very successful program in our region. With local funding and the EFMP dollars, to date, we have funded over a thousand vouchers, and 1,025 to be exact, but a little bit over a thousand. And we look forward to continuing this program.

We still have a waiting list of people. We process them as quickly as possible. We're in the process of evolving our current program to make it more effective and very efficient, so that when we see additional funding come in, we can move forward very quickly. So with that, I want to thank staff for working with us on this program, and moving forward.

I do want to conclude that we support the discussions between CAPCOA and your staff in how to effectively implement the funding from the Low Carbon Transportation Program. It's very important that the air districts work together with ARB staff in having a very effective implementation program, given that we've already gone a third of the year into the fiscal year.

Thank you.

CHAIR NICHOLS: Thank you.

BOARD MEMBER TAKVORIAN: Madam Chair, can I ask a question?
CHAIR NICHOLS: Yes, go ahead. Question.

BOARD MEMBER TAKVORIAN: I'm sorry. I just wanted to know, do you have demographic data, income data on those folks that have taken advantage of the program?

MR. HOGO: Yes, we do. Just quickly, over 94 percent of the vouchers approved are in disadvantaged communities. And they're -- the breakdown of the household income, the majority are in the 225 percent and below poverty level. So we -- actually, ARB staff have all the detailed data.

But we're seeing a very good response from lower income and disadvantaged communities. We do know that looking region-wide most of the applicants are from the Los Angeles county region. With the new monies, our focus will be on the Inland Empire and Orange County region. So we want to --

BOARD MEMBER TAKVORIAN: Thank you.

MR. HOGO: -- make sure it's a widespread program, but in our region.

And I do want to say that for the other air districts, we have begun discussions with Larry and his staff on how to implement a program in Sacramento. And we're more than happy to help other air districts as they look towards implementing the program. It's not an easy program to do. It's not like the Moyer program
CHAIR NICHOLS: Right.

BOARD MEMBER TAKVORIAN: Okay. Thank you so much.

CHAIR NICHOLS: Well, I do think it's a good idea though apropos of the question that you were just asked to -- as soon as we have enough data, and I'm not quite sure what enough is, but if it's a year's worth, or 6 months worth, or whatever, but about where the grants are going, just to be able to report that publicly.

There's a lot of interest in this. And I think it would be very helpful to our long-term efforts to maintain funding.

AIR POLLUTION SPECIALIST PANSON: Yeah, and we do actually have, you know, some of that data. Between the 2 programs, with the first 1,400 scrapped vehicles, 94 percent of those transactions went to consumers at less than 225 percent of the federal poverty level. So this program really is hitting that -- the lower income consumers.

CHAIR NICHOLS: That's great.

DEPUTY EXECUTIVE OFFICER AYALA: And just to be clear, the data is in the actual plan that the Board gets from the staff. So some of the statistics are readily available.
CHAIR NICHOLS: Well, good.

BOARD MEMBER TAKVORIAN: Thank you.

CHAIR NICHOLS: We need to figure out how to package it in a way, so that people -- not just us, but outside people can follow it as well. That would be helpful.

Okay. We'll put Stanley to work on this one --

(Laughter.)

CHAIR NICHOLS: -- wherever he is. Where is Stanley now that we need him.

Okay. Welcome.

BOARD MEMBER RIORDAN: There he is in the back.

CHAIR NICHOLS: There here is. He's listening --

listening carefully.

MR. BROWN: Hello. Good afternoon. I'm Chris Brown. I'm AICP, Air Pollution Control Officer for Feather River Air Quality Management District, which is Sutter and Yuba Counties.

And, you know, I'm here mainly to speak in support of the Rural School Bus Program. I actually -- when I was in Mendocino county, we started running a school bus program back in the early 2000s. It was a very successful program. Very popular in the local community. That was before we had the AB 923 program. We were doing it with local dollars. And I think there's sometimes a
disconnect between urban and rural California. I know that may comes as a shock.

(Laughter.)

MR. BROWN: But, you know, just looking at median household income in California, I'm just going to read off a number of counties here. This is kind of in order of the lowest, which is Lake County, Trinity County, Siskiyou County, Modoc Community, Del Norte County, Glenn County, Imperial County, Humboldt County, Tehama County. And as somebody who grew up in Los Angeles, I couldn't find those locations on a map growing up.

(Laughter.)

MR. BROWN: And the last one on here is Tulare County, which of course is in the valley here. And a lot of these school districts have a very large area to cover. They have a few number of students. They have a small tax base, because there's a lot of Forest Service land. They don't necessarily have the funding to run a transportation program that's actually needed. There isn't an alternative in a lot of these communities. You can't go catch a transit bus. You can't ride the subway to work or to school, and the -- so a lot of these buses are older buses.

The buses they need to buy have steeper grades to climb, they have poorer roads, so they may need to be
upgraded with heavier breaks, heavier duty air-conditioning systems. They may have to deal with snow, all kinds of different challenges. And that consumes more fiscal resources.

So what happens is the buses get older, and the buses, as they get older, the emissions get higher, and the wear and tear gets higher, the maintenance costs get higher, and you get into a vicious cycle.

And in addition to that you don't have the options for alt fuels like you do in other areas. We have counties in California -- one of my counterparts is going to get up in minute -- they don't have natural gas. So you can't put natural gas buses in when you don't have natural gas. You have to use propane, you know.

And electric buses have come a long way. And I think now this is a good program that can give us the opportunity to get them out, and let people see them. In rural communities, they haven't had an opportunity lately. And the final note I'd add is, as a parent who had kids in one of these communities, my kids were on the bus for 3 hours a day. The bus they were on, you know, was a 2-stroke bus. It was built in the seventies initially. We replaced it with grant money. Felt good about that.

But for 3 hours every day these kids are on these buses. It's very different, I think, from the urban
experience where it may be an hour or 2. They may go to
multiple schools and pick up kids at different schools
before they get back home.

CHAIR NICHOLS: Right. It's a very good use of
the advanced technology, because they're on a fixed cycle.
It's a predictable time. It's really a very nice synergy
there. So we agree.

MR. BROWN: Yeah. And I think my board is very
supportive of this too. We've dedicated a lot of our
funding in Feather River to school buses as well.

CHAIR NICHOLS: Great. Thank you.

MR. BROWN: Thank you.

MR. GEARHART: Good afternoon. My name is Doug
Gearhart. I'm with the -- I'm the Air Pollution Control
Officer for the Lake County Air Quality Management
District. And as my counterpart just mentioned, we are
listed as the poorest county in the State of California.

But that being said, you know, I'm here to really
express our support for the rural school bus program. It
comes across as something that's very needed, very
positive for our rural areas.

And, you know, it's an example of what can be
done to promote emissions reductions, clean air, low
carbon fuel options throughout the State, not just in the
urban areas, not just in the transportation corridors.
The rural areas, you know, they hear programs, they hear about all these things, but they actually never see the equipment, they never see the bus. So getting some of the -- a little bit of funding out there to get these things out into the rural areas really will -- it helps the publicly, it helps the PR, and it helps, you know, with the clean air and helps protect the air that these kids breathe.

As stated in the proposed plan, you know, the rural school districts really do have serious funding opportunity limitations, you know, revenue for school districts in rural areas is very limited, especially just to maintain their school -- you know, the school bus routes, just to maintain drivers, just to keep the buses on the road is very challenging, much less trying to buy something new and get something that's cleaner out on the road.

We don't have natural gas at all in Lake County. There's not a single natural gas line in the County of Lake. We actually had to argue with PG&E about that. They thought they did, and they couldn't find it on their map, so they finally agreed with us.

(Laughter.)

MR. GEARHART: You know, it's just -- it's one of those things that you think is everywhere. Well, it's not
everywhere. You know, in Lake County, you know, with the natural disasters we've had the last 2 years, tax revenue, revenue for the schools is significantly impacted. The school districts are now busing people -- busing children a lot farther, because people have been relocated. They haven't moved back into the exact area, so they're running their buses to farther out areas to catch the people that are actually in the district that are working to rebuild, so they're putting a lot more miles, a lot more hours on these buses, and doing -- you know, finding funding to help upgrade and get these things cleaner and reduce exposure is definitely a very positive thing. And we are definitely very much in favor of it, and very supportive of this.

I do want to specifically thank staff for working with this and coming up with these options and making it -- you know, it's not a huge amount of money, but a little bit amount of money in the rural area goes a long way. So we do really appreciate that, and I do have a representative from one of our local school districts who will come up and, you know, I hope give you a little information on what -- you know, what a rural school bus -- you know, school district and school bus program is really about.

You know, I can't say it enough, we really
appreciate this program. Now, with the whole funding plan, there are a lot of good things in the funding plan. And I would hope that some day in the future -- I'm not saying today, but in the future, some of these things, as they mature and develop, can be made simplified, so that they can be expanded into the more rural areas. There are a lot of beneficial programs, and getting them out in a simple -- you know, simple method that the rural areas can take advantage of is really a benefit.

So thank you very much, and we are definitely very much in support of this.

MR. STEINBERGER: Good afternoon, Madam Chair, members of the Board. My name is Joe Steinberger. And I'm with the Bay Area Air Quality Management District. I'm here today to speak in favor of the proposed modified 2016-2017 funding plan for air quality improvement program, and low carbon transportation investments.

I'd first like to thank Mr. Corey and his staff for their prudent efforts in reducing allocations in the funding plan, while maintaining its effectiveness. The plan, as modified, still strongly supports zero and near zero emission technologies, reduces a significant amount of greenhouse gases emissions, and bolsters the momentum established in the 2015-2016 plan.

Their district strongly supports the modified
plan, which would allow us to move forward on 2 projects
that have already received so tentative approval from ARB
staff. These projects were submitted under the Zero
Emission Truck and Bus Pilot Commercial Deployment Program
and our board has already approved matching funds for
these projects.

One project is with Goodwill Industries that
would fund the purchase of 11 heavy-duty electric vehicles
that provide delivery services and workforce development
opportunities. The second project would benefit both the
Bay Area and the South Coast by deploying 10 hydrogen fuel
cell buses for transit agencies operating in each of these
air districts.

The air district is also highly supportive of the
expansion of the EFMP Plus-Up Program beyond the initial
pilot areas. This will allow more residents living in
disadvantaged communities to access these incentive funds
and further our district's efforts to deploy zero emission
vehicles in the Bay Area.

I would like to reiterate our comments made at
your June 23rd meeting by saying that we continue to
support the funding for advanced technology pilot
demonstration projects, and the focus on enhanced funding
for zero emission trucks, buses, off-road equipment, and
freight applications. We need to make sure these types of
projects remain a funding priority into the future, in order to transition from demonstrations to commercialization.

On a final note, in adopting the legislation that authorized the Cap-and-Trade Program, the State made a commitment to our most vulnerable communities. However, the Bay Area Air District is significantly concerned about the uses of CalEnviroScreen, since it misses some of our most disproportionately impacted residents in west Oakland, San Jose, and eastern Contra Costa County.

I would like to remind the Board that 24 percent of the greenhouse gases emitted by facilities under the Cap-and-Trade Program are in the Bay Area. However, only 2.8 percent of the communities ranked by CalEnviroScreen as being in the top 25 percent of impacted communities in the Bay Area.

We will look forward to continuing our partnership with your staff to support the plan and the effective allocation of future State funds.

Thank you.

MR. WAGONER: Yes. Good afternoon, Chair Nichols and members of the Board. My name is Jim Wagoner. I'm the Air Pollution Control Officer with the Butte County Air Quality Management District. And I'm here to support the staff proposal for the rural school bus pilot program.
I will second the comments that my colleagues have just made about the challenges that rural districts face with their school bus fleet, so I won't repeat their testimony here.

I want to thank the staff for working with the rural districts and CAPCOA on this program. And finally, just as an aside, since the presentation did mention the black carbon wood smoke, I want to thank your staff for working with CAPCOA on that initiative and getting it into the budget.

Thank you.

CHAIR NICHOLS: Thank you.

MR. SERFASS: Good afternoon, Madam Chairman and Board members. It's great to be here. Jeff Serfass. I'm Executive Director of the California Hydrogen Business Council representing 100 members that make and distribute hydrogen, that manufacture the vehicles, the cars, the buses, trucks indeed, and electric and gas utilities, and government agencies. They have some of the AQMDs, including the Air Resources Board. We're very appreciative of this broad membership, all with a common vision, we think, of energy, transportation, goods movement, fueled by zero emission renewable hydrogen in the long run.

Hydrogen is an integrating energy form. And it
links these various markets in a very capable way. We support the rebate program. We support the Enhanced Fleet Modernization Programs, because of their impact on building zero emission vehicle fleets. Fuel cell electric vehicles are just at the beginning stage of market development. And while prices are high, these support mechanisms help the consumer make purchases that build the fleets that are so important to reaching the State goals.

I'd like to turn to the buses. We appreciate the staff recommendation for funding of the public transit projects in keeping the full amount that was in the original plan. These projects will be funded at AC Transit, Orange County, and Sunline Transit, expand existing fleets and we'll begin to create a new fleet kind of at scale. And that's the important thing, we are at the stage of not needing to demonstrate, but rather to deploy at scale, meaning numbers of buses returning to the same fueling depot, fueling stations that are of the size that are commercial, and that actually lead us, frankly, to a transition to using those size stations in support of zero emission trucks.

The transit systems and their buses will serve disadvantaged communities and we need the scale to -- for the industry to continue to develop.

We are pleased that these bus projects include
infrastructure investments, the fueling stations, for the -- because they will help us in leading to zero emission trucks, and because that's such an essential part for the light-duty vehicles, as well as these.

So our vision is energy systems that really tie together the management of the grid and increasing penetration of renewables, cars, buses, trucks, goods movement with renewably based hydrogen.

Forty-five percent of the hydrogen in the light-duty vehicle fueling stations is already produced from renewable energy. We're on the right trend. In fact, that's a higher number I think than the renewable component of the electric grid. So it's urgent, I think, that we grow these early market programs and the players that are a part of it, and we -- so that we assure that we're on the trajectory that will meet the State's aggressive emissions greenhouse gas goals.

Thank you.

CHAIR NICHOLS: Thank you.

MR. Le FLORE: Madam Chair, members of the Board, I'm here representing Sunline Transit Agency, and its General Manager, Lauren Skiver, who couldn't be here, but she sends her best.

One thing with Sunline Transit Agency, one, for sure, we're in support of staff's recommendation. And we
want to note -- want you to know that this investment is a part of Sunline's overall vision going forward in terms of long-term planning. The investment in fueling infrastructure and the investment in vehicles will really help Sunline Transit Agency, with its overall mission.

Sunline stands as one of the few transit agencies that it has as a policy the utilization of the cleanest technology available. That's very unique. And Sunline is a JPA made up of 9 cities and the eastern Riverside County.

One thing we want you to know is that we've enjoyed working with the staff, and we do have projects that are ready. We're excited to get going seeing that the expiration of the funding is coming soon, so we want to make sure we get going with these projects, but we want you to know that this is an exciting partnership. I was fortunate enough to be involved in purchasing one of the first American fuel cell buses. It was around $5 million. Now, we're around $1 million. We're talking about progress, and I've seen that, and we're talking about speeding towards commercialization, so I'm excited about the project. And I want to thank you and we wholeheartedly support staff's recommendation.

CHAIR NICHOLS: Thank you.

MR. BOUWKAMP: Madam Chair, members of the Board,
good afternoon. My name is Nico Bouwkamp with the California Fuel Cell Partnership. Two days ago we, may I sigh, finally published a medium-, heavy-duty fuel cell truck action plan for California. I'd like to share with you a few highlights of the document, I submitted it, so -- for your later reading pleasure. It's not -- it's more of a future thinking, and that's why I want to submit it.

It's an attempt to support the development of fuel cell trucks into the future. The 2 highlights of this document are that there is a need for fueling infrastructure for heavy-duty and medium-duty fuel cell trucks. Those vehicles cannot fill at passenger hydrogen stations as Mr. Serfass from the California Hydrogen Business Council just referred to, there is great progress made there, but those vehicles cannot fill there. Where those vehicles will fill in the future hopefully is at larger stations that can -- are similar to the ones used for fuel buses. So with that, it's important to continue fuel cell buses.

The second point of this document is to focus attention for fuel cell trucks on medium-duty Class 4 to 6 last-mile delivery package delivery vehicles and trucks, like the kinds you see for UPS and FedEx that you may see in your neighborhood on a regular basis. I don't know
what neighborhood you live in, but I assume that's the case.

As I said, again, the other class of vehicles are focused on our Class 7 and 8 -- short-haul -- short-haul drayage trucks. They're not known for drayage trucks by the truck manufacturers, but they are sold as short haul, sometimes as long-haul trucks, but it's not -- that's not how they're used.

Another contextual aspect of all of this is to consider the sustainable business case for trucks. There are many aspects that make up a sustainable business case for trucks to be successful, and that should be considered, in this case, as well, and it's often overlooked.

And I received input from several stakeholders, including the truck industry that that really has to meet the needs of making a truck successful, whatever kind of truck it is really. And this also applies to fuel cell trucks.

The document includes 14 high priority recommendations, and it assigns each one of these priorities to a group. Maybe -- it could be federal governments, State government, or industry. And in some cases, it's a collaborative effort, but it's important to work on those, so that could be the future for fuel cell
trucks.

There are 20 other recommendations. And I will leave you with that, and thank you for your time.

CHAIR NICHOLS: Thank you.

Just in case anybody is unaware that Air Resources Board is a charter member of the California Fuel Cell Partnership, so we are privy to this.

MR. NORRIS: Good afternoon.

CHAIR NICHOLS: Hi.

MR. NORRIS: My name is Dave Norris. I'm with Lakeport Unified School District. I'm the director of maintenance, operations, and transportation. I'm here in support of the $10 million School Bus Replacement Pilot Program for small disadvantaged communities. Lakeport is a small rural town. We are on the west shore of Clear Lake in Lake County, approximately 150 miles northeast of San Francisco.

The Lakeport Unified School District has an enrollment of approximately 1,536 students at this time. We provide transportation services to about 510 of them. Lakeport applauds the School Bus Replacement Pilot Program, which will reduce emissions caused by our older polluting school buses, and protect our school children from being exposed to both cancer-causing and smog-forming pollutants in and around the school buses.
Lake County has a relatively high poverty rate. As in many low income areas, we have a high percentage of students qualifying for the free and reduced meal program based on family income, English learners, and homeless. These are our unrepresented pupils. And we have about 61 percent of them that qualify.

For many of our students, the yellow school bus is the only option for transportation to and from their school. Many of the families do not have cars or the parents work in the agriculture and leave far too early to provide rides for their students -- for their children. I appreciate ARB's effort and hard work and the allocation of the $10 million towards the School Bus Replacement Program, and would hope to see this program continue into the future.

I've been doing this for 35 years, and the School Bus Replacement Program that we used to have basically replaced our buses. Without that, we would not have been replacing buses. School districts simply don't have that kind of money, so this is a great program.

Transporting students in a clean and safe bus is clearly the best choice for the environment and our children.

Thank you very much.

MS. MORROW: Madam Chair, members of the Board,
as the sheet says, my name is Colby Morrow and I'm with SoCalGas. And I'm pinch-hitting today for Jerilyn López Mendoza who happens to be ill unfortunately. She was here and she got sick.

So serendipitously I live in Fresno. I work in the San Joaquin Valley. And my intent today is that I'm going to set the stage for the following 2 gentleman who are our partners. And I just want to say that I'm with Board Members Ms. Mitchell and Dr. Sherriffs who unfortunately it looks like he's gone, but the San Joaquin Valley and the South Coast we need more NOx reductions and we need them now.

As you heard during the last Board item, there -- many of us who come and testify before you and who live in the San Joaquin Valley have very personal reasons for our testimony, and I'm no different. I've talked a number of times in different workshop forums about my mother who is one of the few who can actually say after five years of being -- after being diagnosed that she's a lung cancer survivor. The current rate I believe is somewhere between 8 and 13 percent who are diagnosed who actually live for five years.

And then just today, my husband was diagnosed with pneumonia last week. And this is of particular concern to both of us, because last fall he had pneumonia
as well. And just last night he said to me, maybe we need
to think about moving out of the valley, which is -- my
son has grown up most of his life here. It's just really
not something I look forward to.

So given all the testimony today and the
disparate need for more NOx reductions, we respectfully
ask the Board to allow that the ultra low-NOx natural gas
vehicles compete for the heavy-duty freight and transit
funds. And we believe that these natural gas vehicles are
very cost effective, in terms of the lower number of
dollars per ton of emissions reduced.

And thank you very much

MR. KENNY: Hi. Good afternoon, members of the
Board, Chair Nichols, staff. My name is Ryan Kenny. I'm
with Clean Energy. We are the nation's largest provider of
renew natural gas and natural gas transportation fuel.
You all have a very difficult job, because you have so
many stakeholders asking for money and there's so many of
you.

So we sympathize with that, but at the same time,
we are opposed to the funding plan as it is, and I'll
explain why. First, the policy environment is different,
we feel, today versus in June. Number one, the GGRF
visibility is clearer. The legislature, from what we
understand, is unsure that further GGRF will be
appropriated next year. Also, what we did not see in the staff presentation, and also elsewhere is legislative intent.

The Assembly did send a letter to ARB expressing legislative intent, and that has not been seen at least in the materials that I've seen. But in it, we feel that they expressed their intent to be more deployment, less on pilot and demonstration projects.

They also specifically twice mentioned their intent to have more deployment of heavy-duty vehicles using a 0.02 NOx engine using renewable fuels. That's twice. No other technology was actually expressly mentioned in the letter.

The they as said quote, "We intend that vehicles, from an array of technologies, receive an appropriate share of these funds." And we do believe that it is tilted significantly away from low-NOx engines that meet a 0.02 NOx standard, and it's on other technologies and also even Class 4 to 6 and away from the heaviest of vehicles, which, as we've heard today, we need those now. The immediacy is clear, the health benefits are clear, and we're concerned about the money going towards 4, 5, and 6 and not a minimum of 26,001 pounds.

So we do think the amount that's in there is too low to meet legislative intent, and also effectively to
meet the health benefits and NOx standards for the federal attainment needs.

There is, for instance, a item -- there's $60 million right now in there going towards zero emission trucks and buses. Some of that money could be defrayed towards immediate needs of deployment of 0.02 NOx engines. We do think the policy should not be specific winners and losers, but actually on performance standards. And we don't think that this funding plan does reflect that at this point.

So those are my comments. Thank you.

CHAIR NICHOLS: Okay. Thank you.

MR. LAWSON: Good afternoon, Chair and Board members. Thomas Lawson with the California Natural Gas Vehicle Coalition. I want to add my support of the comments that were made throughout today in support of reducing NOx emissions here in the valley, and in other areas all over the State.

One of the things that I think is interesting that has changed, because we were officially in support of AB 1613. And we were also in support of a lot of the climate bills that went through the legislature this year. One of the things that, you know, from talking with staff was noted that this has kind of turned into one-time money.
You know, I think in June we thought we were going to get multiple bites at the apple. And I think with the large allocation from the legislature, and even from talking with legislative budget staff, that they're not sure what they're going to do next year and where that money is going to come from.

The reason why that's important to us is that we believe that there's going to be new technologies that are going to become to trying to get themselves commercially viable between now and when this money is going to be spent. And so somehow we want to figure out a way to continue to encourage folks to invest in those technologies, specifically the 12-liter Cummins Westport engine that's coming out that's working its way through the process, as well as one of our newer friends, the American Power Group, they have some technology that's going to benefit, which I think is of interest to the Board older trucks, and then also deal with 13-liter and larger engines in making those cleaner.

So there's a lot of things in the works. There's companies that are investing right now. And so we feel like, you know, that's one of the things that's changed. And so I think we all acknowledge there's not enough money to do everything that we want to do. But we do think that competition is important, so we ask that, you know, in the
2 zero-emission pilot projects, truck and bus, that we
open those up to include near zero and allow us to compete
for those funds. And I think that would be an appropriate
way to kind of handle what's going to happen the next 2,
3, 4 years.

So I appreciate your time and thank you very
much.

BOARD MEMBER SERNA: Chair Nichols?

CHAIR NICHOLS: Um-hmm.

BOARD MEMBER SERNA: Could I ask the speaker to
remain at the podium to answer a question?

CHAIR NICHOLS: Oh, yes. Come back, please.

MR. LAWSON: Hi.

BOARD MEMBER SERNA: Thank you, Mr. Lawson for
being here.

MR. LAWSON: Sure.

BOARD MEMBER SERNA: I appreciate your comments.

MR. LAWSON: Sure.

BOARD MEMBER SERNA: I had a question. I'm in
receipt, as I think the rest of the Board is, of an
October 12th letter addressed to our Chair.

MR. LAWSON: Yes.

BOARD MEMBER SERNA: And in part of the letter,
you explain your -- the concern that you just verbalized.

MR. LAWSON: Yes.
BOARD MEMBER SERNA: There's a -- I don't know if you have the letter with you. It doesn't look like you do.

MR. LAWSON: I don't.

BOARD MEMBER SERNA: But there is on a page 2 a statement relative to the total of 60 million that's being -- that would be appropriated in what's being suggest by staff, part of which would be used for zero emission bus fleets that quote, "It is an inordinate amount of money on technology that is not immediately ready for deployment." So I was hoping you could expand on that, because my understand -- I know we're going to hear from a representative from a school district later from Sacramento where, according to the staff proposal, there would be deployment of electric buses with what is being proposed by staff with the funding that's being proposed by staff.

So I'm trying to reconcile that statement --

MR. LAWSON: Sure.

BOARD MEMBER SERNA: -- with what I think I know about the current state of commercially viable electric bus chassis and the powertrains and what I'm being told by the folks that actually would deploy these electric buses.

MR. LAWSON: That's a good question. I appreciate the opportunity to answer it. So I think, you
know, my colleague a moment ago addressed a little bit of that. And so I think one of the issues that statement is really tied to the Class 7 and 8. When we talk about what we think should be -- the majority of the money to spent on. And so obviously, we do acknowledge that there are electric buses available, but we're specifically talking about shifting that money to spend more of it in Class 7 and 8, where you can get those immediate NOx reductions, and that's what we're talking about in that regard.

So I agree with you that there is that technology out there, but when you talk about 7 and 8, there is a limited amount of technology and, you know, natural gas -- the low-NOx engine is ready to go, and the 12-liter will, you know, be, I think, a very integral part in helping that particular sector reduce those NOx emissions.

BOARD MEMBER SERNA: Okay. I appreciate the explanation. I guess I didn't see a -- maybe I didn't catch a footnote or something, but it doesn't seem to -- it didn't seem to be qualified the same way in the paragraph that was in your letter --

MR. LAWSON: Okay.

BOARD MEMBER SERNA: -- so that's why I asked the question.

MR. LAWSON: I appreciate it.

BOARD MEMBER SERNA: Thank you.
MR. ATKINSON: Good afternoon, Chair Nichols and members of the Board. My name is Fraser Atkinson, and I'm the chairman of GreenPower Motor Company. Also here today with me is Phillip Oldridge, our CEO, and Mark Quinlan, VP for the west coast.

We're here in support of the pilot project with Porterville. And we're the technology provider for that project. By way of background, GreenPower has a suite of low floor all-electric transit buses, and high floor all-electric school buses and shuttle buses.

We're very proud to have deployed last week -- actually, the last 3 or 4 weeks, I should say, the first purpose-built all-electric double-decker bus in Victoria, Canada. All of our products are zero emission and no NOx, for the benefit of that side of the Board that was focused on no -- I'll repeat it --

BOARD MEMBER MITCHELL: He deserted me.

(Laughter.)

MR. ATKINSON: Maybe I can send him a letter. But we are no emission, no NOx, and very proud that all of our fleet reflects that. We are an international company, and recently acquired a property in Porterville. We're starting manufacturing modular buildings, and we've been working with the city to get permitted to build a 150,000 square foot building. That will be our manufacturing
facility. It will also be the GreenPower technology center.

So GreenPower will be consolidating our operations in not just Porterville, but the San Joaquin Valley as we draw from other resources, such as Fresno State who we've been engaged with in terms of a number of programs that we can work with together. So our goal is to be not just in the community generating jobs, but being part of the community that generates those jobs.

This project with Porterville has many, many unique aspects. It's really unique compared to all 38 -- I believe it was 38 applications that the CARB received. The project with Porterville we are implementing a zero-emission solution across a transportation system, charging infrastructure, and a sustainable energy source, truly what is intended by the Moyer calculations in terms of zero emissions. So it's not just the vehicle. Our goal is to be a zero-emission solution, not just a zero-emission vehicle.

The pilot project will serve as an example to other transit agencies and operators not just in the San Joaquin Valley area, but across North America. GreenPower is delighted to be working with Porterville as they have shown the leadership that is required for successful implementation of this kind of project, as well as the
technical support from the San Joaquin Valley Air
Pollution Control District.

So with my remaining 10 seconds, I'll leave that
for any questions.

(Laughter.)

CHAIR NICHOLS: No questions. Thank you though.

PORTERVILLE CITY COUNCIL MEMBER GURROLA: Good
afternoon, Honorable Chairwoman Nichols, and Vice
Chairwoman Berg, and members of the Board. Welcome to the
San Joaquin Valley, first of all. I'm Virginia Gurrola
and I'm the Council woman for the City of Porterville. In
addition, I proudly serve on the San Joaquin Valley Air
Pollution Control District with Dr. Sherriffs.

It's an honor to address you this afternoon, as
the City of Porterville is a recommended recipient of
funding under the Zero Emission Bus Pilot Commercial
Deployment Project. With a complete support of the air
district, the city has tremendous fortune and opportunity
to partner with GreenPower Motor Company, as together we
seek to engage a fleet-wide implementation of electric
transit buses to the extraordinary benefit and service to
the Porterville community and its surrounding area.

As many of you are aware, or may not be aware,
Porterville area has served as ground zero of the historic
drought that we continue to endure. Due to private wells
having run dry -- thousands of residents' -- private wells
have run, dry thousands of residents located in the
unincorporated area commonly known as East Porterville are
without water, and, in some cases, have been without water
for 3 years, a tremendous burden.

Generally regarded as one of the most desperate
and severely disadvantaged areas in the entire State, the
city is striving to improve the quality of life and
environment in this area, not only by providing
desperately needed household water, but also by providing
or improving access to other essential services through
transit.

In serving the east Porterville area, the Tule
River Tribal Reservation, as well as the City of
Porterville, the city's transit system almost exclusively
operates and serves designated disadvantaged communities.
Beyond the desirable air quality benefits served in the
operations of zero emission transit buses in these
obviously challenged areas, GreenPower Motor Company is
committed to manufacture the buses and provide valuable
employment opportunities desperately needed in the area,
which it underscores the importance and true significance
of the city's project.

I wish to thank you for your time and attention.
And on behalf of the residents of the City of Porterville,
we wish you to support the city's fleet-wide implementation of zero emission electric transit buses. Thank you very much for your time.

CHAIR NICHOLS: Thank you. I think we've got another representative of this project as well.

CITY OF PORTERVILLE MAYOR STOWE: You do. Good afternoon, Madam Chair Nichols and Board members. I am Milt Stowe. I have the privilege serve our city Porterville. And it is an honor to address you this afternoon, as the City of Porterville is recommended for recipient of funding under the Zero Emissions Bus Pilot Commercial Deployment Project.

The city has tremendous fortune an opportunity to partner with the GreenPower Motor Company, as together we seek employment and a fleet-wide implementation of electric transit buses, an extraordinary benefit and service to our community.

Located in the central San Joaquin Valley, the Porterville area has served as an epicenter of a historic drought and we continue to endure. Due to their private wells and having run dry, thousands of residents located in the unincorporated area surrounding the city currently survive weekly water deliveries to make a large household tank.

However, a solution to this humanitarian crisis
is being implemented as the city's waterlines are being extended, as I speak, and these desperate households are receiving permanent connections. And just as the city's providing dramatically improved quality of life and environment for these residents' provision of water, the city also provides essential transit service to these severely disadvantaged residents, which the partnership between the city and GreenPower Motor Company and fleet-wide implementation of electric transit buses will further contribute and improve quality of life and environment to these residents.

And I think too thank you for your time and attention, and especially your considerations in support of this project.

Thank you very much.

CHAIR NICHOLS: Well, it's great that you all came here today. You know, it's impressive the support of the public-private partnership that's involved in this. And I do think that this is one of the great examples of what this particular program can do. So we're excited to hear from you as well.

Esther Postiglione.

MR. HAMILTON: So Esther had to leave. She couldn't stay. I'm going to go ahead -- I'm not going to take that time, but I'm going to incorporate into --
because I'm next --

CHAIR NICHOLS: Okay. That's fine.

MR. HAMILTON: -- into my comments what I know they had asked to say today.

So for Cultiva La Salud who is an organization that works around food safety and improving community strength across the valley in all 8 counties led ably by Genoveva Islas, who also sits on the Board that's overseeing Covered California.

They really wanted to address the idea of including bike sharing into greenhouse gas funding through the ARB processes. That's been left for the transportation side largely. And I think that the expectation is people will work this bike-ped stuff into their RTP/SCSs and that we'll see that happen through those dollars.

But, in fact, there's not enough money there for that, and I can't think of something that's going to reduce greenhouse gases more effectively than actually getting people out of a vehicle and onto a bicycle. So, you know, we see that as a natural merging of these 2 programs and would like to see some small part of this funding actually considered for funding bike-sharing programs in disadvantaged communities across the San Joaquin Valley.
Putting on my CCAC hat, I want to say, and as part of the California Clean Freight Coalition for many years now, that we support this proposal, and we particularly support increasing funds for heavy and medium diesel fleet conversions. I was just reviewing a company up in Washington's -- their work with CNG conversions of diesel engines in trucks, which is remarkable to me that you could actually that in situ, in the truck, not dual diesel and CNG, but full CNG conversions.

This seemed to me like an ideal answer to the problem of I bought a new truck in 2012 for you guys, and now you're telling me I've got to go electric in 2020. I mean, really?

So, you know, here you could convert your diesel truck to a CNG, get a bridge supplied fuel source, and then that truck would wear out naturally, and you'd be able to make that conversion to electric. So I thought that was a pretty elegant solution as we would say in the medical world.

As to the Plus-Up Program, I think that program speaks for itself. Here in the valley, I believe it's been operated very ably and successfully. And we want to see those changes in improving access to that program and decreasing the threshold for folks to sign up as far as their income, and pre-application processes would be very
useful to better construct and have conformity across the regions. So I'll leave you with that.

And thank you very much.

CHAIR NICHOLS: That's a good suggestion. Thank you.

You could pull the podium -- you could push the podium down.

MR. TEEBAY: I'm vertically challenge. I should do that.

(Laughter.)

CHAIR NICHOLS: Make it fit you.

MR. TEEBAY: Anyway.

CHAIR NICHOLS: Oh, just wait a second here.

MR. TEEBAY: I like that.

CHAIR NICHOLS: Now, we can see you.

MR. TEEBAY: Thank you. So I'm technologically challenged, I guess. Madam Chair and Board members, thank you for allowing me to speak today. I'm Rick Teebay with the County of Los Angeles. We support the recommendation to go forward with the funding for the low carbon transportation funding and Air Quality Improvement Program.

Full disclosure, I was involved in four of the almost 40 applications for that -- for the zero emission heavy-duty truck program, one of which is pending an
award. And that particular project would provide 21
trucks that would operate in downtown Los Angeles, Baldwin
Park, Anaheim, and Visalia.

I commend your staff for their work on the
opportunity. Your staff spent literally months. They
were open and transparent in workshops in order to develop
the opportunity. And each of the applications and the
supplements were more than a hundred pages.

Your staff carefully read, evaluated, and read
each -- ranked each application. And the awardees and the
pending awardees are ready. And if we don't do it now,
we're going to lose time.

So I think we heard earlier today that we need to
get to zero, and we need to get to zero now. And whether
or not any of the applications that I -- which I was
involved, I would really strongly support this.

Thank you very much.

CHAIR NICHOLS: Thank you for coming.

MS. TUTT: Good afternoon Chair Nichols and
members of the Board. I want to echo Rick's -- I'm Eileen
Tutt with the California Electric Transportation
Coalition.

I want to echo Rick's commendations of the staff.
Really did an excellent job, and I urge you to support
this very thoughtful plan and approve its adoption, so we
get can this money out the door, and let them get working
on the next one.

(Laughter.)

MS. TUTT: I do -- you have my letter. I brought
it just in case Supervisor Serna pulls it out.

(Laughter.)

MS. TUTT: But I do want to say -- I just want to
BOARD MEMBER SERNA: I actually read it once in a
while.

(Laughter.)

MS. TUTT: -- one -- with my one minute is all
I'm going to take. I want to follow up on something the
Supervisor and Board members' Mitchell said, and that is
we need a different solution than this. We need a
long-term reliable funding source for these inventive
programs that supports your regulations, and an outreach
and education plan. So that's what we need and we need it
in this next legislative cycle, in my opinion. And I will
be working very hard on that. And I hope that I can count
on your support, because I think you and your staff are
excellently suited to help us craft such a plan that can
get adopted and can lead us through the next five to 10
years in a much more reliable way, because this biannual
triannual, quad-annual approval of little tiny bits of
funding is not -- is not a sustainable solution.
So thank you very much.

CHAIR NICHOLS: Thank you for all your support.

(Thereupon an overhead presentation was presented as follows.)

MR. SHANNON: Good afternoon. And I appreciate the opportunity to speak before the Board.

I want to just to share a little bit about myself. I'm Tim Shannon, director of transportation at Twin Rivers Unified School District. And we are very excited about this opportunity to have 16 electric school buses deployed within our district.

And we call this a breath of fresh air, because not only is it going to give us new equipment, it's going to allow people to breathe easier within our district.

I'd like to show you the -- is there a clicker?

BOARD MEMBER SERNA: Hey, Tim?

MR. SHANNON: Yes.

BOARD MEMBER SERNA: Can you explain where Twin Rivers School District is?

MR. SHANNON: Yes. Twin Rivers is located -- I don't know if any of you know where McClellan Air Force Base is, but we're in Sacramento, and McClellan Air Force Base is right dead center in us.

We are -- here, I'll show you a map, where you could actually --
MR. SHANNON: You can see McClellan Air Force Base is the purple base in there. And you see all the blue there, that's all the disadvantaged community. We're 121 square miles. We service 30,000 kids and we transport 5,000 kids daily.

MR. SHANNON: Part of this program we want to wrap around is we want to wrap around an education portion of this opportunity, is that we're going to have a program called Sharing the Ride, which all the kids that ride the electric school bus will learn about it, and learn about clean technology, so that they can go home and share with their parents and family, because we know that's what kids do.

And the other thing -- other portion of it is for our older kids looking to either go to college or be career ready, we have developed a CTE program, career and technical education, called Green Engine. And there's going to be 2 classrooms starting this August at the beginning of the next school year. And it feeds right into the American River College program, so that people can be career ready and there will be many job opportunities.

Plus, we're going to have -- bring back the old
ROP program and have kids come into the shop and learn about electronic -- electric buses.

--o0o--

MR. SHANNON: And on the other hand, the other part is we've partnered in with SMUD. First Priority Bus, that's where we're going to get our 16 buses from, as long as we pass this today, and Sacramento Air Quality, plus many other partners along the way. This is really a good opportunity for us and our school district and for our community.

CHAIR NICHOLS: Great. Thank you.

MR. SHANNON: And if you have any questions, I can answer them.

CHAIR NICHOLS: Good to hear. Thank you.

MR. SHANNON: Thank you.

VICE CHAIR BERG: Congratulations.

MS. HANSHEW: Good afternoon, Madam Chair Nichols and members of the Board. My name is Jennifer Hanshew and I'm the State president of CASTO, California Association of School Transportation Officials. I am here on behalf of the organization in support of the Rural School Bus Replacement Pilot Program.

Over the past 2 years, CASTO has been working with the School Transportation Coalition under the leadership of Senator McGuire and the California Air
Resources Board in putting this pilot program together. We would like to thank you and your staff who has been working collaboratively with Senator McGuire on putting this pilot program together. It is CASTO's mission to promote safe trans -- safe pupil transportation for all California children.

The Rural School Bus Replacement Program furthers our mission by fostering the replacement of high-polluting vehicles, which harm the environment and the students who ride them.

If approved, the grant opportunity would offer the most challenged school districts a path to join the State in leading the nation to reduce greenhouse gas emissions. It would allow school districts to use awarded funds to replace California's oldest buses with the latest alternative fuels.

Once again, we thank you for the work that you and your staff -- on this program and support the approval of the 16-17 funding plan.

Thank you so much.

CHAIR NICHOLS: Thanks for your support.

MR. LEVIN: Thank you, Chairwoman Nichols and members of the Board. I am Jamie Levin with the Center for Transportation and the Environment. We're a nonprofit that focuses on raising funds and managing projects to
develop and deploy true zero-emission vehicles.

I'm here to strongly endorse your staff's plan and to thank your staff for several purpose. One, for putting up with me for the last 3½ years discussing the value of the project that I will quickly summarize for you, and encouraging us and endorsing us to move forward with a quality project.

The fuel cell electric bus commercialization consortium consists of 20 buses. You've heard others speak about the project at AC Transit, Orange County Transit Authority. It's distinguished by several key factors.

First of all, we have, as members of this consortium, 2 of the 5 largest transit agencies in California AC Transit, Orange County Transportation Authority representing almost 1,200 transit buses.

Secondly, we are also benefited by New Flyer, the largest North American U.S. bus manufacturer that commands 50 percent market share in the public transit network. And they are not just providing us with vehicles. They are the prime OEM helping to develop this technology for commercialization purposes.

Forty-two percent of the cost of this project is being cost shared with support from the South Coast Air Quality Management District the Bay Area Air Quality
Management District, and the 2 transit systems.

Most importantly, the 20 buses that we are going to build, and those buses will be built by 2018 to meet the very stringent deadlines that the legislature has set forth, we are shovel-ready with this. But most importantly, we have projected that these 20 buses will carry almost 23 million passengers from disadvantaged communities over the 12-year life of these vehicles. That translates into an 81 -- or $0.82 per passenger cost effectiveness from the grant that you would be awarding us through your staff's recommendation.

Lastly, I'd like to share with you that California has been leader, but we're not alone in this. In Europe, we're looking at prices of fuel cell buses at 600 to 650 thousand Euros per bus. In China, I have a Class B license. I recently drove a $300,000 fuel cell bus. So I just want to emphasize this is the penultimate project to make zero -- fuel cell buses zero emission.

We will be coming back to you with the Legislature's approval of continuing cap-and-trade funds for the next project to make it commercially viable.

Thank you very much.

CHAIR NICHOLS: Supervisor Gioia.

BOARD MEMBER GIOIA: So, Jamie, I wanted to make a request of you, and you're the right person to make this
request. It's been a long afternoon. So in honor of --
this is really meant for those of us who are beyond a
certain age and grew up in California, my preface.

So in honor of Ken Kesey and the Merry
Pranksters, you're going to name one of the buses
"Further". For those of you that don't know, that was the
name of his bus, because this is going to take us further
into this sort of new reality of zero-emission vehicles.

(Laughter.)

(Applause.)

MR. LEVIN: Thank you, Supervisor. That is a
guarantee --

(Laughter.)

MR. LEVIN: -- but I'll let AC Transit make that
final decision.

And Supervisor Serna I have a copy of the letter
we already submitted to you.

(Laughter.)

BOARD MEMBER SERNA: I've been typecast.

(Laughter.)

CHAIR NICHOLS: That's good.

BOARD MEMBER GIOIA: I know you're someone who
understands that time period.

MR. PEEPLES: Yeah.

(Laughter.)
MR. PEEPLES: Yeah, and I'll try.
(Laughter.)
MR. PEEPLES: My General Manager has to do it.
Chair Nichols, members of the Board. My name is Chris Peeples. I am an elected at-large director of the Alameda-Contra Costa Transit District. And I currently serve as the president of its board. And I bring you AC Transit's strong support for your staff's position on the adjustment for the funding.

I want to -- I'm going to talk very briefly about 3 things. The first is a little bit about our program, second is about the disadvantaged areas we're going to serve, and third is how this fits into some overall fuel cell work.

I'm not going to talk to you a lot about it -- our program. You know about it. We've been running the program for about 12 years. We have proved that fuel cell buses are reliable and durable. The problem now is cost. And what happens is if you can increase the volume, you lower the cost. With a build of 300 China has lowered the cost to $300,100,000 a bus. With a build of 144, europe has reduced the price to about $730,000. It's 650 Euro.
That's where we need to be going. That's where this grant will begin to put us off.

Now, a little bit about the disadvantaged
communities we're going to serve. We have communities with severe air quality problems in our district. These buses are going to out of Division 2 and Division 4. They're going to run in areas of north Richmond and San Pablo that Supervisor Gioia -- and that's in his district. They suffer from stationary fuel cell sources, all the refineries in west Contra Costa County. They've also got Highway 80. They've got a Port that is not yet electrified. They have rail lines. Very difficult.

We're also going to be serving west Oakland, and that's an area I know a little more about. That's about 3 miles from my house. And I live in zip code 94611. People who live in west Oakland, which is 94607, on average, live 10 years less than people who live in my zip code.

Some of that is air quality, a lot of causes for it. But if we look at asthma, the asthma rate, the gross asthma rate in west Oakland is 6 times what it is in 94611. In 94611 from 2012 to 2014, 71 people under the age of 18 went to the hospital because of asthma. In west Oakland, 296 went to the hospital because of asthma. That's one of the places where we're going to be running these buses.

Now, that's a help. The small number of buses will be a help. We're certainly -- we're -- woops. The
buses -- the bus lines carry about 37 million people a year. We estimate that these zero emission fuel cell buses will carry about 1.5 million people a year.

Thank you.

CHAIR NICHOLS: Thank you -- all of your work here. AC Transit really stands out as a model in this fuel cell area.

MR. THORNE: Good afternoon, Madam Chair and members of the Board. My name is Cliff Thorne. I am the department manager of maintenance at Orange County Transportation Authority. And I am here to support the proposed funding plan for the air quality improvement program. We have worked closely with the ARB staff throughout the development of the Advanced Clean Transit Rule, and the recommended for conversion of transit fleets to zero emission bus.

Currently, 76 percent of OCTA's bus routes exceed 150 miles. And there is limited technology currently available that can service those areas without some kind of mid-day charging.

OCTA has recently introduced the hydrogen fuel cell bus into its fleet, and it has an average of over 200 miles range. That allows us for a greater application of the service area. Now, the expanded program, pre-awarded and funded through this program, will allow OCTA to
operate a larger fuel cell bus fleet and operate a fuel
station which will allow us to learn more about the
technology and how it integrates into our bus system.

This project will enable us to also prepare for
the Advanced Clean Transit regulation that may require
zero emission buses in our entire fleet.

In addition, the fleet of fuel cell buses that
will be running will operate along 5 routes within the top
25 percent of disadvantaged communities in Orange County.
Last year, bus stops along these routes served nearly 5
and a half million passengers.

Without programs such as the one you are
considering today, transit agencies would not be able to
meet the zero emission regulations, due to the high cost
of the vehicles and the fuel stations.

This project will further help develop the
technology and could be applied to both heavy-duty bus --
heavy-duty truck and bus, reduce the cost vehicles, and
bring value to disadvantaged communities.

Thank you for your time.

CHAIR NICHOLS: Thank you.

MR. WARREN: Good afternoon, Madam Chair, Board
members. My name is David Warren. I'm the director of
sustainable transportation at New Flyer of America. It's
a privilege to be here in San Joaquin Valley for 2
reasons. Number 1 is we are an employer here in Fresno. We have our parts distribution center and distribute millions of dollars of parts all throughout the western region of the country.

Secondly, I'm married to a Fresno State Bulldog. And --

(Laughter.)

MR. WARREN: -- I have to do that shout-out for her.

(Laughter.)

MR. WARREN: New Flyer of America produces 6 types of propulsion systems. We do clean diesel, we do compressed natural gas, and we actually did the first commercial installation of the low-NOx CNG engine. We do electric hybrids. We also do electric trolley buses, as you would see in San Francisco. We do battery electric buses. And then most recently, we do fuel cell buses.

So I'm here to give full support to the ARB staff's recommendation for the transportation low carbon plan and fuels investment, including the AQIP program. But let me tell you why it's so important on the fuel cell end of it.

Fuel cells are essentially on-board -- they're -- first of all, they're electric buses with an on-board battery charger. So it is the last stage of the zero
emission buses that have become commercially viable. So with the support of this program, New Flyer is able to build 25 fuel cell electric vehicles.

We're currently scheduling these vehicles for delivery in 2018. We have build slots for these units. We're also putting in hydrogen infrastructure at our manufacturing facility. It's been mentioned earlier that fuel cell buses were once in excess of $5 million. They're now closer to $1 million. And our goal is to drive them to parity with battery electric buses.

So with this project, I want to also mention a couple other things. Twenty years of my career I was in the heavy vehicle industry, commercial vehicle industry. I worked for Kenworth Truck Company. And I was a design engineer, and then I led the research and development at Kenworth.

I can tell you what will be learned on this program is fully applicable to commercial heavy- and medium-duty trucks.

And with that, thank you for your consideration of this project.

CHAIR NICHOLS: Thank you.

MR. POCARD: Madam Chair, Board, good afternoon. My name is Nicholas Pocard. And I'm the director of marketing for Ballard Power Systems. As you probably
know, at Ballard we have been working on fuel cell technology for several decades. But I think what I would like to share with you today is that we're witnessing a big shift in the technology and also the adoption.

First of all, I'd like to thank you for the past decades of support that California and ARB has provided to the deployment of fuel cell buses, which has led to the you know, their leading position of California.

But what we see today, whatever we are doing here in this program, that we are strongly supporting, we should look to deploy more fuel cell buses in California is a call worldwide. What you are seeing today in Europe, over one 142 buses, fuel cell electric buses will be deployed in the next 2 years, followed by another 100 buses in the next program. Those programs are fully funded, and are going to be -- deployment is going to start in 2018.

But I think what is even more important is what we are seeing in China. Through the new vehicle energy policy, the Chinese government decided to support and fund deployment of fuel cell vehicle as well as hydrogen infrastructure as a -- on a nationwide program. And this include fuel cell transit buses, as a result of this global program, which is a 4-year fully funded support program nationwide.
In addition to that, each of the province in China has added funding to double up available amount of subsidy to lower the cost of fuel cell electric buses to parity, or even lower, than diesel -- than battery electric buses.

As a result, we are starting to see the first deployment. More than 300 fuel cell buses, electric buses will be on the road in the Guangdong Province by the end of 2017. We have announced the thing last month. The first line of 12 buses is running. This week, the second line, 10 buses, are on the road, and it is just going to continue.

So this program here in California is also very important to help us technology developer to drive down the cost, so we can offer to transit agencies in California options for electrical vehicle, for electrical bus, not only battery electric, but also fuel cell electric bus so they can meet all the requirement of operation.

Thank you very much.

MR. MAGAVERN: Bill Magavern with the Coalition for Clean Air, and also speaking for several other groups on a letter that I'll submit for the record.

We support the plan that the staff has proposed, and also want to recognize the staff have run a very
inclusive public process throughout the year on this. And we've been happy to participate in that.

A few comments that we have. Mr. Panson in his presentation noted that the legislature has made some modifications to the Clean Vehicle Rebate Project. And we support those. We think it makes the program more effective. In fact, it's very interesting that the staff project that we will have enough money this year for CVRP, because of the fact that we've dropped the income cap. And we think that means that the incentives are being reserved for those people who need them the most, and not for those who probably would have made the purchase anyway, without that rebate.

We also support the floor for plug-in hybrids for battery strength. And since both of these provisions actually will only be in effect for 8 months, November 1st of this year through June 30th of next year, it's important that we have this discussion about renewing those for next year. And we might want to look at over the years raising that minimum battery strength for the plug-in hybrids, so we encourage the improvement in that technology, and we know that battery strength is very much improving.

We also would ask that you continue to work on making the rebates available at the point of sale, because
particularly for low and moderate income people, that will be much more meaningful than having to wait several weeks for the check. And we recognize there are some complexities to that, but ask that you work on that, and also make sure that the dealers are part of that, and that they're prepared to make that available. And we hope to make it part of the marketing that we think they could be doing a much better job of when it comes to plug-in vehicles.

The light-duty equity pilot projects we very much support, and glad to see that the legislature has provided ample funding for those going forward. We think, and I think that this is the staff's plan and has been their practice is to maintain some flexibility within that category, so that if there's one that maybe isn't fully ready to use all the money then the money could be used for one or the other pilot programs. So we think that's a good idea.

And then the heavy-duty and off-road category so important. Didn't get the full amount from the legislature, but still $150 million is a lot better than we had in the last year. So very much support that, including the low-NOx engines, the increased amount there for those vouchers.

Thanks very much.
CHAIR NICHOLS: Thank you.

MR. LEON: No hydraulics needed.

(Laughter.)

MR. LEON: Buenas tardes. It's been a long day. And I think Seyed failed on bringing his coffee today, but it's all right.

My name is Rey Leon with Valley LEAP. It stands for Latino Environmental Advancement and Policy project. And we have the Green Raiteros program. I'll share a little bit about that in a bit. But welcome, Chairman Mary Nichols, Board, as well as the staff. And thank you all for all of the work and the leadership you've provided.

You know, we've made California, I think, number 1 on the planet, right, in regards to air quality and GHG. So I'm very happy to say that I'm also part of the ARB Environmental Justice Advisory Committee, where I'm continuously commenting in respect to my home town and other towns like it, my farmworker community of Huron, which is on the west side near the 5 here in the San Joaquin valley.

And, you know, one of the things that I heard earlier in the presentation, and I that I'd have to comment and recommend, and I have a little short story for all of you.
But regarding outreach, I think outreach is excellent. We need to increase it, but we also need resources to make sure that our families actually apply. We hosted a forum, a workshop, in Huron. And all of our folks in Huron qualify. You know, some of the folks that came in from Avenal and Coalinga, they were sad that they didn't. But I think CalEnviroScreen 3.0 is going to fix that for those families.

And what we realized is that people really need some assistance, you know, with that application, at the moment, but also easily accessible via phone or community-based organization whatever it may be. We need to make sure we take care of that portion as well.

But when we had this workshop, we didn't have a lot of people come in. You know, I think the folks are still getting use to this technology. And I think the best way to get people used to the technology is to have them feel it, touch it, drive it, right?

The people that did show up were pretty much the folks that I've been talking to, part of the Green Raiteros program, which I'll talk about in a little bit, who are the folks in the 3 different communities that are always providing rides to farmworker families to take their kid to the doctor, or they've got to go take care of legal services. And Huron is on the far west side. It's
an hour to get here in a vehicle, and by bus, public
transit, it's 3 hours. So, you know, it's kind of like
the way to make it happen.

So there's people that are very attentive, and
they're the ones that are, daily basis, driving their
vehicle. So, you know, that's -- making sure that we
improve this so -- to get them, you know, first and
foremost, and to get this technology. And they -- a lot
of people go through their cars. They became familiar wit
it and so forth.

So Green Raiteros, I've talked to some of you
about this before. I know Dean Florez is a huge champion
over there. And what it is is basically as a child, I
grew up, you know, with my mom, us, using it. You know,
Green Raiteros is essentially -- well, not Green Raiteros,
publico raiteros is my uncle he would give people rides to
Fresno to a hospital -- and as I conclude -- but -- so the
Green Raiteros is the next level of it, right, where we --

CHAIR NICHOLS: Soon, please.

(Laughter.)

MR. LEON: -- where engage -- where we bring in
the technology with the vehicles, the infrastructure for
charging, which we definitely don't have in the county or
the valley, and we bring in the dispatching ability so
that we maximize those rides for those drivers, and the
families, and the other last portions, that these are retired farmworkers living on Social Security.

While this is -- will be supplemental income, and the families usually they'll pay like 100 to get to the Valley Childrens Hospital. Well, we want to bring it down to where it's $30, right, and make, you know, equity in terms of not just the access to transit for social services, but also something that starts empowering the economy of the -- these poorest towns in the State of California, which are Huron, Parlier, Mendota. Those are the top 3 and they're all here in Fresno county, but that's the short story.

Thank you.

(Laughter.)

CHAIR NICHOLS: It's a very good story. Really good use of the technology and blending it together with the people who need it. So thank you for that.

That concludes the list of witnesses on this item. We have one person who signed up for public comment, but not on the item, so we can close the record and -- yes.

BOARD MEMBER SERNA: Thank you, Chair Nichols. I know there's other colleagues that are going to want to chime in and the hour is getting late here, but I just want to use my limited time, first, to thank staff for all
their hard work. I'm sure it's not -- we could all agree it's not the first time we had had hope that we were going to be able to work with a bigger pie, but unfortunately we've had a lot of practice. We're getting pretty good at being efficient at working with what we're given.

And I think, all things considered, certainly what staff has put forward is very thoughtful and responsive to the needs up and down the State in the various categories. So again, I think you've probably heard me in some of my commentary already that I'm very enthused and supportive, especially of the deployment of 29 electric school buses in -- not only in the general regional area that I have the good fortune to serve as a county supervisor, but in the district in the county that I serve.

And I could attest that the 3 school districts that will be agents of that deployment have considerable need. And there are a number of very, very disadvantaged communities within those jurisdictions. So I'm going to be prepared to support staff's recommendation at the right time, Madam Chair.

CHAIR NICHOLS: Make the motion.

BOARD MEMBER Serna: That's a motion.

CHAIR NICHOLS: Thank you very much.

Do we have a second?
VICE CHAIR BERG: Second.

CHAIR NICHOLS: Okay. Any further comments or discussion?

BOARD MEMBER GIOIA: Just to get further clarification on when staff is coming back to us on the -- sort of the additional 20 million based on demand, sometime in the spring. Could you talk about that a little more?

AIR POLLUTION SPECIALIST PANSON: Our plan, and as proposed, that is something that would be delegated to the Executive Officer. What we laid out in the proposal is that we would work with CAPCOA in the event that there -- we're hoping that demand speaks for itself. But in the event that we needed to make some tougher decisions, we would do it through CAPCOA. That's the proposal as it stands.

BOARD MEMBER GIOIA: Right. Basically divided between San Joaquin Valley, South Coast, and other air districts?

AIR POLLUTION SPECIALIST PANSON: Yes. We expect it's likely that the bulk of that funding will go to San Joaquin and South Coast just because of the time it takes to ramp up a new program, but we didn't want to get ahead of ourselves, and so that's why we left it open.

BOARD MEMBER GIOIA: Right.
AIR POLLUTION SPECIALIST PANSON: We hope that all the new programs are successful, and we're going to let the district's projections really drive where that funding would be allocated, and we'd work with CAPCOA, if there's a need.

BOARD MEMBER GIOIA: Thanks.

CHAIR NICHOLS: Mr. Florez.

BOARD MEMBER FLOREZ: Yeah. I don't want to prolong the conversation, but I do want to just get staff's perspective on this legislative intent language. It keeps kind of floating around everywhere, the legislature meant us to do something. And, you know, I obviously am interested in just understanding when folks say they want to compete in their current technologies, but yet we have these demonstration projects, how does one thinking about that, just so I can get clear before I vote?

MOBILE SOURCE CONTROL DIVISION CHIEF KITOWSKI: Right.

BOARD MEMBER FLOREZ: And great job, by the way. Let me start with great plan. So I just want to understand this part of it, before we adjourn.

MOBILE SOURCE CONTROL DIVISION CHIEF KITOWSKI: Sure. Absolutely. We did receive a letter from 6 members of the Assembly. And that letter had a couple
of main points in it. And I will say just up front that
the funding plan that we've brought to you before, we
believe is consistent with the comments expressed and the
preferences expressed in that letter. There were a couple
of main points that came out of that letter. One of them
was that the thought that this funding program should fund
a broad range of technology. I believe the letter did say
there was some concern. We may be a little focused on
zero emission or electric drive technology, but it said we
should fund a broad range of technology.

    And, in fact, we are funding hybrids, and fuel
cell, and batter electric, and near zero technologies in a
variety of different classifications. It also expressed a
concern that we might not meet the requirements of SB
1204, which requires a certain percentage of vehicles to
be sold that fall within the early commercialization
category.

    And we have gone over those calculations. We far
exceed the requirements of SB 1204. So we believe the
funding plan we put forward is consistent with that
letter.

    BOARD MEMBER FLOREZ: Okay. I just want to make
a comment. I'm going to definitely vote for the plan, but
I will say there was still a lot of money that the
legislature left on the table, in my view. They didn't
allocate everything, is that correct? In other words, we
had a bigger budget --

    CHAIR NICHOLS: They have a little money left.
    BOARD MEMBER FLOREZ: They have a little money
left. I mean, how much money roughly is left?
    EXECUTIVE OFFICER COREY: I'm going by memory,
Senator. They allocated 900 million of what I believe was
1.4 billion in the bank.

    BOARD MEMBER FLOREZ: Right, right. So I just
kind of see this somewhat of a train wreck a bit. You
know, the legislature will continue, because I used to be
one of them, wanting to, you know, kind of dictate, you
know, in some sense more implementable technologies that
are current.

    We say that the Air Board today -- we had Seyed
up earlier saying, you know, we've got to do more, more
PM. And if we could start to combine -- I get what the
legislature is saying. I mean, if I were to ask Rudy
Salas, he'd say put all that money in PM here at the
district, and make sure those mobile -- everybody has
their pet peeve, but I think in these targeted districts,
it seems to me that we ought to -- and I would ask our
Chair and you, Richard to start early conversations with
the legislature about how they think about those remaining
dollars, because I think -- I'm somewhat moved by the fact
that people want to compete. They have technologies that
will do some things that we want them to do, but we don't
have enough money.

And that's unfortunate. That's not our fault.
That's the Legislature's fault. They could have allocated
1.4 billion, but they didn't. But I would simply say
maybe having that early conversation figuring what that
looks like on the break, so we can have some thought about
what they're thinking about, and give them our rationals
for, not what we did, because I think it's fantastic. I
think everything -- the plan is excellent, and I think you
made great choices.

I'm just wondering with the remaining dollars,
rather than, you know, having another fight or think about
a fight, maybe we can get ahead of it. That's my only
comment.

CHAIR NICHOLS: I think those are excellent
comments. I guess I would say one of the things that
we've learned is that a program that initially really was
started as more of a foot in the door on innovative
technologies, has turned into a program to fund the basic
needs of the State to turnover the fleet.

And I am completely willing to steel Mrs.
Mitchell's terminology about a Superfund for air. But in
reality, in many parts of the State, that is what we're
dealing with, is we have air quality problems that are very severe, and no practical way in the short run to really address the needs that are out there.

And so that to me suggests that -- I don't disagree with what you're saying, but I really do think we need to step back and look at kind of a marshal plan for, you know -- for the -- for the vehicle fleet in the State of California, figure out how much it would cost, and then think about a way to fund it, because there is not going to be a way -- we're never going to be able to satisfy the needs with the sources of funds that we have available to us right now.

So rather than just continuing to sort of say, well, we'll do the best we can, which, of courses, we will, I think maybe on a separate track, but a very fast track, we should be thinking about the bigger issue of what's needed there, and putting it out there as part of a broader plan that we would bring forward.

BOARD MEMBER FLOREZ: Okay.

BOARD MEMBER MITCHELL: Madam Chair, I just have a couple of questions. I'm wondering about the statements made by the natural gas vehicle people that came to the microphone. One thing they mentioned was that the Greenhouse Gas Reduction Fund they see it sort of as a short-term fund, and they're worried about the way we're
spending it now, because we may not have much money in the
future. So that's one issue to be addressed.

The other one that I want you to discuss is that
Class 7 and 8 trucks and the low NOx 0.02 certification
for low NOx, which real is a CNG engine, would you comment
on that? Is that -- that's -- there's a real need on
Class 7 and 8 trucks. And that low NOx certified engine
is -- seems like our pathway to get to these heavier duty
trucks. So just -- and they think there's not enough
funding there. So just -- if you could please comment on
that?

MOBILE SOURCE CONTROL DIVISION CHIEF KITOWSKI:

Maybe I'll start with the Class 8 trucks and
somebody else might want to chime in on the position of
the GGRF funds long term. Although, I would echo Eileen's
comments when she came up and said, you know, focusing
your energy on the legislature and taking actions next
legislative session seemed like a more proactive way to
handle it.

On the Class 7 and 8 trucks, so let me try and
paint the picture here. Right now, the main low-NOx
game, the one that meets the lowest emission standards,
is an 8.9 liter engine. That goes primarily into I think
the 2 biggest categories are refuse haulers, and into
transit buses. And it will also go into sort of those
medium-, heavy-duty delivery trucks.

Those are the exact same categories that we're talking about when we're talking about electric. We're talking about electric buses, battery powered, fuel cell. It's -- when we're talking about zero emission, we're talking about those delivery trucks as potential applicants.

So there's a lot of overlap in that category between those two categories, and we are funding both. And I should note, I think, and Mr. Panson mentioned it, that the $23 million that we've allocated for the low-NOx engines we believe will fully fund the entire demand of that category of those engines.

Largely, what the conversation has been about, is that next engine that's on the horizon, the 12 liter, strongly supportive of it, but it's just not here yet. As was mentioned very recently, I think this month or last month, CEC allocated another million dollars towards helping that get to commercialization. But it's not at that commercialization stage yet.

That will help fund the true Class 8, the line hauls, and open up new doors. And so we look forward to that opportunity when that opportunity comes.

BOARD MEMBER MITCHELL: Thank you.

CHAIR NICHOLS: Any others?
Yes.

BOARD MEMBER TAKVORIAN: Yeah. Just compliments to everyone. It's a great plan. And I appreciate what you had to do to reduce it.

I am particularly inspired by the rural bus program. I think it's really important. It's -- kids on these buses for 3 hours a day is just hard to imagine. And I think that's truly a public health benefit, and so congratulations on that.

The only thing I'll say, and I know it's not going into this one, but I'm going to say it again, I really think it's important that we have the secondary ZEV vehicles -- the incentive for that, some kind of a rebate for it. I understand that we have the scrap and replace. I think that's effective, but I also know that folks are just not going to purchase these vehicles. And you can do all the financing assistance you want, averaging income in National City is $17,000. You're not going to buy a $30,000 car no matter how much you help them.

So I think we really have to think about other ways to help people to get around in a clean way. So I mean, caps of $300,000 for a family is not low income, and I know you know that, but I just have to say that out loud. It's just -- it's not going to help the families that really need it the most.
So, I think, you know, for used vehicles, that could be huge to get some incentive programs going. I think for -- maybe there's some last-mile programs that we could think about, that maybe the active transportation, that bike sharing programs, those kind of things. We've talked with locally -- a local cab union, a union of taxi workers who are very local, represent refuge communities in San Diego, where they are able to take folks to the bus to get -- so that they -- if they have to walk a mile or something like that, that's really, really hard, especially for folks who are working at night. Woman are at risk.

So I just think those are the kinds of things that are relatively low cost, that could be interesting pilot programs, that are not technology driven necessarily, but we've got folks out there that are driving cleaner vehicles, and could help people to get to transit and close that loop. So congratulations, and just want to push the envelope a little bit more.

Thank you very much.

AIR POLLUTION SPECIALIST PANSON: Thank you.

BOARD MEMBER GIOIA: Just following up on something, Diane, you mentioned. I do think there is an opportunity to get lower income households into clean vehicles. We don't want them left out of this. And I
know we're kicking off a -- so I think we can't ignore that. We can't just say, well, those vehicles are for, you know, folks of means.

So we are kicking off, I know, a pilot program that finances the use -- purchase of used clean vehicles. And I think the average cost, I'm told, you know, of these used vehicles was between $8,000 and $12,000.

And so, you know, they're more -- they can be affordable. And if you link both the -- you know, the program we're someone is scrapping an old vehicle and they're getting funds for that, and they're getting help on the financing, so that they're getting help on both ends, the incentive to -- and so the more we can link those two programs, right, the ability to get an incentive to get rid of your old vehicle, and then the incentive on the financing for the new vehicle.

So I am looking forward to the results of this pilot and how we could sort of scale up. And so this additional funding for the scrapping program, that could be available around the State, is important, right, because that gets used for low-income families anywhere. And the finance -- well, within the disadvantaged communities, but the financing part can be used anywhere.

So I think -- I think it's useful for you to sort of, maybe at some point, brief us on these types of
initiatives. I don't think the public, and many out there, know the programs that we're embarking on. And I think it's really important for us to communicate better about these types of programs that -- of -- and what we're work on.

They're hard to start. They're not going to be ease. There's a lot of rolling up your sleeves. And I happen to know the organization that has the contract on this, because they're in my district, and we work with them on affordable housing issues.

So, I think, I'm really excited about that. I think it's great, but I think we need to highlight this stuff more. And we have to keep -- we have to stop saying that the electric vehicles aren't for, you know, lower income families. We need to figure out how to make them available, even if the start is used vehicles.

Many folks, of whatever income means, including myself, have purchased used vehicles. Not everyone buys a new vehicle. So there's an opportunity here to include everyone in these vehicles, so -- and the more funds we can put into the financing programs of these programs successfully, I think, would really be important.

BOARD MEMBER MITCHELL: So, Madam Chair, can I comment on that?

CHAIR NICHOLS: Go ahead.
BOARD MEMBER MITCHELL: Because we have been participating in that pilot program. And one important component of that is that the replacement vehicle is a cleaner vehicle. It could be a hybrid.

BOARD MEMBER GIOIA: Right.

BOARD MEMBER MITCHELL: And some of the rebates, depending on how the circumstances, go as high as $9,500. So with a used vehicle and that kind of additional monies available, it is certainly a good program. It was oversubscribed in our district. We got about 1,000 vouchers, and we have a waiting list of so many more.

So it is a program that is really working, and that is a message that we want the public to know about, because as you know, this Board has been criticized for giving CVRP money to rich people.

And we responded to that with a program like this that has been very, very successful. So we need to get that message out.

CHAIR NICHOLS: All right. You know, we have 2 goals. We want to get rid of older dirtier vehicles. We also want to disseminate the cleanest vehicle as far and fast as we possibly can. And I think that there may also be other ideas out there coming from cities, for example, that have the fingers on the pulse of some of the specific programs in their own jurisdictions where we could be more
open to inviting proposals than we have been perhaps in
the past.

We have a lot of good ideas about what we want to
do, but it's also really good if we can find a way to
solicit more of those ideas coming from elsewhere. So all
of those are important comments, I think.

And more work to be done and no shortage of needs
for money to do it with.

So on that note, we do have a motion and a second
for approving this particular funding plan.

And so I will ask all those in favor to please
say aye?

(Unanimous aye vote.)

CHAIR NICHOLS: Opposed?

Abstentions.

Great. This is really progress. It's going to
go a long way. I'm delighted that we're able to move on.

We do have one person who signed up for the open
public comment. His name is Don Gaede. I'm probably not
pronouncing the name properly, but you know who you are.

DR. GADE: Yes, I do. Thank you Chairwoman

Nichols and the Board for the chance to make some brief
comments. My name is Don Gaede. I am a physician in
Fresno practicing internal medicine and vascular medicine.

I'm a member of the Fresno Madera Medical
Society, and the California Medical Association. Your Board Member Dr. Sherriffs is a former president of our medical association. And he and I are both passionate about climate change and health. And thank you for all your efforts in that regard.

And I thought you might be interested to know what we, in the medical profession, are doing in that regard, because climate and health are increasingly becoming in the news. And we're seeing many threats to our patients' health due to climate change. And so we in the Fresno Madera Medical Association passed a resolution, which then went on to the California Medical Association, passed by their full board.

This resolution -- could I just read this to you, briefly here?

"Resolved, that the California Medical Association and the Fresno Madera Medical Association recognizes that climate change threatens the health and well-being of the patients served by California's physicians.

"And be it further resolved, that the California Medical Association supports efforts to educate patients and the medical community regarding the potential adverse health effects of global climate change.

"And be it further resolved that the California
Medical Association encouraged health care institutions to review and improve their carbon footprint, and that of their supply chain, and also encourage them to prepare for climate change impacts.

"And fourth, and finally, that the California Medical Association support efforts to communicate with our local State and national legislators about the needs to take action to adapt to and mitigate the effects of climate change."

So could I just conclude by saying we support your efforts. Our patients are depending on your efforts, our efforts. Our children, our grandchildren are depending on your efforts.

So thank you very much.

CHAIR NICHOLS: Thank you for your comment. Appreciate it.

With that, I think we have finished our business for the day and we can be adjourned.

Thank you, all.

(Thereupon the Air Resources Board adjourned at 4:26 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 31st day of October, 2016.

JAMES F. PETERS, CSR
Certified Shorthand Reporter
License No. 10063