BOARD MEMBERS:
Ms. Mary Nichols, Chair
Ms. Sandra Berg, Vice Chair
Dr. John Balmes
Mr. Hector De La Torre
Supervisor John Gioia
Mr. John Eisenhut
Senator Dean Florez
Ms. Judy Mitchell
Mrs. Barbara Riordan
Supervisor Phil Serna
Dr. Alex Sherriffs
Professor Daniel Sperling
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
APPEARANCES CONTINUED

STAFF:
Ms. Heather Arias, Chief, Freight Transport Branch, TTD
Ms. Karen Buckley, Manager, Sustainable Freight Section, TTD
Ms. Heather Choi, Staff, Climate Action and Research Planning Section, RD
Mr. Bart Croes, P.E., Division Chief, Research Division (RD)
Mr. Glenn Gallagher, Climate, Atmospheric Science & Economic Studies Branch, RD
Mr. Jorn Herner, Ph.D., Branch Chief, Research Planning and Emission Mitigation, RD
Mr. Wes Ingram, Manager, Project Assessment Branch, ISD
Mr. Douglas Ito, Assistant Chief, TTD
Ms. Alexandra Kamel, Attorney Legal Office
Ms. Debbie Kerns, Senior Attorney, Legal Office
Ms. Lezlie Kimura, Staff, Sustainable Freight Section, Transportation and Toxics Division (TTD)
Ms. Cynthia Marvin, Division Chief, TTD
Mr. Ryan McCarthy, Science and Technology Policy Advisor, office of the Chair
Ms. Sarah Pittiglio, Ph.D., Climate Action and Research Planning Section, RD
Ms. Annalisa Schilla, Ph.D., Section Lead, Climate Action and Research Planning Section, RD
Mr. Craig Segall, Senior Attorney, Legal Office
APPENDICES CONTINUED

STAFF:
Ms. Marcelle Surovik, Staff Air Pollution Specialist, Energy Section, Industrial Strategies Division (ISD)
Mr. Floyd Vergara, Division Chief, ISD

ALSO PRESENT:
Mr. Alan Abbs, California Air Pollution Control Officers Association
Mr. Kevin Abernathy, Milk Producers Council
Ms. Adenike Adeyeye, Earth Justice
Mr. Till Angermann, Central Valley Dairy Representative Monitoring Program
Ms. Martha Arguello, Physicians for Social Responsibility
Mr. Will Barrett, American Lung Association
Mr. Nathan Bengtssan, Pacific, Gas & Electric
Ms. Christina Benz, Napa Climate NOW
Mr. Christopher Berry, Animal Legal Defense Fund
Mr. Michael Boccadoro, Dairy Cares
Dr. Rasto Brezny, Manufacturers of Emission Controls Association
Ms. Linda Brown, SCS Global Services
Mr. Frank Caponi, Sanitation Districts of LA
Mr. Tim Carmichael, So Cal Gas
Mr. J.P. Cativiela, Dairy Cares
Mr. Paul Cort, Earth Justice
Ms. Cynthia Cory, California Farm Bureau Federation

J&K COURT REPORTING, LLC 916.476.3171
ALSO PRESENT:

Mr. John Dans, California Resource Recovery Association
Mr. Ben De Alba, Assistant Secretary, Transportation Agency
Ms. Sarah Deslauriers, California Waste Water Climate Change Group
Mr. Neil Edgar, California Compost Coalition
Mr. Sean Edgar, Clean Fleets
Mr. Joel Ervice, California Cleaner Freight Coalition, Regional Asthma Management and Prevention
Ms. Laura Ferrante, Recology
Mr. Larry Greene, Sacramento Metropolitan Air Quality Management District
Dr. Jiming Hao, Tsinghua University
Mr. Chuck Helget, Republic Services
Mr. Russ Henly, Assistant Secretary, Resources Agency
Ms. Bonnie Holmes-Gen, American Lung Association
Mr. Michael Jacob, Pacific Merchant Shipping Association
Ms. Shrayas Jatkar, Coalition for Clean Air
Mr. John Kato, Deputy Director, California Energy Commission
Ms. Debra Kaufman, Stop Waste
Mr. Ryan Kenny, Clean Energy
Mr. Nick Lappis, Californians Against Waste
Mr. Howard Levenson, Deputy Director, CalRecycle
Ms. Julia Levin, Bioenergy Association of California
ALSO PRESENT:
Mr. Gary Liss, Zero Waste U.S.A.
Mr. Humberto Lugo, Comite Civico Del Valle
Ms. Sandra Lupien, Food & Water Watch
Mr. Jack Macy, City of San Francisco, Department of the Environment
Mr. Bill Magavern, Coalition for Clean Air
Mr. Jesse Marquez, Coalition for a Safe Environment
Mr. Kevin Messuer, Association of Home Appliance Manufacturers
Mr. Brent Newell, Center on Race, Poverty and the Environment
Mr. Dan Noble, Association of Compost Producers
Mr. Graham Noyes, Keyes, Fox & Wiedman, Sierra Energy
Ms. Rachael O'Brien, Agricultural Council
Mr. Jimmy O'Dea, Union of Concerned Scientists
Mr. Peter Okurowski, Association of American Railroads
Ms. Mary Pitto, Rural Counties (RCR)
Dr. Kimberly Prather, Scripps Institution of Oceanography, University of San Diego
Dr. Michael Prather, UC Irvine
Mr. Jason Rhine, League of Cities
Ms. Katerina Robinson, EEC, representing John Wick, cofounder of the Marin Carbon Project
Ms. Karen Ross, Secretary, California Department of Food and Agriculture
ALSO PRESENT:
Mr. Robert Sawyer
Mr. Tim Schott, California Association of Port Authorities
Mr. Kurt Schuparra, Cal-bio Dairy Cluster
Mr. Chris Shimoda, California Trucking Association
Mr. Mikhael Skvarla, California Council for Environmental and Economic Balance
Mr. Paul Sousa, Western United Dairymen
Dr. Donald Stedman
Ms. Stacey Sullivan, Sustainable Conservation
Ms. Taylor Thomas, East Yard Communities for Environmental Justice
Ms. Diana Vazquez, Sierra Club of California
Ms. Jeanie Ward-Waller, California Bicycle Coalition
Mr. Chuck White
# INDEX

<table>
<thead>
<tr>
<th>Item 16-5-1</th>
<th>Chair Nichols</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Motion</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Vote</td>
<td>4</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Item 16-5-2</th>
<th>Chair Nichols</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Executive Officer Corey</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>Chair Nichols</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>Dr. Hao</td>
<td>11</td>
</tr>
<tr>
<td></td>
<td>Executive Officer Corey</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td>Board Member Takvorian</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td>Dr. Kimberly Prather</td>
<td>16</td>
</tr>
<tr>
<td></td>
<td>Executive Officer Corey</td>
<td>17</td>
</tr>
<tr>
<td></td>
<td>Board Member Balmes</td>
<td>18</td>
</tr>
<tr>
<td></td>
<td>Dr. Michael Prather</td>
<td>21</td>
</tr>
<tr>
<td></td>
<td>Executive Officer Corey</td>
<td>22</td>
</tr>
<tr>
<td></td>
<td>Board Member Sperling</td>
<td>23</td>
</tr>
<tr>
<td></td>
<td>Mrs. Stedman</td>
<td>27</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Item 16-5-3</th>
<th>Chair Nichols</th>
<th>29</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Executive Officer Corey</td>
<td>29</td>
</tr>
<tr>
<td></td>
<td>Staff Presentation</td>
<td>30</td>
</tr>
<tr>
<td></td>
<td>Board Discussion and Q&amp;A</td>
<td>42</td>
</tr>
<tr>
<td></td>
<td>Motion</td>
<td>55</td>
</tr>
<tr>
<td></td>
<td>Vote</td>
<td>55</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Item 16-5-5</th>
<th>Chair Nichols</th>
<th>55</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Executive Officer Corey</td>
<td>58</td>
</tr>
<tr>
<td></td>
<td>Staff Presentation</td>
<td>59</td>
</tr>
<tr>
<td></td>
<td>Assistant Secretary De Alba</td>
<td>75</td>
</tr>
<tr>
<td></td>
<td>CEC Deputy Director Kato</td>
<td>78</td>
</tr>
<tr>
<td></td>
<td>Mr. Barrett</td>
<td>80</td>
</tr>
<tr>
<td></td>
<td>Mr. Marquez</td>
<td>82</td>
</tr>
<tr>
<td></td>
<td>Ms. Thomas</td>
<td>85</td>
</tr>
<tr>
<td></td>
<td>Mr. Lugo</td>
<td>87</td>
</tr>
<tr>
<td></td>
<td>Ms. Jatkar</td>
<td>89</td>
</tr>
<tr>
<td></td>
<td>Mr. Ervice</td>
<td>91</td>
</tr>
</tbody>
</table>
INDEX CONTINUED

<table>
<thead>
<tr>
<th>Name</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mr. Cort</td>
<td>96</td>
</tr>
<tr>
<td>Ms. Adeyeye</td>
<td>98</td>
</tr>
<tr>
<td>Mr. O'Dea</td>
<td>99</td>
</tr>
<tr>
<td>Ms. Vazquez</td>
<td>102</td>
</tr>
<tr>
<td>Mr. Schott</td>
<td>103</td>
</tr>
<tr>
<td>Mr. Kenny</td>
<td>105</td>
</tr>
<tr>
<td>Mr. Edgar</td>
<td>108</td>
</tr>
<tr>
<td>Mr. Shimoda</td>
<td>110</td>
</tr>
<tr>
<td>Mr. Okurowski</td>
<td>111</td>
</tr>
<tr>
<td>Mr. Jacob</td>
<td>112</td>
</tr>
<tr>
<td>Mr. Magavern</td>
<td>113</td>
</tr>
<tr>
<td>Ms. Ward-Waller</td>
<td>116</td>
</tr>
<tr>
<td>Ms. Schuparra</td>
<td>119</td>
</tr>
<tr>
<td>Board Discussion and Q&amp;A</td>
<td>120</td>
</tr>
</tbody>
</table>

Item 16-5-4

- Vice Chair Berg               137
- Executive Officer Corey        138
- Staff Presentation             139
- CDFA Secretary Ross            157
- CalRecycle Deputy Director Levenson 165
- Resources Assistant Secretary Henly 169
- Mr. Greene                      175
- Mr. Lapis                       177
- Mr. Noyes                       180
- Mr. Macy                        183
- Ms. Lupien                     185
- Ms. Levin                       188
- Mr. Helget                     191
- Ms. Pitto                      193
- Mr. Rhine                     196
- Mr. Caponi                     200
- Dr. Brezny                    202
- Mr. Noble                     204
- Ms. Ferrante                  208
- Mr. Berry                    210
- Ms. Brown                     213
- Ms. Benz                      216
- Mr. Messuer                   217
- Mr. White                     219
- Mr. Abbs                     221
- Ms. Deslauriers               223
- Ms. Robinson                 226
- Ms. Kaufman                  228
- Mr. Sousa                    230
- Ms. Sousa                   231
- Ms. O'Brien                  232
<table>
<thead>
<tr>
<th>Name</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mr. Abernathy</td>
<td>233</td>
</tr>
<tr>
<td>Mr. Cativiela</td>
<td>236</td>
</tr>
<tr>
<td>Mr. Boccadoro</td>
<td>238</td>
</tr>
<tr>
<td>Mr. Angermann</td>
<td>241</td>
</tr>
<tr>
<td>Ms. Cory</td>
<td>243</td>
</tr>
<tr>
<td>Ms. Sullivan</td>
<td>244</td>
</tr>
<tr>
<td>Mr. Newell</td>
<td>247</td>
</tr>
<tr>
<td>Mr. Bengtssan</td>
<td>249</td>
</tr>
<tr>
<td>Mr. Skvarla</td>
<td>252</td>
</tr>
<tr>
<td>Ms. Holmes-Gen</td>
<td>255</td>
</tr>
<tr>
<td>Mr. Magavern</td>
<td>257</td>
</tr>
<tr>
<td>Ms. Arguello</td>
<td>259</td>
</tr>
<tr>
<td>Mr. Carmichael</td>
<td>261</td>
</tr>
<tr>
<td>Mr. Liss</td>
<td>261</td>
</tr>
<tr>
<td>Mr. Sawyer</td>
<td>264</td>
</tr>
<tr>
<td>Mr. Sean Edgar</td>
<td>265</td>
</tr>
<tr>
<td>Mr. Neil Edgar</td>
<td>267</td>
</tr>
<tr>
<td>Mr. Dans</td>
<td>270</td>
</tr>
<tr>
<td>Board Discussion and Q&amp;A</td>
<td>271</td>
</tr>
<tr>
<td>Public Comment</td>
<td></td>
</tr>
<tr>
<td>Mr. Adam Rendon</td>
<td>295</td>
</tr>
<tr>
<td>Mr. Moises Rendon</td>
<td>297</td>
</tr>
<tr>
<td>Adjournment</td>
<td>301</td>
</tr>
<tr>
<td>Reporter's Certificate</td>
<td>302</td>
</tr>
</tbody>
</table>
CHAIR NICHOLS: Good morning, ladies and gentleman, and welcome to the May 19th, 2016 public meeting of the Air Resources Board.

Before we begin our agenda, would you please rise and join me in the Pledge of Allegiance to the flag.

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

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

BOARD CLERK JENSEN: Dr. Balmes?

BOARD MEMBER Balmes: Here.

BOARD CLERK JENSEN: Mr. De La Torre?

Mr. Eisenhut?

BOARD MEMBER EISENHUT: Here.

BOARD CLERK JENSEN: Senator Florez?

BOARD MEMBER FLOREZ: Here.

BOARD CLERK JENSEN: Supervisor Gioia?

BOARD MEMBER GIOIA: Here.

BOARD CLERK JENSEN: Ms. Mitchell?

BOARD MEMBER MITCHELL: Here.

BOARD CLERK JENSEN: Mrs. Riordan?

BOARD MEMBER RIORDAN: Here.

BOARD CLERK JENSEN: Supervisor Roberts?

Supervisor Serna?
Dr. Sherriffs?
BOARD MEMBER SHERRIFFS: Yes.
BOARD CLERK JENSEN: Professor Sperling?
BOARD MEMBER SPERLING: Here.
BOARD CLERK JENSEN: Ms. Takvorian?
BOARD MEMBER TAKVORIAN: Here.
BOARD CLERK JENSEN: Vice Chair Berg?
VICE CHAIR BERG: Here.
BOARD CLERK JENSEN: Chair Nichols?
CHAIR NICHOLS: Here.
BOARD CLERK JENSEN: Madam Chair, we have a quorum.
CHAIR NICHOLS: Great. Thank you. Just a couple of announcements before we get started this morning. We have a slight change in today's agenda order. Following Agenda Item 16-5-3, the planned air pollution research for fiscal year 2016-2017, we will hear agenda item 16-5-5, an update on the Sustainable Freight Action Plan. And then the last item of the day will be 16-4, the proposed Short-Lived Climate Pollutant Reduction Strategy.

Anyone wishing to testify on any of these items should fill out a request-to-speak card available in the lobby outside the board room and turn it into the board assistant or the Clerk of the Board, prior to the commencement of that item.
Also, to remind speakers, we do impose a three-minute time limit on oral testimony. We appreciate it if you'd just state your name when you come up to the podium and then put the testimony in your own words. It's much easier for the Board to follow it if you go straight to your main points. You don't need to read your written submission, because it will be entered into the record automatically.

For safety reasons, please note the emergency exits to the rear of the room. In the event of a fire alarm, we're required to evacuate this room immediately and go down the stairs and out of the building until we hear the all-clear signal, and then we can come back into the room and pick up where we left off.

I think that's it for opening announcements. So let's just quickly go to the consent item. We have one consent item on the agenda, which is the public meeting to consider revisions to the PM10 SIP, State Implementation Plan, for the Owens Valley.

Did we receive any requests to have a hearing on this?

BOARD CLERK JENSEN: No.

BOARD MEMBER RIORDAN: Madam Chair, I would move approval then of the staff recommendation for this item.

VICE CHAIR BERG: Second.
CHAIR NICHOLS: We have a motion and a second.
All in favor, please say aye?
(Unanimous aye vote.)
(Mr. De La Torre and Supervisor Serna not
present.)
CHAIR NICHOLS: Any opposed?
Abstentions?
Okay. Great.
(Thereupon an overhead presentation
was presented as follows.)
CHAIR NICHOLS: Then we move to our first item,
which is the Haagen-Smit awards. This is a great
privilege to present the annual Clean Air Awards we
recognize leaders in air pollution and climate change
research, technology, and policy. Before we present these
awards, I want to express my sincerest condolences to the
family and loved ones of one of this year's award winners
Donald Stedman, who passed away last month after a hard
fought battle with cancer.
Donald's strength and courage were inspiring in
his work and his outlook on life. When he was selected as
one of this year's winners, he had hoped he would be able
to make it to Sacramento to accept his award. And I'm
very pleased that members of his family are able to be
here today to accept the award on his behalf.
The Haagen-Smit Clean Air Awards are made in honor of the late professor Arie J. Haagen-Smith and his important contributions to air pollution science, as well as the significance of his career as the Air Resources Board's first Chairman.

Dr. Haagen-Smit really epitomized the relationship between science and policy in our work. And so it's fitting that we have the award that is our only award that is named after him. Today, we're going to highlight the history of the award program and the accomplishments of the 2015 award recipients.

Dr. Haagen-Smit was a native of the Netherlands, a biochemistry professor at Caltech in Pasadena for 16 years. That's a lovely picture of him, and studied natural products like rubber and pineapples before he began his research into air pollution in 1948, when he was asked by the County of Los Angeles to investigate the chemical nature of what we now call smog.

It was his research that found most of California's smog resulted from photochemistry, when exhaust from motor vehicles and industry facilities react with sunlight to create ozone. This breakthrough provided the scientific foundation for the development of California's and the nation's air pollution control programs. Leaving his plant studies behind, he continued
working in the field of air pollution research and took
the smog problem in Los Angeles head on.

He became the ARB's first Chairman in 1968. In
1973, in recognition of his contributions, he received the
National Medal of Science, this country's highest
scientific honor. Dr. Haagen-Smit passed away 38 years
ago, but his legacy lives on.

I have to also point out that he was still very
much alive and well when Jerry Brown first came on to the
Air Resources Board and was able to attend the ceremony
where we named our laboratory in El Monte after him. At
that point, he was long retired, but his license plate, which I envied terribly, said ARB 1 on it.

(Laughter.)

CHAIR NICHOLS: And I think they retired that
license plate when he passed on.

--o0o--

CHAIR NICHOLS: Anyway, since 2001 the Air
Resources Board has sponsored the Haagen-Smit Clean Air
Awards. Over the last 14 years, 41 acclaimed people have
received the award. And in light of the global connection
between air quality and climate change, the scope of the
program has also expanded to include an international
focus and a focus on climate change, science, and
mitigation as well.
So, Mr. Corey, would you please get this program started?

EXECUTIVE OFFICER COREY: Yes, I will. Thanks, Chair Nichols. So each of the winners will be introduced by a Board member. And after their introductions, the winners will come forward to the podium to receive their award and take an opportunity to say a few words. We'll take photos at the end of the presentation this morning.

So on with the winners. The first winner today is Dr. Jiming Hao for his work in the area of international air pollution control. He'll be introduced by Chair Nichols.

CHAIR NICHOLS: Thank you. And since I didn't do a run-through of this, shall I speak from here and then go down and present the award at podium? Is that how we're --

EXECUTIVE OFFICER COREY: You can stay up there, Bart will hand the award, and then we'll do pictures at the end with all of them.

CHAIR NICHOLS: Great. Thank you. Thank you. Okay.

--o0o--

CHAIR NICHOLS: Well, in that case I will introduce Professor Jiming Hao, who I actually had the opportunity to meet last night at the reception that we
had for the winners and staff. He is being recognized as a scientist and a national leader in air pollution control in China with over 40 years of notable work in energy and the environment.

Dr. Hao currently serves as professor at the School of Environment and Dean of the Research Institute of Environmental Science and Engineering at Tsinghua University in Beijing, China. As one of the earliest and most prestigious institutions dedicated to environmental higher education and research, Tsinghua University has provided technical support for China in solving environmental problems and implementing sustainable development.

---o0o---

CHAIR NICHOLS: Throughout his career, Dr. Hao's leadership in the development of control strategies to mitigate the severe air pollution in China has improved the lives and health of many Chinese citizens. His research has substantially improved our understanding of atmospheric pollution in China, which presents significant public health challenges. For instance, his research breakthrough in acid rain formation and control led to the implementation of the Acid Rain Control Zone and SO2 Emissions Control Zone some China in 1998, which is marked as a milestone for air pollution control in China. Since
then, SO2 emissions from coal burning have been effectively controlled, and SO2 concentrations in many cities and regions of China have begun to decline.

--o0o--

CHAIR NICHOLS: Dr. Hao led the development of the first national vehicle emissions inventory to evaluate the emission characteristics of China's vehicle fleet. Based on research in vehicle emissions, his team built a combined vehicle fuel road control strategy to help policymakers develop a series of new policies and standards for the improvement of air quality in megacities. He launched the National Clean Diesel Engine Campaign to include clean diesel engine projects for on-road diesel vehicles, construction machinery, agricultural machinery and vessels.

--o0o--

CHAIR NICHOLS: Recently, he's also developed policy recommendations to address climate change issues, such as the effects of short-lived climate pollutants, which we'll be talking more about later, in China and is helping to develop transportation management and economic policies for many Chinese cities to develop alternative transportation and efficient fleet management.

He served as a key scientist to develop the transportation management program and led the air quality
management team to improve air quality for major events, such as the 2008 Beijing Olympics and the 2010 Shanghai World Expo. And he has worked with a number of our staff in many of these efforts. So this is an ongoing collaboration.

--o0o--

CHAIR NICHOLS: Dr. Hao has demonstrated a commitment to reducing the public health impacts associated with air pollution through his leadership in both academic research and environmental policy development. He's authored and co-authored more than 10 books, more than 30 patents and software, more than 300 peer-reviewed articles. He works as a member of the Chinese Council for International Cooperation on Environment and Development, and has received multiple awards for his outstanding scientific work from the Chinese national government, including the National Science and Technology Progress Award, which is, and the -- I'm sorry, and the National Natural Science Awards, which are two of China's most prestigious science awards.

He was elected to the Chinese Academy of Engineering in 2005. Dr. Jiming Hao truly is the Chinese equivalent of Professor Arie Haagen-Smit. And so it's with great pleasure that we present him with the 2015 Haagen-Smit Clean Air Award.
(Applause.)

CHAIR NICHOLS: We invite you to say a few words, please.

DR. HAO: Thank you, Chairman. It's a great honor for me to receive the Haagen-Smit Clean Air Award. Thank you and the Committee in selecting me.

You know, China is serious polluted. Air quality is a big challenge. Thanks to my colleagues and students old work, people working together in China for cleaning up the pollution. Also, thanks for many -- in the world, many people work with me to collaboration, visit China, give help. Also, I and my students, my colleagues visit many universities, institutes in the world to learn. I think, like Dr. Haagen-Smit, the credit, the knowledge will help China to make the decision to understanding the pollution.

So I think the collaboration is very important to China's air pollution progress, especially for the transport and mobile emission control. We learned a lot from California experience. First, we do this work with say we help Beijing. Maybe in China, like California to the United States to leading this progress.

In the last 10 years, we recognized the secondary pollutants very important for China. So we also learn a lot of scientific knowledge from Los Angeles to understand
ozone and secondary PM2.5 pollution. So we -- I think a
couple reasons it's very important to China.

Also, we only have one earth, one atmosphere. We
work together. The benefit not only for China, also for
whole world. So I believe in the future, we should
further the cooperation. I will continue to work hard
with my colleagues, my friends for the better air quality
for the climate change. So I'm looking for your support
to continue. Thank you very much.

CHAIR NICHOLS: Thank you.

(Applause.)

CHAIR NICHOLS: Thank you.

--o0o--

EXECUTIVE OFFICER COREY: And then after all four
awards have been presented we'll ask the Board -- all the
Board members to step down, so we can take the
photographs.

The next recipient is Dr. Kimberly Prather. And
it's for her work in the area of atmospheric chemistry
research. She'll be introduced by Board Member Diane
Takvorian.

BOARD MEMBER TAKVORIAN: Thank you very much. As
one of the newer Board members, it's really my honor to
make this introduction. Professor Kimberly Prather is
being recognized for her contributions to atmospheric

J&K COURT REPORTING, LLC  916.476.3171
chemistry research, specifically for transforming our understanding of aerosol chemistry and how aerosols impact the environment and climate.

She currently holds a joint appointment in the Department of Chemistry and Biochemistry at the Scripps Institution of Oceanography at UC San Diego. And I have to say that is one of our most treasured institutions in San Diego. So thank you very much for your service there.

She is also the founding director of the Center for Aerosol Impacts on Climate and the Environment, which is one of nine National Science Foundation Centers for Chemical Innovation.

--o0o--

BOARD MEMBER TAKVORIAN: Led by Dr. Prather, the $20 million center brings together multi-disciplinary research groups from around the country with the goal of elucidating the chemical complexity and reactivity of atmospheric aerosols and their impact on climate. The Center is also building the next generation of tools for studying these complex chemical processes.

Dr. Prather has worked with multi-disciplinary teams collaborating with chemists, engineers, biologists, oceanographers, atmospheric scientists, meteorologists, and medical doctors to provide new insights into how aerosols form and subsequently affect climate, human
health, and the environment, depending on how -- their
chemical make-up and physical properties.

--o0o--

BOARD MEMBER TAKVORIAN: Regional and global
climate and air quality predictions depending -- depend on
understanding the nature and distribution of aerosol
particles. Dr. Prather was one of the pioneers of mass
spectrometry methods to analyze in real time individual
aerosol particle composition simultaneously along with its
size.

Her idea to build an Aerosol Time-of-Flight Mass
spectrometer -- so I can't even say it. Can you imagine
how much great work she's doing to actually help create
all of this.

(Laughter.)

BOARD MEMBER TAKVORIAN: So I apologize -- was
initially met with considerable skepticism. But the
instrument has since provided detailed temporal and
spatial information on the origin, reactivity, and fate of
atmospheric aerosols.

--o0o--

BOARD MEMBER TAKVORIAN: The mass spectrometer
has been deployed all over the world on land, ocean, and
in the sky, and has been instrumental in creating chemical
signatures for various types of aerosols that allow --
that allows her to determine their origins.

Using this method, Dr. Prather has described the fate of particles from Los Angeles, identified biomass burning as the main source of the Asian Atmospheric Brown Cloud, and expanded our understanding of global aerosol transport showing how dust from Africa and microbes can impact precipitation over California.

--o0o--

BOARD MEMBER TAKVORIAN: In 2010, Dr. Prather received the American Chemical Society award for creative advances in environmental sciences and technology. Her numerous additional awards and high citation record provide a clear indication that her contributions have had a major impact in the scientific community.

In addition, Dr. Prather strives to take her expertise outside of the laboratory and into the community and policy realm. For example, she gives public lectures, performs science outreach at local schools, including in our own Barrio Logan, which is one of the most impacted communities in San Diego, and has served as a member of the U.S. EPA PM2.5 Clean Air Scientific Advisory Board.

Her innovations in aerosol measurement techniques, contributions to aerosol science, and her commitment to training the next generation of researchers will have a scientific impact for years to come. ARB is
honored to bestow Dr. Kimberly Prather with a 2015
Haagen-Smit Clean Air Award.

Congratulations.

(Appplause.)

DR. KIMBERLY PRATHER: Wow. Thank you. This is
a huge honor for me to receive this award, and also I
thank you for that -- that very nice description of the
research I'm doing.

I don't know if many people realize, but I am a
California native, so I'm very proud of California in this
regard for the work that the Board does for, you know, for
air pollution, and really does set the stage globally for,
you know, not just setting sort of standards and
regulations, but also in driving the science.

And I'd like to think I'm a testament to that, in
the sense that my very first big funding actually came
from this Board, and I am -- so I have a very, very
special place in my heart for CARB.

I worked with Bart Croes for a very, very long
time, since the beginning actually. And the instrument
that we developed, it was received with great skepticism.
Luckily, I had great collaborators like Glen Cass, who I'd
like to acknowledge, and Suzanne Herring were two people
that sort of kept pushing me when we kept getting
questioned of what this newfangled ATOFMS -- you're going
to say ATOFMS. That's easier than the other, what it
could do, you know, what we're going to do.

And so I think, you know, in the end it's being
used worldwide. It's actually there's hundreds of these
instruments now being used around Asia to determine the
sources. And that's what we set out to do, and now it's
just so rewarding to see that it's being used everywhere
to kind of understand the sources, but CARB can take
credit for getting us started, in that regard.

And so for that, again, I'd like to thank you for
that, as well as acknowledging me for this great award.
It's kind of amazing to be, you know, mentioned in the
same breath with Haagen-Smit. As I say, the California
connection is extra special for me.

And I'd also like to, while I'm standing here,
acknowledge those that have been my collaborators. I have
great collaborators, again lots of them in California, but
all over the world, as well as my students and post-docs,
which I would not be standing here if it weren't for them.
And so with that, again, thank you very, very much. It's
a great honor to receive this award.

(Applause.)

EXECUTIVE OFFICER COREY: Next is Dr. Michael
Prather for his work in the area of climate change
research. And for those of you that are wondering, other
than being exceptionally distinguished scientists, there's no relation between Dr. Kimberly Prather and Dr. Michael Prather.

Dr. Prather will be introduced by Board Member John Balmes.

--o0o--

BOARD MEMBER BALMES: And before I introduce Dr. Michael Prather, I just want to say to Kim Prather that I was on the Research Screening Committee when we reviewed your proposal for your then very innovative device, time of flight device, and I'm glad that I was one of the people that voted for you to get that funding.

(Laughter.)

DR. KIMBERLY PRATHER: Me too.

BOARD MEMBER BALMES: So Dr. Michael Prather has lived in a number of desirable locations, because of his academic stature, such as Oxford, England; Cambridge, Massachusetts; New York City; and Washington D.C. And yet, he has chosen to make his academic and residential home in California, probably like me, because he likes the climate here.

(Laughter.)

BOARD MEMBER BALMES: And I think his appreciation of the importance of climate and geography to humans must fuel his sustained and impressive work on
climate change. Like climate science, human physiology and health is a very complex discipline. And I have found that knowledge of many subject areas allows researchers to see connections that might not occur to a more narrowly focused scientist.

We celebrate Dr. Prather's interdisciplinary approach, and his approach to team science. The same breadth of interest has informed his career as Dr. Prather has worked in a number of areas over the years. His education, through the award of his Ph.D., focused on math, physics, astronomy, and astrophysics. He works at -- he has worked at the Goddard Institute for Space Studies and NASA before coming to UC Irvine.

At Irvine, he resides in the Earth System Science Department, whose mission is to study the Earth as a coupled system to train the next generation of Earth scientists and to inform and educate policymakers and the public at large. His work is an exemplar of this mission.

--o0o--

BOARD MEMBER BALMES: I first became aware of Dr. Prather's work through the Intergovernmental Panel on Climate Change. And he's one of the key authors of the IPCC efforts. For the 2001 assessment, Dr. Prather led the chapter on atmospheric chemistry, which warned of large increases in surface ozone over populated continents
if the future emissions of pollutants increased as projected.

The work of the IPCC was awarded the Nobel Peace Prize in 2007. And I just have to say that our own Dan Sperling is also a co-awardee of the Nobel Peace Prize, along with Dr. Prather in 2007.

For the latest IPCC assessment in 2013, the government review specifically requested scientific results on air quality be included in the summary for policymakers. And Dr. Prather, as lead author on the assessment, was invited to present those results.

--o0o--

BOARD MEMBER BALMES: His use of numerical techniques to quantify the time scales of pollution and evaluate its impact as a fundamental -- is a fundamental contribution to the field of atmospheric chemistry, and provides a basis for policy and action. His unique contribution to environmental science has been through this filter of modeling atmospheric pollution in a way that not only raises awareness, but provides the tools to assess solutions.

--o0o--

BOARD MEMBER BALMES: California's historic role in regulating greenhouse gases was supported by Dr. Prather's original research on the lifetimes of greenhouse gases.
gases. He also worked directly with ARB staff on developing a comprehensive strategy for weighting the emissions of different greenhouse gases.

Later in today's meeting, we Board members will consider the short-lived climate pollutant reduction strategy. Dr. Prather's work is the foundation for assessing the impact of climate short-lived pollutants.

And so I am proud, on behalf of the Board, to make this award in recognition of Dr. Michael Prather's sustained and innovative contributions to climate change research.

(Applause.)

DR. MICHAEL PRATHER: Thank you, Dr. Balmes. Chair Nichols, members of the Board, thank you very much. This is award is sort of delight and an honor. It's one of the few wards that sort of recognizes science and service to society. It's not just an award for the science, but it's for doing it. I began as a contributor to the international assessments of ozone, and then climate over 30 years ago.

And what I found was as I -- we wrote these chapters up and got together, it would start redirecting the science into the questions that nobody could answer. And questions were posed by people like you on the ARB, and whatever, that had honest questions you needed answers
for and people say we can't do that yet, and start making you think, well, maybe you can do it one way or another. So it basically started redirecting my science in various ways in between the assessments to try to deliver it. And so to be given the Haagen-Smit Clean Air Award is wonderful. Some of my best heroes were already on that list. It's wonderful.

Okay. Unlike my cousin Kim --

(Laughter.)

DR. MICHAEL PRATHER: -- I didn't get airplanes to sit next to.

(Laughter.)

DR. MICHAEL PRATHER: I'm sorry about that one, but you got better pictures for that one. But I think this is a wonderful honor. I truly appreciate it, and I hope we can continue to do science and service to society, which is what need here. Thanks. Bye

(Applause.)

EXECUTIVE OFFICER COREY: And finally, Dr. Donald Stedman for his work in the area of emission control technologies. We're all deeply sorry about Don's recent passing that the Chair mentioned. His wife Hazel, accompanied by their son, Kenneth is here to accept September award in his honor. And Board Member Dan Sperling will share Don's achievements with us.
BOARD MEMBER SPERLING: Thank you. It is my honor to do. Professor Donald Stedman is being recognized for his pioneering work in real-world measurements of air pollutants. His research and his advocacy have truly been influential in transforming air quality policy, as I'll mention in a moment, in ways that have become even more salient this past year.

Professor Stedman was the John Evans professor in the Department of Chemistry and Biochemistry at the University of Denver. We are -- as mentioning, we are honoring him posthumously.

His best known achievement is the invention of on-road remote sensing instruments, which measure vehicle emissions as the vehicles drive by.

BOARD MEMBER SPERLING: Over the last several decades, Dr. Stedman and his colleagues measured emissions from more than three million cars in more than 20 countries. These data measurements have helped inform emission inventories for cities and regions. It was this work by Dr. Stedman that led to the finding that a few vehicles, the gross polluters, are responsible for most of the on-road emissions. And as we learned actually last night in a presentation by Gary Bishop, his colleague,
that that's even true today even more so than in the past. In any case, this work has provided the basis for what are, what we call, accelerated vehicle scrappage programs, more commonly known as Cash for Clunker programs in California and elsewhere.

Remote sensing technology is now widely used in his home State of Colorado, in California, and in many other locations, and now in Europe. It's been used to used to identify fraudulent smog testing shops, and it was the technology that was used in the past year to determine that the VW cars were emitting unusually large amounts of pollution, far more than they should be.

Indeed, in a publication prior to VW's admission of wrongdoing, he actually identified VW and Audi diesel vehicles as gross emitters of NOx, nitrogen oxide emissions. So we can say that Dr. Stedman was a disruptive force in a good way.

--o0o--

BOARD MEMBER SPERLING: He showed that real-world emissions can be, and often are, much higher than the emissions that are tested in the laboratory. And so that set in motion a whole process where we started determining why is this, and what do we do about it? And that process continues to this day.

Never short on new ideas, Dr. Stedman recently
adapted the concept of remote vehicle exhaust emissions measurement to measuring heavy-duty truck emissions. And last night, we -- yesterday afternoon, we saw a sketch of where he sketched out the whole concept on a cocktail napkin, and then, you know, the classic, right, from the movies -- I didn't believe it when I first read about it, but they showed the actual drawing last night -- yesterday.

--o0o--

BOARD MEMBER SPERLING: Then, just to top it off, he built a small-scale model with paper clips and a toy truck he borrowed from his neighbor's son.

(Laughter.)

BOARD MEMBER SPERLING: I like those inventive engineers. So what he did is trucks would drive through a long and narrow tent where the exhaust would be collected and analyzed. And the project has successfully collected thousands of first-of-its-kind particle measurements from in-use heavy-duty trucks in California, and has been important in advancing the understanding of durability and degradation of diesel particulate filters for heavy-duty trucks.

--o0o--

BOARD MEMBER SPERLING: While best known for his remote sensing technologies I have been talking about, Dr.
Stedman was active in other fields as well. In the 1970s, he published a measurement system for the photochemical rate of nitrogen dioxide dissociation, which was a fundamental parameter in photochemical smog formation. And until that time, it had been only modeled not measured.

He also developed the concept for measuring stratospheric chlorine monoxide free radicals. And subsequent measurements by this technique provided the smoking gun for the Antarctic ozone hole, which led to the Montreal protocol, and worldwide CFC controls.

Don also served as a member of the National Academy of Sciences National Research Council Committee, which as early as 1986 recommended the ban on smoking in commercial airplanes, because of the risk to flight attendants. And we also heard the story yesterday about how he brought this device on a plane and measured it, you know, and I kept thinking in my mind, they would never let that happen these days --

(Laughter.)

BOARD MEMBER SPERLING: -- especially if you look at pictures of Don, right?

Dr. Stedman is -- his life is one -- was a life of commitment, of perseverance of leadership, of innovation. And the impact of his work will be a
long-standing legacy. Many staff members at ARB have worked closely with Dr. Stedman and he will be missed.

ARB is honored to bestow the late Dr. Donald Stedman with a 2015 Haagen-Smit Clean Air Award. I'm glad his wife Hazel and son Kenneth and colleagues, I know Gary Bishop at least, could be here today to accept the award.

(Applause.)

MRS. STEDMAN: Members of the board, ladies and gentlemen, thank you for inviting me here today along with my son, Professor Ken Stedman, and Don's colleague, Dr. Gary Bishop to accept this award on behalf of my late husband, Dr. Donald Hugh Stedman.

Don was very pleased and felt strongly honored to be selected for to receive this award. And towards the end of his life, he dedicated his remaining energies towards trying to be here today, but that was not to be.

Like Dr. Arie Haagen-Smit, 38 years ago, Donald succumbed to lung cancer, and he died just last month. Our family has received numerous tributes and remembrances of Donald from around the world and throughout his lifetime and career. But there are many millions of people whose lives Donald has impacted, who have never even heard his name. And that is, as Dr. Sperling referred, to his service on the National Academy Committee on airline cabin air quality.
And my husband was instrumental in the final vote, which recommended forcibly -- forcefully not forcibly -- forcefully banning smoking on airplanes. This sparked the movement worldwide to ban smoking in public places, and probably saved a good many lives, and certainly impacted the quality of life for a lot more people. This, Donald believed, was his finest contribution to humanity.

When I look at this impressive award, I'm reminded about how far we have come from the pea soup smog-filled days in London of Donald's boyhood to the crystal clear air we're breathing today.

Thank you.

(Applause.)

EXECUTIVE OFFICER COREY: Congratulations to again to all the award recipients. And now, we're going to ask the Board members -- all the Board members to step down and we have the photo op with the award recipients.

CHAIR NICHOLS: Thank you.

(Thereupon photographs were taken.)

CHAIR NICHOLS: Thank you so much, ladies and gentlemen. As you can imagine, this is one of our favorite meetings of the year when we get to present the awards, because really for us it's an inspiration to be able to hear about and to meet in person people who have
made such a great contribution to not only our work, but
to the health and well-being of the people of this planet.

So I'd once again want to thank all of the award
recipients and ask for one more round of applause.

(Appause.)

CHAIR NICHOLS: All right. But now back to the
agenda here. And this also follows nicely on the awards
presentation. We're going to consider ARB's proposed
research plan for fiscal year 2016-17. The annual
research plan supports the Board's air quality planning
efforts, helps us with our regulatory decision making,
advances our efforts to meet the Global Warming Solutions
Act, as well as State implementation plans and other
commitments, and facilitates important collaborations with
other research funding organizations.

Mr. Corey, would you please introduce this item?

EXECUTIVE OFFICER COREY: Yes. Thank you, Chair
Nichols. There are four projects in this year's research
plan being recommended for funding. The list of proposed
projects was developed from a public solicitation of
research ideas supplemented by extensive discussions with
ARB program staff, staff from other State and federal
agencies, as well as experts in these fields of study.

The proposed research projects support ARB's
regulatory priorities related to health, environmental
justice, air pollution and climate change. And if approved by the Board, the projects described in the research plan will be developed into full proposals, and then brought back to the Board for your final approval over the next several months.

Now, I'll introduce Sarah Pittiglio of the Research Division who will describe this year's proposed research studies.

Sarah.

(Thereupon an overhead presentation was presented as follows.)

DR. PITTIGLIO: Thank you, Mr. Corey. Good morning, chairman Nichols and members of the Board.

--o0o--

DR. PITTIGLIO: Today, we'll be asking the Board to approve the proposed 16-17 research plan. This fiscal year's budget consists of $4.7 million dollars, three million is committed to fund projects that were included in the Board-approved fiscal year 15-16 research plan. 1.7 million is requested to fund five new research projects that will support the Board's decision making for key policies and programs.

Continued coordination with State and federal agencies, and other research institutions enables ARB to participate in projects and studies outside the reach of
ARB's budget alone. These five new projects leverage over $13 million of committed funds from a number of collaborators.

--o0o--

DR. PITTIGLIO: The new research presented in this year's plan satisfies the requirements of the Health and Safety Code, which calls upon our ARB to coordinate and investigate air pollution problems, solutions, and knowledge gaps. The new projects will fill knowledge gaps in the areas of mobile source emissions reductions strategies, provide data to ensure that all communities benefit from California's policies, monitor progress towards AB 32 implementation, and improve our efforts to inventory short-lived climate pollutants. If the plan is approved today, staff will work with the researchers over the next few months to develop projects into full proposals. We will then take proposals to the Board's Research Screening Committee for review before returning to the Board to request approval and funding.

--o0o--

DR. PITTIGLIO: ARB's research program was established by the legislature in 1971 and conducts research through external contracts, as well as through in-house research initiatives. The Board's legislatively mandated Research Screening Committee consists of
scientists, engineers, and others that are experienced in air pollution problems.

The Committee meets quarterly to review proposed and completed research projects. The program has a strong relationship with the University of California and California State University systems, and coordinates through multiple mechanisms, including topical research work groups with other State agencies and stakeholders.

ARB staff have placed a growing emphasis on sharing the research -- the results of our research, including disseminating new research results to other researchers and to the public through stakeholder meetings, seminars, press releases, final reports, and updates at Board meetings.

--o0o--

DR. PITTIGLIO: Over the past decade, the program's research portfolio has been designed to meet ARB's evolving program needs in response to a broad range of legislative mandates. ARB's research is also forward-thinking, and in many cases, has provided preliminary research to inform the development of new legislation.

--o0o--

DR. PITTIGLIO: This diagram illustrates the program's we've been supporting in the current decade.
ARB's research initiatives on health and exposure, economics, and environmental justice provide program support that informs the development and successful implementation of all ARB programs.

Additional research initiatives are designed to address the needs of specific programs. Research results will continue to play an important role in meeting the challenges of new federal air quality standards and long-term climate goals.

---

DR. PITTIGLIO: The programs that are highlighted in red are ones that are being supported with new research included in this year's research plan. I will now provide some background on these highlighted programs, and introduce the new projects in these areas.

---

DR. PITTIGLIO: A portion of ARB's mobile source research has focused on strategies and technologies to reduce the emissions of criteria pollutants and monitoring the effectiveness of these efforts to ensure that the expected benefits are achieved. Since the adoption of AB 32, ARB's research has evolved to focus on the reduction of both criteria pollutant and greenhouse gas emissions.

For light-duty vehicles, research on criteria pollutant reductions is investigating the long-term trend
in real world emissions, which is providing an
understanding of how well the emission controls continue
to perform in vehicles subject to LEV I and II. In
response to the adoption of the Advanced Clean Cars
program, ARB's research expanded to include a portfolio of
projects that addressed market forces, consumer
acceptance, and driving and fueling behavior associated
with new vehicle technologies. Results from these
projects will inform the mid-term review of the Advanced
Clean Cars program.

In the heavy-duty sector, research to reduce
criteria pollutants has focused on the durability of
duration of emission control technologies, and tracking the results of
regulatory efforts. New research will provide in-use
measurements of NOx emissions from real-world duty cycles
and vocational trucks. New research on long-term
zero-emission heavy-duty pathways will build on recent
research on alternative fuels and advanced technologies to
map out scenarios to achieve long-term greenhouse gas and
criteria pollutant reduction goals.

--o0o--

DR. PITTIGLIO: The first proposed research
project addresses the need to improve our understanding of
how the use of multiple engine and alternative fuel types
impact in-house NOx emissions and fuel consumption in
various vocational uses. The 2010 heavy-duty engine emissions standards have reduced both NOx and PM emissions significantly.

However, heavy-duty vehicles are still a significant source of NOx emissions and there is a need for additional reductions to meet upcoming national ambient air quality standard requirements for ambient PM 2.5 and ozone.

Results from this research will improve emission inventories used for air quality planning, explore the effectiveness of potential rules to further lower emission standards for heavy-duty vehicles from specific vocations, and develop a effective strategies for achieving the federal ambient air quality standards.

This project is leveraging a significant amount of funding through a collaboration with the South Coast Air Quality Management District, the California Energy Commission, and SoCalGas. The second proposed research project will develop.

--o0o--

DR. PITTIGLIO: The second proposed research project will develop multiple long-term scenarios to transition to advanced vehicle technologies and alternative fuels in the heavy-duty sector. Past regulations and incentive funding has put California on
the path towards meeting our 2020 GHG and air quality targets.

However, additional research is needed to guide current policies, identify new policies, and inform the best use of incentive funding to meet stricter long-term goals. Therefore, this project will determine the costs, emissions, and impacts to disadvantaged communities for these scenarios.

An analysis of the benefits and barriers to each scenario will inform the State of the best policies and economic mechanisms to encourage pathways that allow California to achieve its long-term goals. The project will benefit from a concurrent grid modeling effort funded by the California Energy Commission. Outputs from this project will likewise inform the electricity grid modeling work through its analysis of the use of electricity and power-to-gas to help fuel the heavy-duty sector.

--o0o--

DR. PITTIGLIO: In order to ensure that all communities benefit from ARB's mobile source and other regulations, ARB has partnered with local and community organizations and has carried out research on a number of monitoring and assessment projects in support of environmental justice goals. One example of the research program's efforts to support ARB's environmental justice
initiatives is the development of the Environmental Justice Screening Method.

ARB's EJSM laid the foundation for CalEnviroScreen which is informing the selection of disadvantaged communities to receive investments from cap and trade proceeds.

    CalEnviroScreen identifies the census tracts with the greatest cumulative exposure and social and health vulnerability. To estimate exposure, CalEnviroScreen includes the location of potential air pollution sources to estimate as census tracts' proximity to a given hazard. This information is lacking on the Mexico side of the U.S.-Mexico border, leading to the misrepresentation that there is very little pollution in border communities.

    --o0o--

    DR. PITTIGLIO: The objective of the third research project proposed is to create a geospatial database of stationary, area, and mobile sources on the Mexico side of the U.S.-Mexico border, as an input to CalEnviroScreen. The investigators will use Mexico's version of the Toxic Release Inventory and Google Earth to verify locations and geocode stationary and area sources. The results will be used to improve the CalEnviroScreen analysis at the U.S.-Mexico border, and will complement ongoing monitoring studies in San Diego and the Imperial
Valley.

--o0o--

DR. PITTIGLIO: As California implements AB 32, ARB has developed greenhouse gas monitoring capabilities to support our short- and long-term climate goals. These capabilities have been developed through in-house research projects, external contracts, and collaborations with multiple research partners.

Although carbon dioxide emissions constitute the largest share of California's greenhouse gas inventory, nitrous oxide, and a short-lived climate pollutants, such as methane, HFCs, and black carbon are also significant contributors. Measurements of these gases can help identify sources, evaluate the emissions from these sources, identify new emission reduction strategies, and track progress in reducing emissions.

Measurements are made from satellites, aircraft, and at ground level from fixed and mobile sites. Work performed at the laboratory -- in the laboratory includes isotopes analyses and modeling to quantify emissions from data collected in the field.

Collectively, these tools have helped us gain a better understanding of greenhouse gas sources and emissions in California.

--o0o--
DR. PITTIGLIO: In a continued effort to track changes in greenhouse gas emissions as California follows mandates to reduce these emissions, this proposed research project will extend existing efforts to measure emissions of carbon dioxide in the Los Angeles Basin. Isotope analyses will allow the researchers to distinguish various types of fossil fuel combustion from natural carbon dioxide sources.

The collected data will be used to develop a long-term comprehensive understanding of carbon dioxide emissions and source contributions in the Los Angeles Basin, while tracking the progress made by AB 32.

This project will complement the megacities observing system for Los Angeles, funded by federal research partners, and coordinated with similar efforts in Paris and Rio de Janeiro, which analyzes multi-tiered measurements to understand greenhouse gas emissions and the impact of control policies as a model for other cities.

--o0o--

DR. PITTIGLIO: A recent satellite measurement study conducted by NASA and the University of Michigan indicated the presence of large regional methane hot spots in the U.S., including one in the San Joaquin Valley. In light of these findings, the legislature signed Assembly
Bill 1496, which requires ARB to undertake monitoring and measurements of high emission methane hot spots in California.

In response, ARB is planning to conduct a comprehensive study to survey statewide methane sources that will improve our understanding of regional methane hot spots, and allow the identification of large methane super emitters throughout California. The study will feature a comprehensive tiered monitoring approach which will include satellite, aerial, and ground-based measurements and will be able to provide critical details on the distribution of methane sources, as well as their emission characteristics over key regions in California.

The first measurements are Scheduled to begin in the coming fiscal year, and will be conducted in coordination with NASA, the California Energy Commission, and other State and local agencies. The study results will be especially useful for informing our emissions inventory and guide our current and future programs to help meet near- and long-term climate goals.

--o0o--

DR. PITTIGLIO: ARB's contracted and in-house research efforts are designed to support the successful implementation of ARB programs. Several recent Board items have provided updates on in-house research efforts
on near roadway exposure mitigation strategies, research
to monitor Aliso Canyon's natural gas leak, and research
on California's HFC inventory and mitigation strategies
that would be a component of the presentation on
California's short-lived climate pollutant strategy that
you will hear later today.

Upcoming items include Board presentations on air
quality trends in disadvantaged communities, and our low
NOx heavy-duty engine demonstration, as well as research
symposia on methane emissions and the mid-term review.

--o0o--

DR. PITTIGLIO: ARB has funded more than 460
research contracts, which have resulted in a similar
number of peer-reviewed publications. 80 percent are
published in the top quartile of journals in terms of
scientific impact. ARB research has also been cited in
reviews of the National Ambient Air Quality Standards, and
in dozen after ARB regulatory documents.

On average, these ARB funded publications are
cited about 50 times each by other articles, which is, on
average, two to three times higher than other funding
organizations, such as the U.S. Environmental Protection

In keeping with this tradition of excellence, the
projects proposed in this plan will add to ARB's robust
research program, and continue to strengthen the scientific foundation of ARB's programs.

--o0o--

DR. PITTIGLIO: We recommend that you approve the 2016-17 annual research plan. Thank you for your attention. I would be happy to answer any questions that you may have.

CHAIR NICHOLS: Thanks for the presentation. We don't have any witnesses who have signed up to speak on this item, but I thought the Board might have some questions or comments.

I just want to start out with one that I think may help frame this presentation a little bit, because $4.7 million, although in the real world that's a significant amount of money, is a small fraction of the research that actually is done by or contracted by ARB. This is a discrete program, which is used in accordance with the process that Sarah described with the Research Screening Committee, and requests for proposals, and so forth to do what most people would think of as being basic -- pretty basic scientific research, as opposed to the more focused research that's driven by the need to have data to support our programs. This helps pave the way for a broader understanding of the work that we do.

And I think it's important to make that
distinction, because even though we leverage a lot of
other work by other people with this budget, it is really
a very tiny research budget for an organization with the
kind of mission that we have.

John.

BOARD MEMBER GIOIA: And I just wanted to reflect
on the comments yesterday at the lecture by some of the
Haagen-Smit award winners about the importance of our
funding of their research in the past, and the significant
impact that it's had. So it's -- I think that really
calls out and reflecting some of these early research
decisions, which are very thoughtful, and how it's really
changed the course of this whole field.

CHAIR NICHOLS: Barbara.

BOARD MEMBER RIORDAN: I think I'd like to
comment and say to the staff you've done a very good job
of leveraging our money. And I think, as I recall years
ago, we didn't do it as well as we're doing it today. And
I thank you for that, because we can do so much more if we
have people who are willing to collaborate with us with
money. You know, that's just a key important ability of
the staff to do more with a small amount of money, and I
salute them for that.

Thank you.

CHAIR NICHOLS: Thank you.
Dr. Sperling and then Ms. Mitchell.

BOARD MEMBER SPERLING: Yeah. And I also want to, you know, praise the staff and what we've done here in working with a very small amount of money, because in the past -- and there's a certain tension that exists, because in the past, it was widely recognized that there were huge gaps in the science of air pollution. And we've put a lot of resources into that over the years, and there's not as many of those gaps, but now we have, you know, these -- this new challenge of climate change and all the policies. And we're leading, in many ways, on that. And we've got to figure out good policy for climate change.

And so, you know, there's this continuing tension also between making sure that this research is supporting the mission of ARB, as well as filling the basic research gaps. And that's when you come to appreciate it really is a drop in the bucket for what really is needed. And it is -- we are, as Barbara said, as Board member Riordan said, it really is important to be leveraging it. And I know we're making a lot of effort to leverage it with other entities and other funding and other researchers. So it's a good story, but --

(Laughter.)

CHAIR NICHOLS: But, but.

Yes, Ms. Mitchell.
BOARD MEMBER MITCHELL: Thank you, Chairman.

I want to thank staff for selecting these projects, because we can all note that the projects that are here on our list actually target things that are going to come before us soon, and it will help us inform our decisions.

The second thing that I want to comment on, and it goes back to the Haagen-Smit awards and the history of that, is that we all try to base our policy decisions on sound science. And science, as you know, plays a really important role in how we clean the air and how we reduce our greenhouse gas emissions. So I thank all of our scientists out there who work on these projects with us, and help us make sound decisions that are based on sound science.

CHAIR NICHOLS: Thank you. I should look in the other direction.

Yes, first, Senator Florez and then Dr. Balmes.

BOARD MEMBER FLOREZ: Thank you. I just have a few questions on these items. Let me get my notes for a second. And thank you to staff. I have questions for staff.

So my first would be on the methane funding itself. CEC, NASA are joint funders, and obviously appreciate the leverage provided there. My question is
simply -- I guess what caught my eye was the partnerships with local air districts. And obviously, methane, Central Valley a big issue, ignored for a lot of years. How does the air district itself at that level participate with ARB in the participation of this science?

RESEARCH PLANNING, ADMINISTRATION & EMISSION MITIGATION BRANCH CHIEF HERNER: Yeah. Thank you. We are leveraging this with money both from CEC and JPL, and it's turning out to be a good collaboration. We are reaching out to local air districts talking with them, informing them about what we're doing, so they know what's coming down the pike.

We are trying to work with them to possibly gain access to some of the sources that will be identified by NASA JPL. This project will also be presented at the CAPCOA meeting coming up next week. So it's really a question of making sure that they're informed about what we're doing, and then looking for ways that the information that's created with this project helps inform what they're trying to accomplish as well.

BOARD MEMBER FLOREZ: Okay. So are we coming up with the criteria or are we asking them to provide us inputs that we define, or is it the local district looking -- are they defining it? Who's defining the parameters in terms of what type of methane sources, et
RESEARCH PLANNING, ADMINISTRATION & EMISSION MITIGATION BRANCH CHIEF HERNER: Well, what the project is going to do is NASA JPL is going to outfit an airplane that has imaging technology. And so they will be flying over these areas that have been identified as hot spots. And with about a one meter by one meter grid cell, they will be able to identify high-emitting methane sources.

So part of what we will get really is a list of methane emission spots, and then really the collaboration with districts is what do you do with that list, and how do you make it useful, and how do you move forward from there, and how do you interact with the stakeholders whose methane emission has been identified on the list.

BOARD MEMBER FLOREZ: That's fantastic. The second question is on the Mexico piece of this. In terms of the actual inputs and research and data provided, how trustworthy --

(Thereupon a phone went off.)

(Laughter.)

BOARD MEMBER FLOREZ: I guess my time is up. I guess my time is up.

(Laughter.)

BOARD MEMBER BALMES: The winner is.

BOARD MEMBER FLOREZ: My question is simply
what's the reliability of that data, given the participation in working with Mexico? How reliable is that? You know, and I'll obviously defer to my colleague from the San Diego area, but just kind of wonder, you know, what is that research supposed to get us, and how reliable will the inputs be?

RESEARCH DIVISION CHIEF CROES: This is Bart Croes. That's a very good question. So part of the project, it includes collaboration with this pretty extensive monitoring that's going to be taking place in the area. So in addition to the fixed monitors are there now on the border, on both sides of the border, there's actually 55 new monitors being put in through the programs with the National Institutes of Health as well as OEHHA. So we'll actually have real air quality data. And then, you know, part of what we'll be doing with this new project is identifying collaborators on both sides of the border, and trying to come up with, you know, real identification of where sources are using, you know, multiple techniques like the existing inventories as well as satellite verification.

You know, those type of details, I think, we'll need to work out. You know, we'll have a lot of potential collaborators in that area. So this project is something that we'll be developing over the next few months and
we'll be bringing to the Board in the summer.

    CHAIR NICHOLS: Thank you.
    Dr. Balmes.

    BOARD MEMBER BALMES: Well, I also wanted to
address the environmental justice program support. And I
think it's great that we're going to be partnering and
getting more air quality monitoring data at the border,
and working on these multiple partnerships.

    But I just want to underline that one of the
things I like about our agency is that we promulgate
evidence-based policies. And I just wanted to point out
that environmental justice, while it's often thought of as
an advocacy type of issue, it's also based on science and
real data.

    And the more we can get the CalEnviroScreen tool
that's been developed, in part because of past CARB
support, to be a better model, a more accurate model of
public health impacts of air pollution the better off
we'll be in terms of future policy. And so I'm totally
supportive of this, but I just want to put it in the
context of I think that the CalEnviroScreen model is
current. It's not perfect. Hardly, any model ever is, so
it needs to be continually improved.

    So hopefully, this -- the data that we generate
will go to improving it and making it more accurate, but I
don't think it's the whole story.

CHAIR NICHOLS: I think CalEPA and OEHHA are in agreement with that, and do plan on continuing to make improvements, but maybe you want to address that further.

RESEARCH DIVISION CHIEF CROES: This is Bart Croes again. We actually collaborate very closely with OEHHA, so a lot of the various layers of data that go into CalEnviroScreen are generated here at the Air Resources Board. And through kind of our own staff's efforts, as well as collaborations we have with some of the most prominent researchers in this area, you know, some of your former -- your current and former Colleagues, Dr. Balmes, you know, we are trying to do real verification of the data, and fill in some of these gaps that you've identified of uncertainty.

BOARD MEMBER BALSME: Yeah. Those comments were probably more directed to OEHHA than to you.

(Laughter.)

CHAIR NICHOLS: Hopefully, they're following us.

(Laughter.)

CHAIR NICHOLS: Ms. Mitchell. Oh, Sorry, Ms. Takvorian and then Ms. Mitchell, since you haven't spoken yet.

BOARD MEMBER TAKVORIAN: Thank you. So let me add my congratulations to staff. Thank you for your hard
work, and the agenda looks great. I would be supportive. It's well done, and we appreciate the inclusion and the focus, particularly to the San Diego-Tijuana border. I, as a director of a binational organization, with an office in Colonia Chilpancingo which is adjacent to one of the largest maquiladora parks in one of the heavy -- most heavy-duty truck traffic areas. We're very well aware of the health and environmental impacts and the need for this kind of research. So there's no question in my mind about the need for this research.

What my caution, and staff reflected this some, but I just want to say it out loud is that data is not comparable, and there's a lot of work to do to get there. I strongly recommend that the collaborators be institutions from Mexico. I think it's really important Colef, El Colegio de la Frontera Norte is really important in this. And I hope that we're looking at this from both a data collection perspective, as well as a mutual beneficial -- beneficiary kind of perspective. We need to grow that kind of research capacity within Mexico, and that's something that I think we can really do in this.

The other caution is that when you talk about comparing to Mexico's TRI, which is referred to as RETC, they have less than 25 percent of the pollutants in their registry than TRI. So the -- from the start, the
comparison is going to be really off, and so we need
to -- I'm really glad that there's the monitors. I think
the real-time data is going to be very, very important.

And then the last thing I'd say is it's just not
nearly enough money, so I would echo your concerns. And
thousands, probably millions, have been put in from the
Commission on Environmental Cooperation. I used to serve
on the advisory committee there. I would suggest you look
at what they've done in putting the three-country TRI data
together and see where we can start from there, and so
that we're not replicating that work as well.

But again, thank you so much. And my other
question, not related to the border, is asking for future
if there's other EJ CalEnviroScreen data gaps that you're
looking at that would need to be filled, and perhaps it's
similar to Dr. Balmes' question.

CHAIR NICHOLS: Yes, I think we could ask the
staff to actually report back to us on where they see room
for improving that model and what we're doing to address
it.

Ms. Mitchell.

BOARD MEMBER MITCHELL: I was just going to
comment that the issue of pollution at the
California-Mexico border was brought up by Supervisor Ron
Roberts when we first looked at CalEnviroScreen. And he's
not here today, but I'm very delighted that Ms. Takvorian has taken up that issue, and is well-informed on it.

So I think it's a good focus that we have here in our research to take a look at that. We all recognize that it was problematic at the time we first observed that.

CHAIR NICHOLS: Thank you. Supervisor Serna, welcome.

BOARD MEMBER SERNA: Thank you, Chair. And I apologize for missing the first part of the presentation, but I did have a very detailed briefing earlier this week. I just want to dovetail a little more off of Dr. Balmes' comments, certainly not to beat a dead horse here, but I think, you know, I share a very similar sentiment and expression of support for the environmental justice program support.

In the spirit of conveying to CalEPA and OEHHA areas where there can be, I think, significant improvement in the CalEnviroScreen tool especially with regards to methane, I would encourage that in addition to all the other items that have already been mentioned, that we also consider how there might be an adjustment to the percentile ranking between communities within the State. That continues to be, for me, and I know many others, one of the most prominent weaknesses in the platform that you
have, you know, places in Northern California, rural --
just by way of example, rural communities in Northern
California, they get compared to very urbanized places in
part of Los Angeles, for instance.

And I think looking at the potency of some of
these greenhouse gas emissions, such as methane with kind
of the exponential effect it has on climate change and
forming, that that is a real opportunity to really
consider how that model gets adjusted relative, not just
to the other inputs that have been mentioned, namely air
pollution, pesticides, water quality, and, of course, the
socioeconomic factors, but also that third factor that
feeds the model and that is the percentile ranking. So
hopefully that gets included in whatever message we're
going to convey.

Thanks.

CHAIR NICHOLS: Yeah. I think we've been
beginning to see, in many areas, this question of the
megacities versus the rest of the State popping up, in
terms of allocation of resources, and attention, and
differentials in their basic needs for attention on the
pollution front. And I have been talking with staff and
others about putting together a special focus group on,
and including some external advisors on it as well,
because I think it's something that's becoming more
apparent all the time, that we can't just sort of turn these programs into one-size-fits-all.

    And any decision, such as you're highlighting there in terms of where the cut-off is has real policy implications. It's not just a science question.

    So thank you for raising that. We do need to actually take a vote on this plan. Again, we're not voting on the specific projects, because those will be brought back to us for approval before any money is spent. But the concepts, at least as described here, do need our input. So I think we could have a motion.

    BOARD MEMBER SERNA: Move the item.

    VICE CHAIR BERG: Second.

    CHAIR NICHOLS: All in favor, please say aye.

    (Unanimous aye vote.)

    CHAIR NICHOLS: Any opposed?

    Any abstentions on this one?

    All right. Thank you very much to the Research Programs staff and for doing a great job of organizing and presenting the Haagen-Smit awards as well. Thanks to Bart and your whole team.

    Okay. Give everybody a moment here. And while the staff are shifting round, I want to say a few words about the sustainable freight efforts here. Staff is providing an informational update today on work that's
going on with other State partners to meet Governor Brown's executive order to develop a multi-agency Sustainable Freight Action Plan for California that addresses our essential leadership role to improve our freight transportation system, and that brings together broad participation by both public and private entities.

This multi-agency approach is something new. It's not easy to do, frankly, because everyone has their own specific mandates and responsibilities. And so organizing this effort has proven to be a challenge, but a very good one. And I'm very excited about the progress that has been going on to date.

We have some of our State agency partners here today also to share their perspectives following the Air Board staff's presentation. Clearly, our longer-term success in this effort is going to be dependent on our ability -- we keep using the word leverage. This is an issue of everybody leveraging everybody else, I guess you could say.

(Laughter.)

CHAIR NICHOLS: The transportation agencies need to facilitate transportation, energy agencies need to make sure that we're using energy more efficiently -- efficiently, air agencies need to clean up the air and meet our mandates to improve public health. And we all
need to be working together to implement the State's climate goals.

So the draft plan that was released earlier this month represented a collaborative effort to identify a long-term approach and some shorter term measures or actions that could be taken to build support and some accomplishments in this area that would meet all these different goals that we've identified for health and climate, as well as mobility, safety, and economics. Not just economics as a cost of doing things, but as an objective of improving the efficiency and profitability of our freight system, which is a very important element of the State's economy.

So we have a lot of work to be done, and a lot of opportunities for benefits as well, if we can improve the efficiency of the system at the same time that we're also reducing emissions.

And really a lot of what we're doing right now is positioning the State to be an effective partner with local government and industry in this effort, because historically we've all pursued our own objectives separately, and we've accomplished a lot, but clearly, we have a lot of work to be done.

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

Staff presented an update to the Board this past January on the progress ARB has made on initiating and implementing actions across the freight sectors to provide immediate air quality and public health benefits. And as we reported then, with the help of our private and public partners, we're seeing real-world benefits of our efforts. So far, a 75 percent drop in statewide diesel particulate emissions from freight since 2005, and measurably cleaner air in port and railyard communities.

But the fact is that cancer risks remain unacceptably high especially in disadvantaged communities near major freight facilities. Attainment of federal standards compels significant additional emission reductions in the South Coast, San Joaquin Valley, and Sacramento, and meeting our 2030 climate targets requires further action from this sector as well.

Since July of last year, staff from the California Department of Transportation, ARB, California Energy Commission and the Governor's Office of Business and Economic Development have worked to develop the action plan under the leadership of the Secretaries for the Transportation, Environmental Protection and Natural Resources. Staff from those agencies released a draft, as
the Chair noted, on May 3rd, which is out -- currently out
for public review through July -- through early July.

So staff is presenting this as an informational
update in terms of the status, and progress that we've
made so far.

So now I'd like to introduce Lezlie Kimura to
provide the staff presentation

Lezlie.

(Thereupon an overhead presentation was
presented as follows.)

MS. KIMURA: Thank you, Mr. Corey. Good morning,
Chair Nichols, Vice Chair Berg, and members of the Board.

--o0o--

MR. KIMURA: Today, I will be providing an update
on the collaborative efforts between ARB, our partner
agencies and stakeholders to develop a California
Sustainable Freight Action Plan. I will provide
background on the freight transport system, talk about
direction we received from the Governor, highlight
components of the recently released draft, as well as next
steps moving forward.

--o0o--

MS. KIMURA: You may recall from previous updates
the importance of the freight system to California's
economy. Freight-dependent industries account for over
one-third of the State's jobs and economy, representing over five million jobs distributed across the sectors shown on this slide and over $740 billion in gross domestic product.

--o0o--

MS. KIMURA: At the same time, California's freight transport system generates a high portion of local pollution in parts of the State with poor air quality. Despite substantial progress over the last decade, diesel equipment continues to be a significant source of air toxics in and around freight hubs, which can cause cancer and other adverse health effects.

Freight equipment accounts for about half of statewide diesel particulate matter emissions. It also accounts for approximately 45 percent of statewide nitrogen oxides emissions. Reducing these harmful pollutants is an important local, regional, and State priority, and a matter of federal Clean Air Act compliance.

In addition, California has set aggressive targets to reduce greenhouse gas emissions 40 percent below 1990 levels by 2030. Meeting these targets will also require additional actions to decarbonize California's freight transport system.

--o0o--
MS. KIMURA: Planning to support change in this system is no small feet, however. As the nation's largest gateway for international trade and domestic commerce, California's interconnected systems of ports, railroads, highways, and roads are complex and continuously evolving to meet changing system demands.

Projections of substantial increases in freight volumes over the coming decade; competition from other states and international ports to modernize freight infrastructure and facilities; shifts in how consumers purchase things with eCommerce; new advances in technologies, such as intelligent transportation systems, autonomous and connected vehicles, and three-dimensional printers; as well as new science on health and climate change effects revealing the need for further risk reduction to communities are all changing the realm of what is needed and possible for this system.

California must find ways to take hold of opportunities within this active system and modernize strategically.

--o0o--

MS. KIMURA: To accomplish this, partnership is key. Our partners, shown on this slide, have already begun moving in this direction. Together, we have continued to implement modernizations over the last
several years, through mechanisms, such as incentive programs; local and regional groups, such as port commissions and metropolitan planning organizations, adopting clean air actions plans, and regional freight infrastructure plans; private investments; and, of course, actions taken by this Board.

While California will continue to leverage these improvements, the challenge of delivering both economic and public health benefits at our ports, highways, and in our communities will require further progress. Additional action with our partners must focus on well-planned investments across multiple sectors, and it must focus on deployment of new technologies, as well as providing major infrastructure upgrades with less impact on nearby communities.

--o0o--

MS. KIMURA: As a key first step, the Governor's Executive Order directs the State agencies shown on this slide to develop a California Sustainable Freight Action Plan by July of this year. The action plan is an unprecedented effort. It is intended to integrate investments, policies, and programs across several State agencies, and to realize a singular vision for California's freight transport system that supports progress, on the three objectives of efficiency,
technology advancement, and competitiveness.

MS. KIMURA: To develop the draft action plan, the multi-agency team started with a strong foundation of research, technical, and stakeholder work. The plans and documents pictured here help to inform the plan. These documents reflect the State's most recent iteration of work intersecting with California's freight transport system. And collectively, they characterize the system's relationship to achieving broader transportation, air quality, energy, climate change, and resiliency goals.

MS. KIMURA: Broad outreach was also critical to the development process. From July 2015 through Spring of this year, the multi-agency team held 11 public workshops in Redding, Sacramento, Oakland, Fresno, Modesto, Bakersfield, Monterey, Los Angeles, San Bernardino, El Centro, and San Diego.

The team also held two webinars with over 150 participants each. Regular meetings were also held with the California Freight Advisory Committee, also known as CFAC, industry associations, environmental and community groups, California Native American tribes, and small businesses ahead of the draft.

We used these opportunities to solicit input on
preliminary concepts for the draft plan, feedback we
heard, primarily focused on potential pilot project
congcepts for the plan, including questions on what funding
opportunities would be associated with these pilots.

--o0o--

MS. KIMURA: In addition to these efforts,
Professor Sperling chaired a freight efficiency
development group to inform this effort. Freight experts
from academia, industry, and government were tasked with
examining broad-based approaches for increasing system
efficiency and reducing emissions.

We want to take a moment, Professor Sperling, to
thank you for your leadership on this.

Over the course of six months, the group
developed a series of white papers. These papers cover a
range of efficiency strategies and look at approaches to
funding, utilization of existing assets, planning,
modernizing distribution nodes, as well as integrating
data and information systems.

This work was used to inform the draft plan, and
as result, some of the approaches are included as
recommended actions and implementation steps moving
forward. The full set of white papers are available on
the action plan website, which is listed at the end of the
presentation.
MS. KIMURA: Now on to the substance of the plan. Earlier this month, the multi-agency team released the draft action plan for public review and comment. The draft includes recommendations on both visionary and actionable elements, which I will summarize over the next few slides.

MS. KIMURA: Starting with the recommended vision for a sustainable freight transport system in 2050. The multi-agency team developed this statement to help frame the effort over the long term. It is intended to provide State agencies broad direction as they develop specific investments, policies, and programs related to freight transport.

MS. KIMURA: As a companion to the vision, the multi-agency team also developed 10 guiding principles, which correspond to the topics listed here. The guiding principles define what the freight system should achieve to make progress towards the vision through public, industry, and stakeholder collaboration. They also characterize the State's priorities for future freight investments in California.

In practice, staff would use these to help inform
proposals brought to this Board and others, as we move to implement future funding.

--o0o--

MS. KIMURA: The draft also includes recommendations on three statewide targets for 2030. Collectively, they are intended to guide the State toward meeting the vision and guiding principles. For system efficiency, the recommended target is a 25 percent improvement measured by increasing the value of goods and services produced from the freight sector, relative to the amount of carbon that it produces.

The next target focuses on transitioning to zero emission technologies, and is to deploy over 100,000 freight vehicles and equipment capable of zero emission operation, and to maximize near-zero emission freight vehicles and equipment powered by renewable energy.

And for economy, the target is to foster future economic growth within the freight and goods movement industry by promoting flexibility, efficiency, investment, and best business practices through State policies and programs, and create a positive environment for growing freight volumes while working with industry to lessen immediate potential negative economic impacts.

State agencies would use these targets to measure, report progress, and adapt the plan's
implementation over time.

--o0o--

MS. KIMURA: As I mentioned earlier, progress will require partnerships across a number of areas, funding included. State government must continue to position itself as an effective partner. And it must leverage the broadest array of public and private financing available in this area.

The federal FAST Act provides a new source of funding for California's existing freight programs, and the Governor's budget proposes new ongoing funding of $200 million per year for transportation infrastructure.

Previously, the California Transportation Commission, Caltrans, regional and local transportation agencies, air districts, and this Board have leveraged over five and a half billion dollars with the $3 billion Proposition 1B programs for freight.

These funds supported delivery of over 90 transportation projects and more than 15,000 clean truck, locomotive, and marine vessel technology projects in California. The State's investment approach in these programs to simultaneously reduce pollution from freight and provide transportation improvements is a successful model.

The current budget includes dedicated, ongoing
funding for the freight infrastructure element. At this
time, there is no similar dedicated funding for freight
air quality to continue the Board's successful Proposition
1B collaboration with the local air districts. The
multi-agency team recommends working with the legislature
to enact a freight transport system funding package. The
package should enable new investments for transportation
assets and advanced vehicles and equipment moving freight
in California.

--o0o--

MS. KIMURA: As a starting point, the
multi-agency team, included nine actions in the draft
action plan. These are recommended for implementation
over the next five years in coordination with our
partners.

The first two actions build on the funding
approach recommendations I just talked about, and are
intended to help implement new investments in freight.

The third action is really about improving
planning and prioritization of freight transportation and
fuels infrastructure projects for future investment.

The fourth action focuses on accelerating clean
technologies and fuels for freight.

--o0o--

MS. KIMURA: Continuing on to the fifth action,
the State agencies also recommend establishing a sustainable freight think tank. The think tank would provide insight into the future of freight. Its purpose would be to help anticipate transformational technologies, innovative solutions, and partnership opportunities ahead.

The sixth action is about continuing to promote the competitiveness of California's system.

The seventh action is to continue work with the freight efficiency group I discussed earlier.

The eighth action focuses on identifying and implementing steps to meet freight workforce needs.

And last, but not least, the ninth action, which is to participate in work the Office of Planning and Research is doing on process improvements that could help expedite delivery of beneficial projects.

--o0o--

MS. KIMURA: The State agencies identify recommended next steps for implementing many of these actions.

For infrastructure: The agencies identify safety enhancements for road and rail transport, expanding truck parking with plug-in capabilities to run onboard amenities, increasing use of waterways and low-emission rail shuttles to inland ports, and expanding on-dock rail options at seaports as next steps.
Other steps include planning for greater use of electricity and hydrogen as freight transportation fuels with infrastructure along the State's major freight corridors. The agencies also include development of a freight handbook to help with planning for freight facility citing, design, and operations.

For advancing technologies, next steps include development of more health protective emission standards for trucks, ships, locomotives, and related cargo equipment that ARB staff proposed in its pathways document last spring. Also included are steps for ARB and the Energy Commission to implement complementary incentives for demonstrating cleaner technologies in use, and to assist equipment owners with the incremental costs of cleaner equipment.

Other concepts included are low carbon renewable fuels development for aviation, interstate locomotive, and marine sources through possible mechanisms, such as inclusion in the cap-and-trade and low carbon fuel standard programs.

For competitiveness, next steps include partnering on data collection and modeling tool development to help with economic analysis of the costs and benefits of potential State actions, as well as metrics and benchmarking of the freight industry on a
For system efficiency, next steps include equipment and software technology solutions for trucking, including intelligent transportation systems, platooning, signal priority, and establishing and publishing truck route designations. Together, these steps can help provide dynamic travel information to drivers on the most efficient routes, reduce community impacts, and make better use of existing infrastructure.

Also included are operational practices, such as off-hour delivery strategies, to alleviate congestion at terminal gates and nearby roadways, as well as improve productivity and air quality.

And for workforce development, next steps include partnerships on pre-apprenticeship and upskilling programs, training model development, and community workforce agreements.

--o0o--

MS. KIMURA: In addition, the multi-agency team included recommendations on freight pilot project concepts. Ideas from the State agencies' research and stakeholder engagement efforts provided the starting point. The State agency team received over 50 ideas from the public this past November. Each idea was reviewed against the objectives set by the Executive Order. The
team looked for integrated, corridor-level concepts with potential to achieve measurable progress towards the targets.

These concepts also needed to have potential for system transformation, opportunities to integrate State agency supports, as well as have the possibility to be scaled up for implementation across the State.

The three project concepts shown here are the result of this review and public comments collected.

The dairy biogas for freight vehicles concept would involve work with partners to implement an initial phase of a commercial scale dairy biogas sourced, renewable natural gas fueling facility in the valley. The pilot could focus on pipeline injection and fueling station construction. ARB would be taking lead on this one with all agencies participating.

The next two concepts focus on advanced technology corridors with Caltrans as lead and all agencies participating. The southern California truck corridor pilot would involve work with partners on freight signal priority, travel information systems, communication systems infrastructure, and integrated corridor management on arterials and highways.

The California-Mexico border pilot would involve integrating communication systems infrastructure, such as
blue tooth sensors and global positioning system readers, implementing variable messaging, and a specialized border wait time application.

Potential agency support actions for each concept are included in the draft. The intent is to continue developing these concepts into shared investment opportunities within the next three years.

--o0o--

MS. KIMURA: Looking ahead, concepts for further exploration and potential future action are also identified. Most of the concepts that are listed on this slide are big picture ideas that are promising, but will require further discussion with experts and stakeholders.

The two large transportation infrastructure projects listed, the Interstate 710 corridor and the Otay Mesa East are currently proposed projects. These have the potential for big impacts on the system and could provide a platform for innovative strategies. For these, State agencies will continue tracking project developments and seek opportunities for partnership as appropriate.

--o0o--

MS. KIMURA: Now that the draft action plan is available for public comment, we are continuing our outreach efforts to gain feedback and help refine the document. Last week, we discussed the draft at a public
meeting of the California Freight Advisory Committee, yesterday, with the California Transportation Commission, and today here with you.

We will continue outreach meetings through June and, comments can be submitted electronically at the web address shown on this slide through July 6.

Staff will make changes as appropriate and provide the action plan to the Agency Secretaries for Transportation, Environmental Protection, and Natural Resources for consideration and submittal to the Governor. The State agencies anticipate beginning action plan implementation and providing periodic updates soon after.

The concludes the staff presentation, but before we end, we would like to take a minute to also thank you Chair Nichols for your help with this draft action plan as well.

And, at this time, I would like to ask the Board to hear from a few of our key State Partners on this effort. Here today with me, I believe -- oh, okay. Sorry.

So here today with me are representatives from the Governor's office -- not here. Okay. Sorry.

California State Transportation Agency, and the California Energy Commission who have helped to lead and develop this draft plan and would like to share a few perspectives with
Chair Nichols, I believe you'll be leading the introductions.

CHAIR NICHOLS: All right. Sorry, I was just going to introduce them by name. I was told that we were going to have representatives from Energy Commission and from STA. Do we call them CalSTA, is that what we call them? I don't know.

(Laughter.)

CHAIR NICHOLS: State Transportation Agency. Any way, so we have the Assistant Secretary for Rail and Ports for the Transportation Agency Ben De Alba.

Welcome.

ASSISTANT SECRETARY DE ALBA: Good morning. CalSTA, like CalEPA.

CHAIR NICHOLS: Thank you.

ASSISTANT SECRETARY DE ALBA: Good morning, Madam Chair and Board members. I am Ben De Alba, Assistant Secretary for Rail and Ports at the California State Transportation Agency. I'm pleased to be here today to provide comment on behalf -- or on the sustainable Freight Action Plan on behalf Secretary Kelly. Just by brief background, the Transportation Agency is responsible for developing and coordinating the policies and programs of the State's transportation entities to improve the
mobility, safety, and environmental sustainability of California's transportation system.

The Agency consists of a mix of eight departments, boards, and commission, including Caltrans, the Highway Patrol, High-Speed Rail Authority, and the Department of Motor Vehicles to name a few.

I would like to first commend the interagency team that developed this draft plan. This includes staff from ARB, the Governor's Office of Business and Economic Development, the Natural Resources Agency, the Energy Commission and Caltrans.

I've witnessed all the hard work that went into creating this plan and have seen firsthand the interagency collaboration. As we heard in the presentation earlier today, or this morning, that the draft sustainable action plan is a reflection of unprecedented coordination. Its principles, 2050 vision, and objectives articulate a future in which California's trade system operates in an efficient manner that is both in the State's economic and environmental interests.

The plan's targets will help the State measure meaningful progress. And the pilot projects, when completed, will demonstrate integrated clean technologies, alternative fuels, advanced freight infrastructure, and local, economic development opportunities.
I'm proud to say that all of the plan's components work towards achieving the Governor's transportation, climate change, air quality, and economic goals and objectives.

This approach of addressing trade through the lens of economic and environmental policy is similar to that approach utilized in 2006, whether California voters passed Proposition 1B, a transportation bond measure that included the State's first comprehensive investment of public dollars in our trade corridors.

Proposition 1B included the $2 billion trade corridor improvement fund to invest in trade-related infrastructure, and the $1 billion goods movement emission reduction program. The TCIF and GMER programs were met with great success, having improved the mobility of our freight system, while at the same time reducing emissions and improving air quality in our trade corridors.

The timing of the action plan could not be better, as federal and State funding becomes available to invest in our trade corridors and clean technologies.

At the State level, the Governor's budget calls for new State transportation investments to be made in our major trade corridors. Under the Governor's funding and reform proposal, the State would invest 2.3 billion over the next 10 years in our major trade corridors. And at
the federal level, California will receive $582 million in new federal FAST Act dollars over the next five years for freight infrastructure improvements.

We have a real opportunity to invest significant dollars in the freight system, which is why it's so important to have a statewide coordinated freight effort. If we're going to spend billions of dollars of public and private sector money to modernize, reduce community impacts, and improve our freight system, we must have an integrated approach and a unified policy on freight.

This is why the transportation agency is so excited to be a partner in the development of this freight action plan. We look forward to continuing the collaboration to finalize the Sustainable Freight Action Plan, one that works towards achieving all of our objectives.

Thank you.

CHAIR NICHOLS: Thank you. And I'd also like to call then on John Kato from the Energy Commission, another partner.

CEC DEPUTY DIRECTOR KATO: Good morning, Madam Chair Mary Nichols, esteemed Board members, and of course esteemed ARB colleagues.

I'm John Kato, Deputy Director of the Fuels and
Transportation Division at the Energy Commission. The Energy Commission is very appreciative of the collaborative efforts and to be part of the collaborative efforts that have produced a great product today, the action plan. We definitely look forward to continuing the collaborative efforts moving forward.

And without echoing Ben's eloquent words, and echoing again the great importance of this collaborative effort, I will simply add that we are very excited to be apart of the momentum of not simply transforming the transportation sector, but the innovation that will go behind this incredible transformation. So we definitely look forward to being part of that great effort.

I do want to say that from our Energy Commission perspective, we will stand in support through our alternative and renewable fuels and vehicle technology program by investing in a collaborative way now in our development and deployment of alternative and fuel and renewable technologies, as well as the advanced transportation strategies that will help California reduce GHG emissions and petroleum dependency in this sector.

We look forward especially with the finalized version of the draft -- of the action plan to help its goals and actions, and we look forward to continuing strengthening California's future.
Thank you.

CHAIR NICHOLS: Thank you, Mr. Kato. I think with that, we're ready to hear from the public. We have a number of witnesses who have signed up to speak to us on this item. As you will recall, it's still in draft form and we're still taking comment, but the people have taken the time and effort to come and speak to us directly, so we're very happy to see that there's so much interest here.

We'll begin with Mr. Barrett.

MR. BARRETT: Hi. Good morning. I'm Will Barrett with the American Lung Association in California. We're also apart of the California Cleaner Freight Coalition and wanted to quickly appreciate all the State agencies for making so much time to meet with our coalition and partners, many of who have traveled here today to talk to you about the plan.

So we view this effort as critical to really ensuring that California moves forward to reduce the harms caused by freight emissions, especially in our most disadvantaged communities. A major transition is needed now to cut the criteria air pollutants and toxic exposures due to the freight system, as well as to curb climate change emissions as we grow our economy.

The Lung Association supports the guiding
principle in the plan that zero emission technologies are needed everywhere possible, and that near-zero emission equipment should be running on renewable fuels everywhere that we don't yet have zero emission technologies.

We support the inclusion of a target for zero emission vehicles and equipment, but we do urge the agencies to provide more detail about where the 100,000 target number. Earlier this week, the ARB's mobile source strategy was posted, and that contained a population of projection for 900,000 low NOx trucks in California by 2030, which was a significant increase, especially for the South Coast, over the prior draft.

So we'd like to get a little bit better sense of where these numbers come from and how they interact with each other. So we do look toward to speaking with staff more about this, and in looking for ways that, you know, the zero emission target can be reviewed and potentially updated or increased going forward. The final plan should provide a clear focus on reducing harm in the most disadvantaged communities by the freight sector. The plan should specify a goal for reducing pollution hot spots in these communities, and providing priority for the implementation of strategies, incentives, and enforcement of the existing regulations to better protect these communities.
Finally, we appreciate the focus in the plan for continuing to build relationships with community organizations, with partners across various stakeholder groups. We think that the coordination so far among State agencies has been really impressive. I want to continue that coordination among stakeholders in all the agency discussions.

So we do look forward to working with you, with the Freight Coalition who you're going to hear more from today, and really looking forward to finalizing a strong plan this summer, so that we can continue to move forward with better health protections through improved freight -- improvements in the freight system. So thank you all very much.

CHAIR NICHOLS: Thank you.

Jesse, good morning.

MR. MARQUEZ: Good morning. Jesse Marquez, Coalition for a Safe Environment. I'd like to thank the Board for this opportunity to share our public opinion on the draft program. I also want to thank all those different agencies and department staff for putting together a plan. This plan has never been written before anywhere in the United States, so it is a significant task, a very foreboding one, when you're not sure what you're supposed to put in it. But by sharing with the
public, we can team up. There are organizations like ours. There are individuals out there that are little think-tanks just dying for the opportunity to share with you.

But I do have a major concern, which is one of our little specialty areas of our organization, which is on the pilot project program. We see what's been proposed as being too limited in scope for what you asked for. Last year, you asked and provided an opportunity for the public to submit pilot project proposals.

Surprisingly, you received 54, which is great. Shocking to you also is that as big as a critic I am and our organization is about many things, we actually liked 46 of the project proposals.

(Laughter.)

MR. MARQUEZ: So that's not bad, you know, when you saw us saying that hey we like these things. But again, it's an opportunity where we share what we learn as well.

What we see is that the project should be grouped to meet a specific crate transportation category: Number one, zero emissions. So we have three areas that we feel that should be the focus, zero-emission trucks that are Class 8, drayage trucks for the heavy freight. Zero emission trucks that are class 7 and less that are for the
general consumer type freight projects. And then zero
emission locomotive trains for regional and statewide
freight transportation.

Because we're talking about public money, and we
are, and I am a member of the public, we don't mind you
spending any amount of money on these projects. We don't
want to think narrow and say, oh, one-truck program. The
fact of the matter, a class A drayage truck is going to be
use at the Port of L.A., the Port of Oakland, Port of
Stockton. It's used everywhere. So where the project is
being done is not that important. It's doing it.

Right now, there are already two class 8 truck
manufacturers that are selling the trucks commercially.
They didn't wait to get CARB certification to do it.
They're selling them already. There are four more in
development. So we do not mind if you fund two or three
zero-emission freight class 8 trucks, or two or three
projects that are class 7, 6 trucks, because the need is
there.

You did receive two maglev train project, and we
would support you doing both of those as well.
Competition is great. Let's see who rises to the top in
success.

Our second category are emission capture
technologies. The first one being locomotive train. And
then we're talking two. We have freight trains and then we have public transportation that can both learn from that. Currently, there is one manufacturer that could meet both those needs, and we feel that should be done.

CHAIR NICHOLS: That was your three-minute time being used up, but I'll let you just state what the third category is, since you told us there were three.

MR. MARQUEZ: The third was the truck and train corridors. We have freeway-highway networks that can be built there. We have water aqueduct systems that can be built alongside there, and then we have some sanitation as well.

So those would be three. In that case, it would be like pilot studies to see the feasibility versus an actual project, but we support those.

Thank you.

CHAIR NICHOLS: Thank you. Thanks very much.

Okay. Taylor Thomas.

MS. THOMAS: Good morning, Board and staff. My name is Taylor Thomas. I am from Long Beach. I'm with East Yard Communities for Environmental Justice. And we're also a member of the California Cleaner Freight Coalition.

And I want to begin by saying that the work that you all do here and the work that everyone else in the
room does is very important. Because of this work, because of the programs, the grants, the incentives, and the regulations, communities like mine can breathe a little easier. But collectively, we still have a lot of work to do.

With our extensive freight infrastructure, California is ground zero for innovation and action that protects public health and grows our economy and protects the environment. This draft plan is a commendable undertaking, and it contains many great proposals. But with that being said, we have a few suggestions that could make the draft plan a little stronger.

The first one, regulations to phase-in zero emission technology for heavy-duty trucks beyond the South Coast. This is very important for other communities that -- other port communities that don't have clean truck programs and aren't seeing those air quality gains.

Another suggestion is to include guarantees of public participation in freight project development. As residents who are impacted by these projects, we often aren't afforded the opportunity to meaningfully engage, and we just want to know what's going on and be able to participate.

And lastly, the plan should also include a specific evaluation criteria that prevents projects from
increasing pollution burdens in EJ communities.

And those are all my suggestions, but I'd just like to leave you all with a quote that you've probably seen or heard before, but I just think it really captures the spirit of what we're all doing. And I modified it a little bit, but it goes something like this.

"As society grows well when people plant trees whose shade they know they'll never sit in".

So thank you for the opportunity.

CHAIR NICHOLS: Thank you for participating.

MR. LUGO: Good morning, Chair Nichols and Board members. My name is Humberto Lugo. I'm with the environmental justice organization, community organization in Imperial County, the Comite Civico Del Valle. And I'm also a member of the Freight Coalition. We support the Agency's vision of deploying zero emissions wherever it is available, but we also think there's a lot of work to be done, because diesel pollution continues to burden environmental justice communities. They are impacted by toxic pollution of the freight industry.

The plan is a concrete action plan on environmental justice equity to eliminate freight pollution hot spots, which are entirely in disadvantaged communities throughout California. Our air monitoring projects at the California-Mexico border already beginning
to show the impacts of freight in that area through our communities which are used as transportation corridors as well, because these trucks do go through our communities as they use them as corridors for goods movement.

These activities continue without protecting the health of the most vulnerable communities. For example, the world logistics center new to this growth in goods movements current regulation will fall short of emission reduction goals, unless updated to reflect the State's need to transition to zero emission technology.

If California's invested in maintaining a world class freight system, it must develop regulations and programs that will reduce or entirely eliminate emissions. With goods movement expected to double in the next decade, we should transition to zero emissions.

There is also talk about dedicated truck lanes in the near future, which will increase the amount of trips that these trucks -- the dedicated truck it will increase the trucks going back and down the freeways from say two trips a day increase, it will increase it to three to five trips a day, which will increase the impact on our communities struggling to breathe clean air.

With all the massive proposals to build and expand freight infrastructure, it's imperative that the ARB weigh in on all of the projects to ensure that all the
project proponents do not invest infrastructure and technologies that contradict air quality goals. Ensuring zero emissions technologies and supporting infrastructure into these facilities is vital to this effort.

So it's urgent that we move away from fossil fuels and transition to zero emission technologies for the health of our most vulnerable. Transitioning to zero emissions is also necessary to tackle climate change and reach our greenhouse reduction goals, and while prioritizing the most impacted, polluted communities, or disadvantaged communities like Imperial County.

Thank you.

CHAIR NICHOLS: Thank you.

MR. JATKAR: Good morning Chair Nichols and members of the Board. Shrayas Jatkar with Coalition for Clean Air, and also a member of the California Cleaner Freight Coalition. I'd like to take this opportunity to chair with you the comments that I made yesterday in Stockton at the California Transportation Commission. And while I understand I'm here at the ARB this morning, given that this is a multi-agency plan, I think it's worth mentioning what we are saying to the other agencies, in particular when it comes to transportation infrastructure.

So, you know, a couple of comments. Really, the first is about alignment of transportation infrastructure
funding. And two comments on that. First, is that
infrastructure projects should really be prioritized by
how well they actually implement the California
Sustainable Freight Action Plan, and hopefully actually
you have a plan for achieving emission reductions through
infrastructure projects.

And sadly, we did not see that. We're a little
concerned we did not see that in the most recent round of
fast lane and Tiger grant funding from Caltrans, but
hopefully we'll see that going forward.

Secondly, in transportation funding packages, we
hope to see a model that we saw in Prop 1B, or something
similar to that, so that for every $2 spent on
transportation infrastructure, there's a dollar spent on
zero emission vehicles and equipment.

So I hope to see something like that in the
action plan going forward. And then, I'd like to just
echo the comments around public participation. Our
coalition, we have met with a number of the agencies and
will continue to do so. But one of the principles that
was listed there is regional and local collaboration. And
it's especially at those regional and local levels where I
think public participation needs to be guaranteed, when it
comes to transportation infrastructure planning and
funding.
And lastly, there were some comments made yesterday at the CTC about funding and State support. And so I just want to flag that, because next month you'll hear the funding plan about the Low Carbon Transportation Program. A number of the projects are in the heavy-duty sector. And in the past, we've seen kind of a singling out of the Clean Vehicle Rebate Project and other projects on the light-duty side.

We really need to make sure that funding is dedicated to those heavy-duty projects as well as it simply relates to this freight action plan.

Thank you

CHAIR NICHOLS: Okay. Thanks.

MR. ERVICE: Good morning, Chair Nichols, members of the Board, and other State agency representatives. My name is Joel Ervice. I'm a member of the California Cleaner Freight Coalition and the associate director of RAMP, Regional Asthma Management and Prevention.

I want to applaud the agencies involved for their sustained and intense work over the past many months. Coordinating and planning for a freight system that is as complicated as California's is no easy task. So thank you.

The draft plan had some strong steps that will promote cleaner skies and healthier communities throughout
the State. Examples include deploying zero emission technology wherever possible, proposals to clean up engines and fuels through measures like the renewable diesel and last-mile delivery standards, and then infrastructure investments in the electrification of freight.

But there's more that the plan can and should do to promote health and meet our clean air standards. First, the plan needs quantified emission reduction goals for PM2.5, NOx, and greenhouse gases, putting 100,000 zero or near zero-emission vehicles or equipment in the field sounds good. But having a number that ensures that gets -- that we get to our emission targets is even better.

Second, we need to better link freight transportation spending with zero emission support. The plan should mimic Prop 1B's approach, which set aside $1 for zero emission vehicles or equipment for every $2 spent on infrastructure.

Additionally, any freight transportation spending should be prioritized by how well projects adhere to the action plan.

Third, given what we already know about freight hot spots, it's disappointing that the plan doesn't go beyond the freight facility handbook and data collection
for freight hubs.

We need enforceable standards for freight hubs sooner, rather than later, to ensure that these are sited appropriately, and that facility operations decrease the pollution burden on nearby communities.

On a related and final note, the plan needs a clear and more consistent commitment to equity and the reduction of pollution hot spots. These hot spots, often in low income communities and communities of color, are often where the asthma burden is highest. The plan should ensure that air quality improvements are targeted to where they're needed the most.

Thank you for your time.

CHAIR NICHOLS: Thanks.

BOARD MEMBER TAKVORIAN: May I ask something.

CHAIR NICHOLS: Yes.

BOARD MEMBER TAKVORIAN: My understanding is that the webcast isn't working. It sounds like we're having problems with it.

CHAIR NICHOLS: Yes, I'm sorry. I meant to speak from the platform here. So they're having problems with the webcast. And I believe our folks are working to try to fix it, but I don't know that they have an estimate as to when it will be restored. This is an unusual problem, I would say. We normally do not have a problem with the
webcast. So anybody have anymore information than that?

    Tracy.

BOARD CLERK JENSEN: They are working on it. So as soon as possible, we'll get it back up.

CHAIR NICHOLS: Okay.

BOARD MEMBER TAKVORIAN: It's unfortunate. I don't know how you manage it with so much, but there's a lot of communities watching.

CHAIR NICHOLS: I know there's great interest on the part of the public who aren't able to be here in what's going on today. We could, I suppose, take our lunch break now, and hope that it will get fixed in time to resume. That's about the only thing I could think of to do. It would not, otherwise, I think make sense to extend the time for the meeting.

BOARD CLERK JENSEN: It will be archived as well after the meeting, not that they don't want to watch it eight now, but I'm just saying it will be archived later to be able to be viewed.

BOARD MEMBER TAKVORIAN: So it's being captured.

BOARD CLERK JENSEN: Yes.

CHAIR NICHOLS: So anyone could -- could get it, but I should take the pulse of the Board here, whether you want to try to stop now until they get it back up and running again, we could do that. It wouldn't -- I mean,
're not legally required to do that obviously, but it
would just be a matter of acknowledging the public
interest in this.

Ellen, did you have a thought?

CHIEF COUNSEL PETER: Just a comment. We don't
have the ability to -- we don't have it set up where
people can comment remotely. So if there was a situation
where people needed to watch it, so they could, you know,
participate, then I'd be very concerned and would suggest
taking a break to make sure we're -- we would have to take
a break, because then that would be part of the public
policy.

The webcast is not -- we don't do it that way,
and so as the Board Clerk Tracy Jensen just pointed out,
it is being recorded. The fact that it's not being
webcast right now does not mean that it's not being
recorded.

So we typically put it up. Our contractor often
gets it up within a day. And so we can, during -- after
they resolve the on-line problem, we will check with them
and say when it can go up. So to that extent, it's the
Board's choice if they want to take the break now or not,
but it's not precluding anybody from participating because
it's not working. It's not good, because it's not live,
but we'll see what that happens.
As Chair Nichols mentioned, we've used these people since about mid-2008. And this is very exceptional that we've had a problem. It's very unfortunate.

BOARD MEMBER TAKVORIAN: Well, I want to also respect the people who are here.

CHAIR NICHOLS: Correct. Yes.

BOARD MEMBER TAKVORIAN: So I -- while I appreciate that, I think -- I thought that there was an ability for folks to comment, so I was concerned about that. So thank you for the clarification.

CHAIR NICHOLS: Sure.

BOARD MEMBER TAKVORIAN: I think we can move forward and hope that we'll catch up.

CHAIR NICHOLS: Yeah. Well, as I said, this has not happened to us in years, as far as I know. We've had very reliable service from this organization. So I just -- I hope they can move quickly.

CHIEF COUNSEL PETER: And the also just to add the one point, the comment period is open till July 6, which staff had mentioned. And so all the written comments, there is ample time to submit the written comments.

CHAIR NICHOLS: All right. Well, then we'll let Mr. Cort proceed.

MR. CORT: Good morning. Paul Cort. I'm with
Earth Justice, and also a member of the California Cleaner Freight Coalition.

And as you've heard, the California Cleaner Freight Coalition is -- sees a lot of good action in this plan. But I think what you've also heard is that while the plan contains positive targets and actions, CCFC will continue to push for more, because frankly this plan just does not get us where we ultimately need to go.

And, in particular, I wanted to highlight for this Board the focus on transitioning to zero emission technologies. The Executive Order directs the agencies to establish a clear target to transition to zero emission technologies. And the draft plan sets that target at 100,000 freight vehicles and equipment by 2030. But the plan does not explain how that number enables that transition that seems to be envisioned by the Executive Order or to achieve any of the underlying goals around air quality or greenhouse gases.

CCFC believes that if there were such an analysis, that the conclusion would be that we need an even more aggressive target for conversion and transition to zero emission technologies.

I want to highlight this issue with this Board, because I think the Board has an important voice on this target in particular in the plan. And we hope that ARB
will provide that leadership to strengthen the plan before it becomes final.

Thank you.

CHAIR NICHOLS: Thanks.

MS. ADEYEEEE: Hi. My name is Adenike Adeyeye.

I'm also with Earth Justice and the California Cleaner Freight Coalition.

Thank you so much for all your work on the plan and for the opportunity to comment. I just have a few comments that have mostly already been mentioned but I think they bear repeating.

We, as a coalition, support a greater emphasis on zero emission vehicles in this plan wherever possible. It's, as people have mentioned, so important for meeting our clean air standards and our climate goals. And we think that it's important to set clear emission reduction goals for criteria pollutants and for greenhouse gases, because without those clear targets that are based in science of what we need to get -- what we need to get to the national ambient air quality standards, it will be hard to meet those goals.

We also like what Joel Ervice said, we think that enforceable standards for freight hubs are really important, and it's important to have as a goal in this plan eliminating the existence of these freight hot spots.
in environmental justice communities.
And finally, I think it's very important to expand the geographic reach of some of the pieces of the plan. There's a lot of focus on South Coast, and I think that's really important because South Coast has a huge air quality challenge, but there are other regions in the State that have that same challenge, and we'd like to see those efforts expanded beyond South Coast to include San Joaquin Valley, to include all parts of the State that are suffering under the challenges that dirty air creates.
So thank you so much for the opportunity to comment and thank you for your work on this plan.

CHAIR NICHOLS: Thanks.
MR. O'DEA: Hi, Chair and Board. Jimmy O'Dea with the Union of Concerned Scientists and also with the California Cleaner Freight Coalition.
First, I want to thank the Board and staff for working with other agencies to get this plan out. It's really apparent that the Governor's Executive Order facilitated this cross-agency facilitation that's needed for improving our freight system. Things that we like about the freight plan, there's -- the zero emission vehicle targets, in particular, and we think the plan rightfully identified the range of actions needed for zero emission vehicles, including analysis, incentives, and
regulation kind of the whole range -- the spectrum of levers were identified.

We also think that the plan did a nice job recognizing that charging and fueling infrastructure are critical to getting these zero emission vehicles on the road. So it's not just the vehicle component, but also the infrastructure.

But we do see some ways -- three ways, in particular, the plan can be improved before being finalized.

First, really integrating community involvement and equity into the plan. Dr. Balmes mentioned, you know, it's science and data that really show that, you know, communities of color, and low-income communities disproportionately experience the health effects of freight pollution. And as a science based organization we certainly see that as well.

And so we want to say, you know, that this is inequitable, that communities are experiencing different effects. And I want to draw attention to the fact that sustainability doesn't necessarily mean equity. And so, you know, just one easy example that could go a long ways in terms of being able to look back at this planning document to point to would be just adding two words to the vision statement.
So right now -- so you just -- changing the vision statement to say, "Utilize a partnership of federal, State, regional, local...", and adding community, "...and industry stakeholders to move freight in California on equitable, modern, safe, integrated, resilient system. So just two words would really show that this plan is committed to community and equity and be a way to point back to.

More concretely, We think that equity can be integrated into the plan by prioritizing deployment of the 100,000 zero emission target into communities that have been most impacted by freight.

And third, we support the proposed actions on last-mile delivery trucks, and the airport ground support equipment, but also see drayage trucks as being equally well-suited for the same type of low NOx standards and zero emission standards that were proposed for airport and last-mile delivery trucks.

And we think that is particularly important as a follow on to really make the most of ARB's investment in drayage trucks with the recent announcement of $23.6 million for drayage trucks. So we think that standards would really make that investment go a long ways.

So again, thanks for your leadership on this and look forward to working with you all.
CHAIR NICHOLS: Just made it.

MS. VAZQUEZ: Hi. Good morning. My name is Diana Vazquez. I'm here on behalf of Sierra Club California, and also a member of the California Cleaner Freight Coalition.

And as my partners indicated previously, we definitely support the advanced technology of really looking at technology in the different sectors of freight. We understand technology is not there in some sectors, but there is some technology available already, and specifically in the bus sector and then they drayage sector. So really focusing on the technology that we have right now and how do we deploy that to those communities that my colleagues have mentioned, specifically Disadvantaged communities.

One of the things that we really want to kind of emphasize is the public input. This is something that's really critical and really bringing the stakeholders involved, and specifically communities that want to be involved, but they just don't really know how.

We have been doing a lot of outreach, at least within the coalition, to really bringing people who are affected by the freight hubs to really get involved in this plan and really seeing what are the things that they need, rather than us telling them what they need.
And within that, I know in the freight, there's an actual quote saying that we want to actually identify regulatory processes to expedite permitting processes. Our thing is we're afraid in expediting these processes, you're going to actually lessen community input. We understand that we have to expedite some of the processes to actually get projects done, but also being mindful that a community has to really provide that input with sufficient time, so we can actually see the goals that were outlined in Executive Order and be implemented effectively.

So with that, we really look forward in working with the rest of the agencies. We've been meeting with them for the last couple months. They've been really welcoming and really receptive to our comments, So we're definitely looking forward to actually seeing this plan be finalized, but also the implementation process, so thank you for that.

CHAIR NICHOLS: Thank you.

MR. SCHOTT: Good morning, Madam Chair and members. Tim Schott on behalf of the California Association of Port Authorities, which is comprised of the State's 11 publicly-owned ports, including the nation's largest container ports and complementary system of niche ports.
Many of our members participated very actively in the development of the Sustainable Freight Action Plan draft. And we also participated in some of the component action plan, such as the freight mobility plan. We are a member of a broader coalition of industry stakeholders that include most of the folks in the supply chain. And we would ask you to consider that as you consider these comments.

We would like to thank the staff, as well as -- the ARB staff, as well as Caltrans, GO-Biz, the Energy Commission for their efforts to prepare the draft action plan, and their substantial effort to main a robust and inclusive process, including multiple meetings of the Freight Advisory Committee, the Efficiency Strategy Development Group, and direct meetings with stakeholders.

We believe the draft action plan reflects the challenge and necessity of balancing the objectives identified in the Governor's Executive Order, competitiveness, efficiency, and emission reductions.

California's work -- California's ports work to balance these objectives on a continuing and daily basis. And at the same time, we're facing very significant increased pressures complicated by an ever evolving maritime industry and competitive necessity.

Closer partnership with our supply chain partners
to achieve higher levels of efficiency is now a competitive necessity. And this is true for emissions reductions as well. We have achieved tremendous reductions working in partnership with our customers and seek to build on this success through additional collaboration. This is also a competitive necessity.

Our experience and continued work in these areas serves as the basis for our contributions to this important effort, while we are continuing to review the draft action plan, and we anticipate providing more detailed comments to the agencies. We know that achieving these goals will require a partnership with you, the Air Resources Board.

Your technical and financial assistance in transitioning to cleaner equipment, maintaining competitiveness, and achieving greater efficiency will be a key success factor. We look forward to continuing to work with you and all the stakeholders as meetings are continue to be convened to further development the plan and implement strategies.

Thank you very much.

CHAIR NICHOLS: Thank you.

MR. KENNY: Good morning, Chair Nichols, members of the Board. My name is Ryan Kenny I'm with Clean Energy. We're the Nation's largest provider of natural
gas and renewable natural gas transportation fuel. We thank staff for the robust report in the action plan. We do have a few improvements that we'd like to offer through our comments today and also in writing.

A recent report, as you may have seen, called Game Changer, which was sponsored by numerous stakeholders, including the South Coast Air Quality Management District found that the most cost effective way to reduce NOx and carbon emissions is via near zero engines combined with renewable natural gas fuel.

It would result in three to eight times more NOx reductions and five to 14 times more greenhouse gas reductions compared to EVs and fuel cell counterparts.

It's also cost effective, in that you can purchase four times more near zero natural gas trucks, which enables a greater greenhouse gas reduction, even without the use of renewable natural gas.

It also supports the argument of why ARB and her sister agencies should pursue all advanced technology choices, not just a focus on zero emission vehicle strategies.

Also, with regards to the next item, short-lived climate pollutants, near zero vehicles also are a great contributor to reducing those especially when used with renewable natural gas.
I'll just add too, that as was mentioned earlier regarding the 100,000 zero emission vehicle figure that was included in the report that's needed by 2030, with near-zero emission technologies wherever else, there is no case or strategy presented in the report that justifies that figure or explains how the agencies will accelerate zero and near-zero emission strategies to meet the targets required to reach the federal ozone attainment goals.

Conversely, as you'll recall, in the mobile source strategy document, it does identify the need to deploy 900,000 near zero engines, and estimates that only 23,000 ZEVs will be available by 2030. This, in our opinion, is a disappointing part of the action plan. We'd like to see that addressed in the final draft.

Just wrapping up, we believe that the clear -- only clear way to deploy the shear volume of near zero trucks required to meet the clean air standards is to develop a number of strategies that include meaningful truck incentives, the phase-out of older model year trucks throughout the freight system, the acceleration of renewable natural gas production statewide, amongst other innovative strategies. This was our expectation of the action plan, and we strongly urge the Board and staff to consider these comments.

Thank you.
CHAIR NICHOLS: Thanks.

MR. EDGAR: Good morning, Chair Nichols and Board members. Sean Edgar. I'm the director of cleanfleets.net, and I feel like I'm the bridge speaker this morning. I'm going to tie in Mr. Kenny's comments on natural gas benefits for local trucking. And then I'll distinguish those from my colleague Chris Shimoda with the California Trucking Association, who will be talking about some of the challenges with over-the-road trucks.

So Clean Fleets has been proud to assist many fleet owners in the construction, moving, and storage industry, and local delivery companies and service companies, like AT&T, Coke, and just about half the refuse and recycling industry.

So, Mrs. Riordan, and I continue to share a magic moment over trash trucks. At a prior meeting, I referenced our 16 years of history implementing the diesel risk reduction plan, and hopefully my comments can be focused toward implementing what is called for as an aggressive strategy over at least the next 15 years.

I'll be referencing slide 18 of the staff's presentation. And specifically, what I'll reference is that the near-term path to near-zero emissions is really going to be from local trucking fueled with renewable fuels. And what I mean by that is that your staff called
for -- in action item number 4 of the State agency actions, staff called for a five-year approach to rolling out cleaner vehicles.

And what we can tell you is that the Game Changer Report, which I'm going to reference here in a moment, did a great job in -- Gladstein, Neandross & Associates in its work for South Coast AQMD and others referenced just in the past two weeks. Vice Chair Berg attended the ACT Expo in Long Beach. And the Game Changer Report has some great possibilities for local trucking.

I'll reference that the short-lived climate pollutant item, which is going to be coming up after lunch, is really going to be a key discussion about how fuels can be produced. But what I can tell you is, and I'd just like to reference a few items out of the Game Changer Report, and it will be worthwhile just to read a couple of their conclusions after some exhaustive study in the time I have left.

The first conclusion that the report comes to is that only one fuel technology platform meets all commercial feasibility and logistics tests to immediately begin the transformation to near-zero heavy-duty natural gas vehicles fueled by increasing volumes of ultra-low greenhouse gas renewable natural gas. The key thing there in the findings of the report immediately begin.
The second piece that I'll reference is that while nearly -- with nearly the full range of heavy-duty vehicles covered, the combination of near -- new near-zero emission natural engine technology and RNG provide the single best opportunity for America to achieve immediate and substantial NOx emissions reductions in the on-road heavy-duty sector.

Natural gas for local transportation is a great choice, and that should be accented in the report findings.

Thank you.

CHAIR NICHOLS: Thanks, Mr. Edgar.

MR. SHIMODA: Good morning, members of the Board and Chairman Nichols. I'm Chris Shimoda with the California Trucking Association.

And I'd first like to thank staff from all the agencies who had a hand in putting together the draft plan before us today from the Governor's office, Caltrans, CARB, GO-Biz the Energy Commission, and CalSTA. I'd also like to support the comments of my colleague Tim Schott from the ports and note that our comments today are reflective of broader freight stakeholder group who's been working to provide input to staff during the formulation of this plan.

And we appreciate the difficulty of the task that
this interagency work group had on their hands this past
year to deliver a draft plan, that balanced zero
emissions, efficiency and economic competitive, as was
called for in the Governor's Executive Order.

And the CTNR goods movement industry partners are
reviewing this draft, and we definitely plan to provide
further written and oral comments in the near future. And
we appreciate that so far this draft plan recognizes the
important role that goods movement plays in California's
economy, providing a third of the State's economy in jobs,
and that the transition to zero emission technologies,
getting that done while keeping California competitive
really is a multi-decade effort that's going to require
significant collaboration and incentives to achieve.

And we also look forward to continuing to work
with the State agencies as they convene the stakeholder
work groups to begin work to identify and deploy
commercially viable pathways to zero emissions, and
promote competitiveness along the way. And we look
forward to getting that work done shortly after the plan
is finalized, so thank you very much.

CHAIR NICHOLS: Great. Thanks.

MR. OKUROWSKI: Chair Nichols and members of the
Board, my name is Peter Okurowski. I'm here with the
Association of American Railroads and also BNSF railway
and Union Pacific Railroad.

The railroads would also like to thank the staff from the multiple agencies who prepared the draft document. We have been a part of the broad coalition that has been mentioned by members -- sorry, by Mr. Shimoda and Mr. Schott earlier, and the railroads would like to also support their comments. Thank you.

CHAIR NICHOLS: Great. PMSA.

MR. JACOB: Good morning, Madam Chair. Mike Jacob with Pacific Merchant Shipping Association. We represent ocean carriers and marine terminal operators and join the chorus of thanks for staff. We're a member of the Freight Advisory Committee. We're a member of Dr. Sperling's freight efficiency work group. We're a member of the GO-Biz Competitiveness Working Group. There's been no shortage of potential meetings for stakeholders and staff. And so we appreciate all of the time and energy that's gone into that, and again, echo the comments of Mr. Schott on behalf of the Ports. Represent their tenants. And I think obviously we'll be supporting the processes moving forward as we have from the very start. We supported the Executive Order. The important thing moving toward is that we all recognize that the goals in the executive order can be mutually exclusive, if they
aren't implemented well, but they do not need to be implemented poorly if we're actually investing the time and energy and money that's necessary to improve the system that we're talking about.

That's what we're are all here to do. I think the comments you've heard from across the spectrum support that. Our position moving forward, and our comments on the plan will reflect the fact that we do need to be moving forward with those investments.

Obviously, the great majority of investments in the system are private, but public investment is necessary to move forward and beyond where we are now, if we're to achieve public goals that go beyond what the system can accommodate right now.

So we look forward to working with you on that, working with staff on making sure that this is focused on making those investments, targeting the growth that's necessary, and achieving the goals that we all have and share.

Thank you.

CHAIR NICHOLS: Thanks. Agreed.

Mr. Magavern.

MR. MAGAVERN: Good morning. Bill Magavern with the Coalition for Clean Air, and the California Cleaner Freight Coalition. Also, a member of the California
Freight Advisory Committee.

And I want to thank this Board and the staff of ARB and the other agencies for your commitment and the resources you've devoted to cleaning up the freight sector. You heard a lot of good information in the presentations about both the benefits and the impacts of the freight system. And something I want to emphasize is that although goods movement benefits all of us, the burdens are very disproportionately placed.

So when somebody in say Omaha gets new shoes, a child in Wilmington is breathing more diesel exhaust. And so it's really imperative that we do right by those communities. And you've heard from a number of their representatives already this morning.

We strongly support the agency's vision of deploying zero emissions technology wherever that's feasible. And in the sectors where we don't yet have zero emission options, using near-zero emissions equipment with low carbon renewable fuels.

To realize that vision is going to take a mix of regulatory measures, and incentive funding, and sound transportation planning. We're going to need all of those tools. So we support a number of regulatory measures that are proposed in your draft to clean up engines and fuels with standards like renewable diesel standard, last mile
delivery standard, improved inspection and maintenance programs. And these and other regulatory standards are essential to transforming the freight sector, and they've demonstrably worked in the past, both to reduce harmful pollution and to drive technological innovation.

We also recognize it's important to ask the federal government to do its part by setting a new low NOx standard for trucks and also Tier 5 standards for locomotives. That is by far preferable, but we agree that if the federal government does not act, then California can and should act on our own.

The plan should set enforceable standards for freight hubs, including the facility cap to make sure that the communities that house those freight hubs do not have a disproportionate pollution burden.

And the proposal to identify regulatory or permitting process improvements, we're willing to participate in that discussion, but if that's code for reducing community input, or enabling more polluting projects, then you can be sure that we will stand in opposition.

So in conclusion, we urge the agencies and the Governor's office to strengthen the draft plan in the ways we have identified, to finalize and issue it by the July deadline and to implement it rapidly, because our
communities have already waited for too long to have the
air cleaned up.

    Thank you very much.

CHAIR NICHOLS: Thanks.

MS. WARD-WALLER: Good morning, Chair and
members. My name is Jeanie Ward-Waller. I'm with the
California Bicycle Coalition. And we're here in
collaboration with the Cleaner Freight Coalition. I
support, you know, everything that's already been said to
you by all of those stakeholders.

    Similar to Shrayas from Coalition for Clean Air, we
think it's important, because this is a multi-agency
effort for those of us who are really invested in this
plan to show up and give our comments to all the agencies
that are involved.

    So I was also at the California Transportation
Commission meeting yesterday when this plan was presented
in front of that group. And I just want to say, you know,
the tone of this discussion has been very different from
the tone in that discussion. And I think the folks who
are here representing communities and the interests of the
communities that may be impacted or burden by this plan,
there are many more of those here in front of you today.
And I think they're used to talking to you and maybe not
as much interested in talking to the Transportation
Commission. So I just want to note that, and have, you know, all of the agencies involved be very mindful of, you know, the types of investments that we're making on the sort of air quality regulatory side, and the types of investments we're making on the transportation infrastructure side and who participates in those processes, because I think that's very important to the implementation of this plan, not only, you know, this process of talking about the plan, but then ultimately the projects that are funded and implemented and who benefits or is burdened by those investments.

So I think, you know, from the bicycle perspective, there's certainly a direct role that bicycles can play in the freight sector in providing short trips in cities, the sort of short haul connections. And I know there was a pilot project around cargo bicycles. We would love to see that move forward in the future, but we're also very interested in the larger community aspects, not just air quality, but also the safety issues that -- the safety issues that the trucking and freight burden on low-income communities of color. That's another big issue.

And I think, you know, the last comment I want to make and concern that I have, and I think Bill Magavern alluded to it as well, but the transportation
infrastructure, the freight corridors are not just for freight, but they are also for single occupancy vehicles, many of them. I mean, whether we're traveling on highways and freeways, those are single-occupancy vehicle infrastructure as well.

And so where we may be talking about alleviating congestion to benefit the freight sector and move trucks through and improve the efficiency of the freight sector in those places, we will also be inviting more driving. And so being mindful of how we're potentially allowing for an increase in vehicle miles traveled, and how that will run counter to some of the other State goals that we have is very important to me.

So thank you very much.

CHAIR NICHOLS: Just a question. Are you -- and you -- this would be a perfectly reasonable thing to do, but are you advocating for segregated freight corridors then, or is that not an issue? I mean, you're just assuming that any time there's more freight, there's also --

MS. WARD-WALLER: I think that's one option. I think another option is potential mitigation that gets more of the single-occupancy vehicles off the road and gives people other options, transit, bike and walk types of facilities could alleviate congestion without having to
actually add lanes or separate freight corridors. So I think we have options there.

Thank you.

CHAIR NICHOLS: Thanks. Last speaker.

MR. SCHUPARRA: Madam Chair, members, Kurt Schuparra on behalf of the Cal-bio Dairy Cluster down in Kern County, which is, of course, one of your pilot projects. And we're glad your -- that we're one of the pilot projects. We've had some of your staff come down and tour the facility. And I think that went well, and there's no -- nothing like seeing for yourself what -- you know, what's happening on the ground.

And I know a lot of time has been put in on the Sustainable Freight Plan. I remember talking with Cynthia Marvin about it back when I was a member of the Brown Administration, and that was a number of years ago. And so it's been a long time in the making. And like fine wine, you know, it needs to age a little bit. And, you know, you'll have time to ponder your options, and now, you know, you're setting forth.

I also want to just say that I appreciated -- we appreciated your comments Madam Chair before I think it was the Senate Environmental Quality Committee back in February about the potential for biomethane. And it's obviously, as you noted, going to require a lot of
investment. But we think that the return on that investment is really great. And I think that there's been recent analyses by both the Department of Finance and the Legislative Analysts that shows the bang for the buck, so to speak, for GHG reductions and other benefits is really good.

So I just wanted to say that Cal-bio strongly supports your plan, and we look forward working with you and other stakeholders as we try to -- you know, when the rubber hits the road, so to speak.

Thank you.

CHAIR NICHOLS: Thank you. Okay. That concludes our list. I understand that the webcasting system has been up and working now for, I don't know, at least 10 or 15 minutes. So hopefully people were able to catch much of this.

And now, I'll turn to the Board for comments.

Mr. Gioia.

BOARD MEMBER GIOIA: Thanks to the staff and of all the agencies and the public who have participated in this process. It's very important, and it's complex. It's complicated, but I think we're getting there.

And I just want to say, as someone who lives, works, and represents a community that is a freight hub in the Richmond area with port and rail, there -- I see
there's' is the opportunity to prioritize projects that will benefit those highly impacted communities.

So I wanted to offer also a suggestion. I'm glad to see that one of the guiding principles, which is on page eight is reduce or eliminate adverse community impacts, including air pollution, emissions of particulate matter and so forth, especially for communities disproportionately affected by major freight corridors and facilities.

However, I don't see that guiding principle reflected in the potential criteria for consideration, which is on pages 14 and 15 of the draft. So there's eight criteria. The last one -- the last criteria, investing in sustainable communities, I think should be expanded or could be separate to investing in highly impacted communities.

So taking the guiding principle that you have on page eight and turning it also into a criteria for consideration, because, I mean, clearly, it's -- while it's discussed throughout the draft, it's not listed as a very specific criteria.

I agree that all these other criteria are great, including investing in sustainable communities, which are communities that have adopted those strategies to provide for higher levels of environmental benefits. So I think
you can expand that category, again, however it's done most effectively to include the highly impacted communities. That's going to be my suggestion on this draft, which I think, you know, addresses a lot of issues. However, clearly having greater quantifiable goals, I think, is also really important in making those goals as aggressive as possible is always helpful. So those are my sort of brief comments right now.

CHAIR NICHOLS: Very good.

Any other specific comments at this point?

Obviously, this is going to be out for a while longer, and board members are also welcome to submit comments just like anybody else, if they want to.

(Laughter.)

CHAIR NICHOLS: Ms. Mitchell.

BOARD MEMBER MITCHELL: Thank you.

Thank you to staff for all the work on this and for the collaboration with the other agencies, which is much needed. So, I think, one of my first concerns is funding, "Show me the money". But there isn't enough money. I think we need to keep working on funding sources. We're going to see an end to Prop 1B. I mean, that's the end of this year. And what is going to replace that?

That money has been very useful in providing
money to our trade corridors. And I think we need to work on that to find replacement for that for the loss of those funds. I don't know where it is, but I think we've got some good State agencies here involved in the Governor's office, and we should be putting our heads together to think about that.

I think somebody mentioned that we should be careful that we are tying the infrastructure that we're building and the planning to emission reductions. One thing about the money is that it isn't really targeted so much toward air quality improvement. And so I think that's something we need to be looking at. What money is going to go to the actual air quality improvements. I mean, we have a good plan here to go to zero and near zero, but let's look at the infrastructure, how it can tie to emission reductions, and where we get the money to do that.

One of the things that's mentioned in here is the I-710. And it's been, you know, a project -- it's under review now for expansion. And it' been a project that I've been very interested in since it's in South Coast, and it is the major trade route from the ports to the downtown area of L.A., and then to the east across the Rockies and to the rest of the United States.

A lot of that goes by train, but an awful lot of
it goes by truck. And I-710 is now under consideration for expansion. One of the alternatives includes a dedicated freight corridor. And I know many of our stakeholders here, the EJ community, are very interested in that. That has been the community's preferred alternative for this project. And community involvement is really key, I think, to the EJ -- addressing the EJ issues.

It presents an opportunity now that I think if we don't take advantage of it, we will sorely regret in the future that we've lost it. We are on the cusp of some very innovative technologies that get us to zero and near zero. And if we have a dedicated freight corridor, we can provide that only clean vehicles are allowed to use that. And that will promote the marketing of clean vehicles.

You can do that through operational mechanisms, until we get to zero. But in the South Coast, we now have a pilot project that is Wayside Power, and we recognize that the truck trips from the port to the intermodal yards can be 5,000 truck tips a day. And that's right in the heart of the EJ communities, in Wilmington and some of the areas that you've heard from our stakeholders here today.

So this pilot project is focused on Wayside Power for that distance, for that -- and it's a relatively short distant, bus it's a start, but dedicated freight lanes can
get you even further.

So, you know, some of this is a little -- maybe a little bit futuristic, but I think it's on -- it's on our plates. It's here in front of us.

Yesterday, we heard from -- some of us were at the MECA presentations. What was interesting about that was that there are now retrofits for diesel trucks that get us close to 0.02 NOx -- 0.02 NOx. We know that we have a certified CNG engine, but we're going to see that happening in diesel trucks as well. So we're getting very close to those near-zero emission vehicles. And so the plan that provides for that is a step -- a good step forward.

One of our commenters commented about the mission statement and it didn't -- it doesn't include communities. I think that was a very good point, because it includes industry stakeholders, but some of the more -- most important stakeholders are community stakeholders, the people that are living in the areas that are impacted by freight movement.

So I would encourage that we take a look at that. I wondered about the comment that was made that this plan targets 100,000 zero emission vehicles, whereas our mobile source strategy targets 900,000. Maybe staff could respond on that and why we see that discrepancy?
TRANSPORTATION AND TOXICS DIVISION CHIEF MARVIN:

So this plan is really focused on all of the air quality goals, including the localized health risk reduction. But the 100,000 zero emission vehicles and equipment is based on a ground-up, where do we think we're going to be with existing regs, with the roll-outs of technologies based where they -- based on where they are today, what is a aggressive but attainable goal for 2030?

And I believe the goal was expressed as at least 100,000 vehicles and equipment capable of zero emission operation. So we would certainly like to reach and surpass that, which is also complementary with the emphasis in the SIP and the mobile source strategy on the low NOx investments to try to get us to the criteria pollutant targets as efficiently as possible.

BOARD MEMBER MITCHELL: I would say that's a very conservative estimate. And I say that, because when you're talking about vehicles in the ports, we are talking about all kinds of vehicles, the yard hustlers -- there are many kinds of vehicles that would be used in port operations. So I would just, you know, maybe take another look at that.

We know from the Long Beach container terminal, which is all electric now, everything, the cranes, everything on that terminal is all electric. That may be
an example to kind of look at and see is the 100,000 the
right target?

Thank you.

CHAIR NICHOLS: Dr. Balmes.

BOARD MEMBER BALMES: Well, again, I want to
thank the staff and all the many stakeholder partners that
have worked with staff on the genesis of the plan that we
have so far. And I wanted to follow Ms. Mitchell, because
I agree with her on several points just to reiterate, and
I'll be quick.

So I think it was the Union of Concerned
Scientists which said sustainability doesn't equal equity.
And I really like that point. And so I think that should
be one of the driving -- one of the drivers of our work on
the Sustainable Freight Action Plan.

And sort of in follow of that, I would say that I
very much support the concept of a facility cap for
freight hubs. I think that's a way to protect the
surrounding communities. I realize the devil is in the
details and probably some of the folks in management would
shutter at that concept. But I think it's an important
one to consider. You know, we have a cap for greenhouse
gases for the State. The idea of caps can be very
effective at controlling emissions.

And I just want to reiterate what everybody in
the room knows, the investment required to move this
action plan forward is huge. And, you know, I think we
need to be a voice within the State to -- within the State
administration to make clear to both executive leadership
and the legislature that there has to be money behind
moving forward, whether to make the system efficient or to
make it more helpful, in terms of its impacts on the
population.

And I thought Ms. Mitchell's point about Prop 1B
is a good one. You know, we -- I personally think we need
another type of funding mechanism like that to move
forward to really make a difference here.

CHAIR NICHOLS: Now, Ms. Takvorian.

BOARD MEMBER TAKVORIAN: Thank you very much. I
would add my thanks to everyone who has collaborated so
wonderfully in this process. It's critical and it's
really great to see that.

I want to add my voice, I guess, to the many that
have been here today to say that there's really no
comparison in terms of the freight impacts and their
impacts on disadvantaged communities. The impacts are
more than disproportionate. The impacts are almost solely
on environmental justice communities, and so it is our job
to really pay attention to this and to take critical and
ambitious and aggressive action, because these communities
are really overwhelmed in so many ways by the freight operations in their communities from an air quality perspective as well as from a total quality of life perspective.

Huge, huge operations that really change people's lives. So I really appreciate the many good things in the action plan. The emphasis on some of the disproportionate impacts, including the new regulations, the emphasis on freight hubs I think is a welcome change. And the freight handbook we think is something that can be really well used in local communities.

In terms of improvement areas, I think that I would agree with the multiple comments that have been made today that public participation is critical and really should be expanded. And that any permit streamlining that we would appreciate that in terms of advancing the technologies and getting them into operation. But if it dilutes public participation, then we can't move that forward. Public participation really needs to be upped and expanded.

I also want to say that there has to -- I think we have to keep our eyes on the prize in terms of zero emissions. Near zero doesn't work. And if you're looking at a community that's impacted from multiple sources, near zero adds up to a lot, and nowhere near zero, when you
have communities that are impacted from multiple sources. So zero emissions has to be the goal. We have to keep our eyes on that, and not create technologies, and operations that are dependent on near-zero technologies only to then want to shift. I think it's important for the industry development, as well as for community health.

I would also say that I hope that we can add an explicit goal to eliminate freight pollution hot spots. These actions have to emphasize the most impacted communities in the inclusion of incentives and the enforcement of the existing regulations.

A way to do that would be consistency with existing community plans that are in place in many local communities. And I hope that we can add that the project criteria should be developed to evaluate the impact of freight projects in EJ communities, including the positive and negative impacts, such as displacement, which I didn't see referenced in the plan.

We could also include development of mitigation measure concepts that could be considered with the plan, if there are approvals that include increased impacts.

In terms of enforceable standards for freight hubs, we hope that these are only included as if -- if they're cited that they have to be cited properly, and I am thinking about the land-use handbook of long ago, and
hoping that there are distance -- in the freight handbook, that there are distance requirements, that there's clear criteria and clear explanation of what, if any, appropriate siting criteria might be in a community, and that it's quite explicit in that way.

And then -- I think with that, I'll stop there.

Thank you.

CHAIR NICHOLS: Okay. Thanks. Obviously, we're not taking a vote on anything today, but I want to make sure that Board members have an opportunity to express concerns and/or questions and give any additional guidance to the staff.

Yes. Dr. Sherriffs.

BOARD MEMBER SHERIFFS: Thank. And as many have said, thanks to the staff. You know, as the public comments, in fact, they've been looking for ways to strengthen the product. So I think that's a great testament to the work that's been done in terms of public outreach and involvement of stakeholders.

Obviously, this is one of the more complicated things that this Board has taken on. Lots of moving pieces. Lots of agencies. A couple of specifics. The 100,000 number has been discussed. And I would just offer I think I heard a number. We have 15,000 in operation today. Fifteen years, 100,000, that doesn't seem very
aspirational and this is a very aspirational group and industry and stakeholders. That seems like a very modest number. So I want to -- I want in the subsequent plan thinking, are we talking a more difficult class of vehicles of -- and maybe we should be thinking not just numbers, but what kind of emissions does that six times number represent.

There's been a focus on the 710 and the Otay corridors, which I think is very appropriate for many reasons. Their standing is kind of a proxy and what are we going to learn for other transportation corridors? I'm not sure how those will apply or what lessons we will have for 99 and 5 for the issues that we face in the valley. So I think it might be worth thinking in the plan a little bit more about what are we expecting to learn. Is this really scalable?

And I suspect we're probably thinking more in terms of those corridors that so affect the valley, 99 and 5. Well, this is very dependent on the federal partnership, in terms of mileage standards, in terms of getting that low NOx standard for trucks, and, you know, thinking more about a timeline. If they don't do it, when are we going to do it, and who are the partners at the State level that we're going to have to be sure are ready to act on that, if we don't have action at the Federal
level, because that will be critical.

It's been mentioned thinking about fleet turnover. And obviously, the money is going to be very important in terms of how to promote fleet turnover and move that forward.

Yeah, short term, long term, you know, once again it's about health. And the short term is so important, because we are talking about thousands of premature deaths in the State every year and hundreds in the Central Valley. So I salute the work everyone has been doing on this

CHAIR NICHOLS: Thanks. Anybody else?

Let me just maybe make a couple of concluding comments then. I think this discussion, as well as the testimony, really underscores the ambition that it has taken to get this project launched, and the difficulties that we have faced and overcome, but the fact that there are still many more in just reconciling our various different goals around this one extremely important economic sector for the State of California.

Freight is, as by various estimates, responsible for a third of the economy of the State of California, some maybe a little more, a little bit less, taking in all levels of government and many other industries are dependent on its success.
So we're tackling something very large here. ARB is in this, because we have to be, because there's no other way to get a handle on the emissions that are of concern to us. The other agencies of State government are in it because they know that our environmental goals can be implemented in ways that are helpful or can be detrimental to their goals as well. And to be perfectly blunt about it, you know, the ARB has regulatory authority, but it's subject obviously to political oversight.

Other agencies have money, not as much as they want, but a lot more than we do, which they spend on a regular basis for projects that relate to freight. And the fact that they are now at the table and we're talking about ways in which they can do that in support of environmental goals is a huge step forward.

There are a lot of different -- at least there are multiple definitions of sustainability that exist out there. But I was brought to believe that it's a 3E definition, which means environment, economy, and equity. And that you don't have sustainability without all three of those.

And if we haven't been explicit enough about that in our discussions in this draft, we need to make sure that we insert that, because I think that will help with a
lot of the other issues that we're facing, in terms of balancing the impacts on local communities and the role that they have played, both as resources for land and other natural resources that are being utilized in our freight system, and as places where the impacts have been the greatest. So we, I think, need to be more explicit about how that factors into what it is that we're doing. And I think the only other thing I would add is that it's obvious that State, federal, local, and private sector resources are all going to have to be brought to bear in implementing a plan with the kind of ambition that we're talking about here. So the process that we're in the middle of now, or really at the front end of now, does represent the best hope that we have for being able to mobilize those kinds of resources I think.

And I'm very hopeful, based on the comments that we've heard here today, that even though there are still many concerns that people would like to see more -- better -- would like to see better addressed, coming from all stakeholders in the process, that the amount of support that we have heard here today for the draft and for the process that we're undertaking is very heartening.

So I just want to also echo the thanks to the staff and to all the people who have taken the time to come here today, and share their thoughts with us, and
So thank you all very much. I think we will now recess for a lunch break, and we'll be back. Can we do this at 1:00 o'clock with 40 minutes for a lunch break. We don't have an executive session today. So let's try to be back here at 1:00 o'clock then for the next item, the short-lived climate pollutant plan.

Thank you.

(Off record: 12:18 p.m.)

(Thereupon a lunch break was taken.)
VICE CHAIR BERG: Good afternoon. I'd like to call us back to order. Sandy Berg, your Vice Chair. Mary Nichols had a conflict the rest of the afternoon, So I'll be closing up the meeting today.

Our last item on our agenda today is a presentation of the proposed short-lived climate pollutant reduction strategies. The super pollutants, as they're called, are heat trappings and many times the level of carbon dioxide, but they also tend to have a shorter lifetime in the Atmosphere ranging from a few days or weeks to a few decades. They include methane, black carbon, and fluorinated gases, including hydrofluorocarbons, or HFCs.

Senate Bill 605 requires ARB to develop a strategy to reduce these emissions of these powerful Pollutants. Actions to reduce emissions of the short-lived climate pollutants will not only help the State combat our climate change, but will also improve our air quality and reduce related health risks, hospitalizations, and medical expenses.

Governor Brown emphasized the need for addressing these pollutants by making their reduction over the next decade one of the five pillars of the State's 2030 climate
program development. He also included 215 million in his proposed 2016-2017 budget to support a range of immediate actions to reduce emissions of these pollutants.

A draft of the strategy was released for public comment in September of 2015, and a revised proposal was released last month.

I want to note that the Board will not be taking action on this item today. This is the first of two hearings. But today, we will hear the presentation and hear testimony, and then be able to give staff direction.

EXECUTIVE OFFICER COREY: Yes. Thanks, Vice Chair Berg. So as you mentioned, SB 605 requires ARB to develop a strategy to reduce short-lived climate pollutant emissions in California. And ARB staff developed a proposed strategy pursuant to SB 605 in coordination with other State agencies and local air districts.

Today, staff's presentation will provide an overview of the short-lived climate pollutant reduction strategy. As examples, HFCs, hydrofluorocarbons, are the fastest growing source of GHG emissions, both globally and in California. Similarly, current projections indicate methane emissions will not decline in the absence of successful control measures. If the ARB does not take near-term action to stop short-lived climate pollutant
emissions growth, it will be increasingly difficult to maintain and continue the 2020 greenhouse gas emission reduction goal required in AB 32.

Staff released a draft of the short-lived climate pollutant reduction strategy for public comment last September. After considering comments received, staff released a revised proposal in April and held three workshops to receive public comments on the report.

We intend to present a final proposed short-lived climate pollutant strategy to the Board for approval later this year.

I'll now ask Marcelle Surovik of the Industrial Strategies Division to begin the staff present.

Marcelle.

(Thereupon an overhead presentation was presented as follows.)

AIR POLLUTION SPECIALIST SUROVIK: Thank you, Mr. Corey. And good afternoon, Vice Chair Berg and Board members.

In today's presentation, I will provide an overview of the proposed short-lived climate pollutant reduction strategy.

---o0o---

AIR POLLUTION SPECIALIST SUROVIK: First, I will provide some background information on short-lived climate
pollutants or SLCPs. SLCPs are both powerful climate forcers and harmful air pollutants. They contribute to regional ozone and PM2.5. They have lifetimes of days to a few decades and their global warming potential can be tens to thousands of times greater than carbon dioxide. They are responsible for about 40 percent of current global warming.

Short-lived climate pollutants include black carbon, a component of fine particulate matter, methane, and fluorinated gases, including hydrofluorocarbons or HFCs.

Strong immediate action now to reduce both CO2 and SLCPs is critical to keep average global warming below two Degrees Celsius this century. Actions to reduce SLCP emissions can provide a wide array of climate, health, and economic benefits throughout the State.

As the Governor indicated at the United Nations Climate Summit in Paris last December, addressing SLCP emissions is the most immediate challenge and the most important thing to do in the near term to combat climate change.

--o0o--

AIR POLLUTION SPECIALIST SUROVIK: Over the past several decades, California's actions to improve air quality, fight climate change, and protect public health
have resulted in significant SLCP emission reductions. California has cut anthropogenic sources of black carbon emission by more than 90 percent since the 1960s. From 2000 to 2020, California will have cut black carbon from mobile sources by 75 percent primarily through the State's diesel engine and fuel regulations.

If the world replicated this success, it would slow global warming by an estimated 15 percent. California has the nation's strongest standards for limiting methane emissions from landfills. It has offset protocols under its cap-and-trade program to encourage the reduction of methane emissions, and rules under development to limit methane leaks from oil and gas production, processing, and storage, and from the natural gas pipeline system. Altogether, these measures are keeping methane emissions from rising in California.

The State has HFC regulations in place to reduce emissions from refrigerants, motor vehicle air conditioning, and consumer products that together will cut these emissions by 25 percent in 2020. And California's actions have been adopted at the national level.

But there's opportunity for further reductions in the State, as well as globally through information sharing.

--o0o--
AIR POLLUTION SPECIALIST SUROVIK: Developing a short-lived climate pollutant strategy was a recommended action in the 2014 scoping plan update. SLCP emissions both impede progress towards climate stabilization and would put continuing pleasure on the statewide GHG emission limit without further controls. Reducing emissions of these powerful pollutants is an important part of fulfilling ARB's AB 32 mandate to maintain and continue GHG reductions.

In the fall of 2014, Senate Bill 605, by Senator Lara, was signed by the Governor requiring ARB to develop a strategy, in coordination with other State agencies and the local air districts, to further reduce SLCPs in the State.

In addition, reducing SLCP emissions is one of the Governor's pillars that altogether would reduce GHG emissions in California to 40 percent below 1990 levels by 2030.

Staff released a concept in May 2015 and a draft SLCP strategy in September 2015. Last month, staff released the proposed SLCP strategy for public comment.

--o0o--

AIR POLLUTION SPECIALIST SUROVIK: The proposed strategy was developed in an open and public process. The process included extensive stakeholder outreach,
coordination with CAPCOA, the air districts, and other State agencies, consultation with the Environmental Justice Advisory Committee, as I will discuss further in the next slide, seven public workshops, and hundreds of letters received providing input on the strategy.

--o0o--

AIR POLLUTION SPECIALIST SUROVIK: The EJAC has had an important role in the development of the SLCP strategy. As a reminder, the EJAC was established per AB 32 to advise the Board in developing the scoping plan and any other pertinent matter in implementing AB 32.

Staff provided an overview of the draft strategy at the December EJAC meeting, and held a deep-dive session in March. In April, the EJAC provided recommendations, a number of which were incorporated.

In addition, several EJAC members participated in the regional public workshops held earlier this month on the proposed strategy. Staff will continue to solicit input from the EJAC as we prepare the final SLCP strategy.

--o0o--

AIR POLLUTION SPECIALIST SUROVIK: The proposed strategy sets strong targets for SLCP emission reductions. Targets are proposed that would reduce black carbon emissions by 50 percent by 2030 and methane and HFC emissions by 40 percent by 2030. The targets are
translated into million metric tons of CO2 equivalent using 20 year GWP, which is an appropriate metric for evaluating emission reduction measures for these short-lived pollutants.

These targets are in line with the Governor's goal to reduce overall GHG emissions by 40 percent below 1990 levels by 2030. And with what the science is telling us is needed globally to limit warming below two degrees Celsius through at least 2050.

Altogether reaching these targets will provide 94 million metric tons of emission reductions annually by 2030. Using 20 year accounting, these reductions are about the same as what we are getting under AB 32. This year, Senator Lara, introduced a bill, SB 1383, which would codify the targets identified in the proposed strategy.

--o0o--

AIR POLLUTION SPECIALIST SUROVIK: As this slide shows, black carbon emissions are going down between now and 2030, primarily from mobile sources, but more can be done. As black carbon emissions decrease, residential fireplaces represent a bigger share of the inventory. Off-road mobile sources will continue to represent a significant share as well.

--o0o--
AIR POLLUTION SPECIALIST SUROVIK: As I mentioned earlier, ARB has a long history of significantly reducing PM and thus black carbon emissions. This slide highlights air district and ARB programs that are helping the State achieve deep particulate matter and black carbon emission reductions. These efforts are providing significant health benefits preventing an estimated 5,000 premature deaths in the State each year.

--o0o--

AIR POLLUTION SPECIALIST SUROVIK: For additional black carbon reductions, we are focusing on incentive programs to replace would-burning fireplaces and stoves with U.S. EPA certified stoves or gas fireplaces. Multiple air districts have invested in incentive programs, but additional funding is necessary for further emission reductions.

To support this effort, the Governor's proposed budget includes 40 million of cap-and-trade proceeds for wood stove replacements. Beyond the wood stove measure, the State will realize additional black carbon reductions from other planning activities under way to meet air quality and GHG goals. These include the California Sustainable Freight Action Plan, which you just heard about, State implementation plans, and the scoping plan update.
AIR POLLUTION SPECIALIST SUROVIK: The black carbon target does not include forest-related sources. In a given year, wildfires can make up two-thirds of the State's black carbon emissions. However, these emissions vary from year to year and include significant uncertainty.

Wildfire risk, and thus black carbon emissions, can be reduced by thinning over stocked forests and improving forest health. However, black carbon is only one element of the State's forest policy. A holistic approach is needed.

The U.S. Forest Service has established a restoration goal of 500,000 acres per year in the State, including fuels reduction. The forest Climate Action Team has proposed a goal to match this restoration target for non-federal forest lands. Meeting this target will require significant investments. The Governor's proposed budget includes 150 million to support healthy forests and resiliency programs.

These investments and others could support market development of beneficial uses of woody waste. Forest planning goals and targets will be integrated among the SLCP, the scoping plan update, and the State's forest carbon plan.
AIR POLLUTION SPECIALIST SUROVIK: Methane emissions in the State are projected to stay relatively constant between now and 2030. Nearly, half the emissions come from dairy operations, specifically from managing manure and from enteric emissions, cow burps. Another 20 percent of emissions come from landfills. The oil and gas sector makes up roughly 15 percent of the statewide emissions. California's organic waste streams are responsible for half the State's methane emissions, and represent a valuable energy and soil enhancement resource. In order to capture the entire potential value for this waste resource, significant amount of infrastructure must be built and markets must be developed.

In addition, barriers must be removed to putting this waste to beneficial use. These include siting of new facilities, interconnection to the pipeline or grid, and funding mechanisms. The next few slides are specific to waste related sources.

AIR POLLUTION SPECIALIST SUROVIK: The proposed strategy sets methane reduction targets for the dairy industry. Reducing GHG emissions from the dairy sector has been part of ARB's planning efforts beginning with the
2008 scoping plan.

The 2014 scoping plan update included an action to develop recommendations for a dairy methane capture standard by 2016. The strategy includes targets for reducing methane from manure management practices, by 20 percent by 2020, 50 percent by 2025, and 75 percent by 2030. Using a 20 year GWP, the emission reductions expected from meeting the 75 percent target are the same magnitude as from the full implementation of individual AB 32 programs, such as the Low Carbon Fuel Standard.

We are proposing to set a 25 percent enteric methane reduction target by 2030 for California. This aligns with the voluntary national goal and with some promising research on fee additives.

More research is needed on the viability of strategies to reduce enteric emissions and the impacts on animal production -- animal production, animal and human health, and the environment. We will continue to monitor research and work with academia, industry, and other stakeholders to evaluate enteric measures.

Overall, these programs will provide methane emissions -- will reduce methane emissions from dairies by about 50 percent by 2030.

--o0o--

AIR POLLUTION SPECIALIST SUROVIK: Meeting the 75
percent manure methane target would require significant investments in infrastructure, or new management practices. The Governor's proposed budget includes 35 million to support dairy digester development and 20 million for healthy soils. Research is needed to better understand GHG emission impacts and co-benefits from alternative manure management practices.

We are proposing to establish a work group with CDFA, industry, and other stakeholders to address barriers, such as financing to getting alternative manure management practices in place at California's dairies. We also intend to begin a regulatory process next year to ensure that significant emission reductions are achieved in the sector.

The regulation will be developed in a public process where we will work with stakeholders in developing measure details and compliance timelines. Our preliminary analysis indicates that achieving these reductions in the dairy sector will be relatively cost effective. We intend to refine our estimates through the regulatory process.

--o0o--

AIR POLLUTION SPECIALIST SUROVIK: For landfills, we're proposing to develop a regulation with CalRecycle by 2018 that would virtually eliminate organics disposal in landfills by 2025. This measure builds on the 2014
Scoping Plan Update which included recommended actions by
2016 to phase out landfilling of organic materials.

This goal would include -- this measure would
include goals for recovering organic materials through
local food waste prevention and rescue programs,
specifically 10 percent by 2020 and 20 percent by 2025.

It's been estimated that 40 percent of all food in the
country is wasted. Food rescue programs can intercept
unwanted food before it becomes waste and feed it to
hungry people, reducing food insecurity.

Diverting organics would require continuing to
build infrastructure to compost or digest organic waste
that is not addressed in food rescue and recovery
programs. The Governor's proposed budget includes 100
million in cap-and-trade proceeds for waste diversion,
including 60 million to support organics infrastructure
costs and 10 million for food rescue and prevention
programs.

--o0o--

AIR POLLUTION SPECIALIST SUROVIK: Many municipal
wastewater treatment facilities in the State have
anaerobic digesters. Organics, including food waste,
could be diverted to the digesters that have excess
capacity. These facilities may have the potential of
taking 75 percent of food waste that is landfilled.
Co-digesting organic waste at these facilities could create useful byproducts, such as renewable fuel and energy, and soil amendments. We will continue to explore opportunities for co-digestion at existing facilities. Together, the measures for the wastewater treatment plants, dairies, and landfills provide a holistic approach to putting waste to beneficial use. These sectors share common barriers to beneficial uses, as I mentioned earlier, that will be addressed through regulatory processes in sector workgroups.

--o0o--

AIR POLLUTION SPECIALIST SUROVIK: In the oil and gas sector, ARB is currently developing a rulemaking to reduce fugitive and venting emissions from oil and gas production, processing, and storage.

Last week, you U.S. EPA released final rules setting standards to reduce methane and other air pollutants in the oil and natural gas industry. ARB's rule is similar in scope to the EPA rule but goes much farther by addressing existing sources.

The California Public Utilities Commission will develop a rulemaking by 2017, in consultation with ARB, to minimize methane leaks from the natural gas pipeline system per SB 1371.

These measures create a comprehensive approach in
California to addressing methane emissions in this sector. Coupled with improved monitoring of methane leaks in the State, as required by AB 1496, they will help meet the President's goal of cutting methane emissions from this sector by 40 to 45 percent by 2025.

--o0o--

AIR POLLUTION SPECIALIST SUROVIK:

Hydrofluorocarbons, or HFCs, are the fastest growing source of GHG emissions both globally and in California.

HFCs include ozone depleting substances, or ODS, that are being phased out under the Montreal Protocol. HFC emissions are expected to increase 60 percent by 2030 as they replace ODS. The majority of HFC emissions come from commercial refrigeration systems.

--o0o--

AIR POLLUTION SPECIALIST SUROVIK: It is widely accepted that the best way to address HFC emissions is a global phase down of their production and use through international agreement.

If no international HFC supply phase down agreement is reached under the Montreal Protocol in 2016, California may develop its own phase down, as several other jurisdictions have done (such as the EU) or plan to
do (such as Canada).

In order to accelerate early reductions of HFC before a global or a State phase down, we're proposing to set GWP limits and bans where alternative low GWP refrigerants are available.

Specifically, by 2020, we are proposing prohibiting the sale of new very high GWP refrigerants for existing systems and the use of high GWP refrigerants in new equipment.

--o0o--

AIR POLLUTION SPECIALIST SUROVIK: Implementing incentive programs now for low GWP refrigeration can provide immediate and ongoing emission reductions.

The Governor's proposed budget includes 20 million in cap-and-trade proceeds to offset the cost of installing new low GWP refrigeration.

This program would focus on incentives for grocery store refrigeration systems in disadvantaged communities and could have energy efficiency benefits as well.

--o0o--

AIR POLLUTION SPECIALIST SUROVIK: Staff performed an economic analysis of the major measures in the strategy. These include converting residential wood stoves, changing manure management practices, diverting
organic waste from landfills to compost and digester facilities, ARB's oil and gas regulations, and replacing high GWP refrigerants with low GWP alternatives.

---o0o---

AIR POLLUTION SPECIALIST SUROVIK: The analysis included direct cost of the measures, such as new infrastructure costs at dairies and costs for new compost and digester facilities.

It also included direct benefits, such as cost savings from more efficient alternative refrigerants and revenue from marketable products such as renewable fuels.

The analysis did not quantify benefits based on social cost of carbon, reduced air pollution, or reduction in petroleum dependence. As a result, our analysis does not monetize the potential full benefits of the strategy. These benefits will be explored in subsequent rulemakings to implement the proposed measures.

The available suite of emission-reduction options for the waste sector will require significant up-front infrastructure investments and reliable funding mechanisms. The reductions these investments will support are possibly among the most cost effective out there, particularly if renewable methane is used for transportation fuel and generate LCFS and federal Renewable Fuel Standard credits.
The SLCP measures will be included in the macroeconomic analysis of the 2030 Target Scoping Plan Update.

--o0o--

AIR POLLUTION SPECIALIST SUROVIK: SLCP emissions contribute to both ozone and PM2.5. Taking a holistic approach to reducing SLCP emissions can provide systemwide air quality and water quality benefits, especially in disadvantaged communities.

For example, converting wood stoves can reduce local PM emissions and build on important air quality and public health benefits.

Capturing methane and converting it to renewable fuels can displace diesel fuel use and improve air quality.

Changing manure management practices from systems that use water to flush manure from barns to dry scrape systems could help to improve nutrient management and water quality.

Diverting organics from landfills can reduce the need for building new or expanding existing landfills.

And food rescue and recovery could provide communities with better access to healthy foods and reduce food insecurity.

--o0o--
AIR POLLUTION SPECIALIST SUROVIK: A Draft Environmental Analysis was completed for the Proposed Strategy.

Staff determined that the actions in the Proposed Strategy may have potentially significant impacts to some resource areas. However, these impacts are mainly due to short-term construction-related activities.

Staff is committed to working with other State and local agencies to ensure that any steps taken pursuant to the Proposed Strategy avoid environmental tradeoffs and maximize potential environmental benefits.

A Draft EA was released for a 45-day comment period, which will end on May 26th.

Staff will prepare written responses to all Draft EA comments received.

--o0o--

AIR POLLUTION SPECIALIST SUROVIK: On to our next steps.

The comment period on the Draft EA and the Proposed Strategy ends next week.

Next month, ARB, the California Energy Commission, and the California Public Utilities Commission will hold a joint agency symposium on methane emissions from California's natural gas system. The symposium will help inform several State programs and efforts involving
methane.

Staff will submit the final SLCP strategy, written responses to comments received on the Draft EA, and the Final EA for Board consideration this fall.

The SLCP reduction strategy will be integrated into the 2030 target scoping plan that is currently underdevelopment.

This concludes my presentation.

We have representatives from CDFA, Natural Resources Agency, and CalRecycle who would like to make comments. These include Secretary Ross from CDFA, Howard Levenson from CalRecycle, and Russ Henly from Natural Resources Agency.

CDFA SECRETARY ROSS: Karen Ross, and I'm Secretary of the California Department of Food & Agriculture.

And first I have to offer an apology. Our science advisor, Dr. Kunisecera, and Deputy Secretary Jenny Lester-Moffitt, who is the policy lead for all of these subjects, are out of town today, so you're stuck with me. So I'll do my best. I'll be brief. But trust me, this will be a very high level overview.

My main reason for eagerly accepting the invitation is because, first, I wanted to acknowledge the really extensive outreach and great collaboration and
communication that we have with your staff. It is just one of the best relationships we have across all of government. And this administration in particular has a hallmark for doing cross-agency collaboration. Obviously that's going to be necessary for us to be successful in all of the big challenges that we're facing. So I wanted you to know that that's been a very positive relationship and we want to do our part to continue that.

I did also want to provide just a little bit of context. I'm going to speak specifically to the methane issues and all of the work for dairy.

Dairy in this State, like many other crops and good food products that we produce, is the largest in all of the country. We've been able to do that because we have such a marvelous climate that allows us to do the kinds of things that we do as efficiently as we do. And that's really a key part of what has made dairy so successful in the State of California.

We have been leaders in helping to move the efficient productivity of our cows from 4,000 pounds back in 1900 to 23,000 pounds per cow today. And a lot of that is because of the technology and the innovation that has happened here in California. We want to continue doing that, but I also think it's important to put into context where our dairy sector is.
We have gone through over 20 years of significant growth in the Cal population because of demand driving that, because of large scale processing being here in this State. But the dairy industry has changed a lot. When we started to grow our dairy sector, most of the milk was consumed right here within our State's borders as liquid milk. Well, sales of milk continue to do this; but cheese and butter and specialty powers for protein, and yogurt of course, have all grown tremendously. So the outlook for dairy in the long term is very, very good.

But here in this State, our dairy producers have lost 32 percent in what the value of their milk is in the last two years. Now, 2014 was a record-breaking year. 2015 was a record-breaking year in the opposite direction. That's a significant drop in prices. And, in fact, because of the global situation and having too much milk in certain continents as well as states east of here that will go nameless, we're really suffering right now and we expect it to take at least through the end of this year and into next year before we get that demand and supply picture back into place.

We do -- and we're strong supporters, and Chair Nichols and I have talked frequently about this exciting opportunity that's being presented to us, to really transform our economy by converting waste to energy and
especially waste to low carbon transportation fuels. But that will not come easily and it will not come cheaply.

In this State we have had a real challenge -- although we have almost 2 million cows - and that cow number is declining - it has been a real challenge to get digester technology on to the farms. When I got here in 2011, I co-chaired a State/federal work group to really look at what are the barriers to having more digester technology in the State.

For the record, right now we have 13 digesters. States like Wisconsin have hundreds of digesters.

So we looked at technical barriers, we looked at regulatory barriers, and we looked at economic and financial barriers. And out of that three-year process to map out everything and to identify where the challenges are, I'm happy to say we're poised to help on the regulatory barriers part.

We now have at EPA a consolidated permit review process that should help this.

But we still need to be sending the market signals to get the developers who have the technical expertise to come to California, to work with us, to go through that permitting process, and to make sure we've got the best technology on the farms.

The other thing is that this is highly technical,
complex technology. Dairy farmers want to be dairy farmers. They don't want to be a mini-public utility of some kind. And so it's really going to require those partnerships.

And the partnership that we really desperately need right is a really strong one with the Public Utilities Commission to make sure that we have a system in place to make the economic feasibility of these things much more possible than it is today.

So those were some of the highlights I wanted to put in place for you.

I will also just reinforce what your staff has already said: We do need more research. We have very ambitious targets in this document. And I'll be the first one to say that 75 percent reduction by 2030 scares me. I want us to be realistic, and I want to make sure that we can achieve it.

And we do need more research. If we go from flush management of manure to dry scrape, we need to be very certain we know what those cross-media impacts are. And if we are going to make the kinds of investments -- and if I were a lobbyist, I'd be lobbying for more investment in digester technology across the street -- we need to make sure we're going to get return for that.

So investing in additional research to make sure
we understand that whole picture and the potential of other cross-media impacts is going to be critical. We also need to take a look at the inventory methodology and make sure with the efficiency per cow that we have in the State, that we get those numbers right and we -- I know this agency is known for its remarkable work of getting the inventory right. Because if you don't have the inventory right, nothing else matters. As well as making sure the economic analysis is as robust as it needs to be for impact as well as the benefits. We're not only the number one ag state in the country, and one of the top ones in the world; we just happen to have the number one ag and environmental college in the world 20 miles down the road, and there's some tremendous expertise there that we need to tap into. We've done some preliminary outreach. We want to be a convener with you to make sure that we have the best minds here in the State, many of them who are world experts in what they do, helping us on this; to make sure that we get it right; and that we are realistic with the targets that we're setting here.

I appreciate that this will be a very robust public process. I want you to know that we're committed to being your partner in this. We're doing this at a critical time for our dairy sector. We've seen dairymen,
long-time dairy families leave the State of California, and they could continue to do that. We have strategic advantages here. We want to keep dairy healthy and thriving in this State, especially when I think about, it's not just about the cows and what they produce on the milk side of things. I'm the only Secretary that gets to talk about dairy waste and cow poop, to be frank with you.

(Laughter.)

CDFA SECRETARY ROSS: And the exciting opportunity we have to turn that into something that really helps us with our renewable energy resources, helps to reduce short-lived climate pollutants. It's an exciting time. But we must be careful, and no one knows that more than the Air Board with the kind of remarkable work that you've done on so many of our air issues in the past; and I look forward to being your partner going forward.

So thank you for allowing me to fill in for my staff today. Thank you.

VICE CHAIR BERG: And thank you.

We do have a question for you, Secretary Ross.

But before --

CDFA SECRETARY ROSS: Now, we're going to see the thin ice that the staff was --

BOARD MEMBER SHERRIFFS: No, no. It's clarifying
something you've said.

VICE CHAIR BERG: But before he asks the question I wanted to say thank you very much for taking the time and personally coming here and testifying and giving us that great information. So we really do appreciate that. And my colleague will be kind. Doctor.

BOARD MEMBER SHERRIFFS: And I'm sure UC Riverside, Pomona, Fresno State will not be offended by your reference to that other ag school down the road.

(Laughter.)

CDFA SECRETARY ROSS: When you have one only 20 miles away.

BOARD MEMBER SHERRIFFS: My question. You said there are hundreds of dairy digesters in --

CDFA SECRETARY ROSS: In other states.

BOARD MEMBER SHERRIFFS: Okay. You weren't picking out a single state as --

CDFA SECRETARY ROSS: I was not picking out a single state. But I will comment, I had the great honor of being chief of staff to U.S. Department of Agriculture Secretary Tom Vilsack. And when I left to take this position, the last thing he said to me was: "Get more dairy digesters. Why do we have them in other states?"

And I tried to explain to him our environmental framework
in California and that it wasn't as easy here but it was always worthwhile getting it done.

BOARD MEMBER SHERIFFS: Okay.

VICE CHAIR BERG: Thanks.

CALRECYCLE DEPUTY DIRECTOR LEVENSON: Vice Chair Berg and Board members, good afternoon. I'm Howard Levenson. I'm Deputy Director of CalRecycle. I get to follow Secretary Ross; that was pretty inspirational. But I think what you're doing here today is equally inspirational and aspirational, and I want to congratulate you for the work that's been done to date.

I'm speaking here on behalf of my Director, Scott Smithline. I want to convey CalRecycle's support for the proposals that are contained in the plan that's before you today.

We've been working -- just as Secretary Ross indicated, we've been working cooperatively and closely with ARB staff for many years on a lot of different things. And this goes back really prior to the development of the first scoping plan in 2008. And that scoping plan articulated the significance of recycling and organics waste management in achieving greenhouse gas emissions. And as we heard in 2014 scoping plan, that was even emphasized even more.

So our cooperative efforts go way back. This
effort's been no exception. I want to thank Director Corey and Ryan and Emily and others for engaging this early on in this process. And so we're really pleased to continue that.

Of particular significance to CalRecycle is the call for 90 percent diversion of organics from landfills by 2025, effectively eliminating disposable organics. This goal is obviously necessary to reach the Governor's climate and your own Board's climate goals.

And it's equally important for our own goals at CalRecycle. We have Assembly Bill 341 which was passed a couple of years ago that establishes a new statewide goal of getting 75 percent of the solid waste that's going into landfills out of landfills by 2020, whether that's by source reduction or composting or anaerobic digestion.

Landfills have been relatively cheap, so it's been easy to get, as it keeps sending materials there. It is difficult and expensive to influence these other kinds of options, but that's what we're trying to do by 2020 for our particular goal.

To get anywhere near meeting our 75 percent goal, organics are key. They really have to be aggressively diverted from landfills. They make up about 40 percent of what goes into the landfills right now, and it's a major source of methane. And half of what's going -- of those
organics is food waste. So the emphasis on food waste is equally important.

So the 2025 goal in this short-lived climate plan of diverting 90 percent of organics from landfills is very much in line with our own 75 percent goal by 2020. In fact, our goal is probably a little bit more aggressive, but both are equally difficult. But we think they're doable.

Just as Secretary Ross alluded to, there are anaerobic digesters for food waste and other kinds of organic waste. Hundreds of them in Europe. A few in the United States. Only a few here in California that are handling solid waste from landfills at this point.

We're -- with the funding that we received in the first cycle of the cap-and-trade funding a couple years ago, we were able to fund three new -- five new projects, two composting and three anaerobic digestion projects, and are hopeful that the proposal in the Governor's budget will enable us to fund a lot more.

So we do believe this is doable. We know it's difficult. We're working with a lot of different State agencies, local agencies, in the private sector to increase that infrastructure, and also to increase market demand for compost products for renewable gas; it could come from transportation fuels; it could come from an
anaerobic digester.

There are many, many efforts going on across all those agencies. I just would like to mention a couple.

We work closely with ARB staff on many, many different fronts: On low carbon fuel standard and the development of the pathway for anaerobic digestion, which is one of the lowest carbon intensity pathways to date.

We're working with -- we're presenting next week, co-presenting with ARB staff at the CAPCOA meeting to talk about some of the air quality issues in relation to organics. So there's a lot of things going on just within the Air Board.

Energy Commission has its Transportation Fuels Program, and we're linked in with that.

And then of course the Department of Food & Ag's Healthy Soils Initiative; it's another key effort in the Governor's five pillars, and we're working very closely with Food & Ag.

So we really appreciate what the Air Resources Board has done. We look forward to the discussions we'll here today and over the next few months, and hopefully to adoption of this proposal later in the year. And once that's done, we are certainly ready to work with ARB staff and whatever rulemaking is necessary to implement this aspect of the Short-Lived Climate Plan.
So thank you very much for your attention, and we look forward to hearing more from you.

VICE CHAIR BERG: And thank you very much, Deputy Director Levenson, also for taking your time to come out and speak to us. And this multi-agency process is critical in order for us to attain all of our goals, and we really appreciate your efforts.

CALRECYCLE DEPUTY DIRECTOR LEVENSON: Thank you.

RESOURCES AGENCY ASSISTANT SECRETARY HENLY: Good afternoon, Vice Chair Berg, members of the Board. My name is Russ Henly. I'm the Assistant Secretary of Forest Resources Management at the California Natural Resources Agency.

My Resources Agency colleague, **Clair **Johns, could not be here today, but she's worked extensively with Air Board staff on the Short-Lived Climate Pollutant Reduction Strategy. And echoing Secretary Ross, we all very much appreciate the great collaboration we've had from ARB on this planning as well as the scoping plan work and everything else we have done with the Air Board staff.

The Natural Resources Agency is very involved with the Forest Climate Action Team on the development of the Forest Carbon Plan. I believe that the SLCP reduction strategy provides a very -- does a very good job of framing out the forestry sector with respect to black
carbon issues and emissions.

As pointed out in the staff presentation this afternoon, and further drawn out in the strategy, the Forest Carbon Plan will be the lead guidance document for forest and carbon and emissions in California.

And in particular, the forest health restoration and woody materials utilization approach that we're taking with the Forest Carbon Plan will seek to reduce the black carbon in other greenhouse gas emissions that occur from wildland fire as well as from the frequent pile burning of forest waste that occurs in California's forest lands.

This approach too was laid out in the Forest Carbon Plan concept paper that we released and work-shopped earlier this year in April. And as we continue our work on the Forest Carbon Plan, we will be releasing a draft of that full plan for public review in August, and looking to complete that report by the end of year.

Our work with the Forest Carbon Plan has included a very substantial collaboration with ARB staff and CalEPA, and I think that's going to help to ensure that we have a seamless fit among the Short-Lived Climate Pollutant Reduction Strategy, the 2030 Target Scoping Plan Update, as well as the Forest Carbon Plan.

And, again, I just want to emphasize that it's
been very positive and very productive working with Air Resources Board staff, and we look forward to continue working with them through the Forest Carbon Plan and on with its implementation.

Thank you.

VICE CHAIR BERG: Well, thank you very much, Mr. Henly; and we really appreciate your effort to show us that these four very important agencies are just really key to getting this job done. And thank you for your efforts and for coming today.

With that, I think we're ready to jump to public comment, if that is all right with my fellow Board members.

We have about 40 commenters. And we're going to have a list up here to my left. And as you see your name as the person in front of you is testifying, make your way down so that we can get your comments.

We're going to start out today with Larry Greene if...

BOARD MEMBER SPERLING: Vice Chair Berg, could I ask a question based upon those presentations?

VICE CHAIR BERG: Do you want to do that now rather than waiting till after the commenters?

BOARD MEMBER SPERLING: I do, because from Secretary Ross, I mean we heard just pointed observations
that these digesters, two of our main targets, you know, for dairy and for landfill, that other states have many more digesters, are doing much more than us; and yet we're the ones with all these targets and goals and regulations. Can I just get a short response from the staff why are we doing so much worse than everyone else, since this is the primary target -- primary targets of this whole program here? I mean just simple. Is it regulations? Is it permitting? It's, you know, CEQA. What's the problem?

SCIENCE & TECHNOLOGY POLICY ADVISOR McCARTHY: I'll give it a shot. Ryan McCarthy. I think -- so my understanding is, you know, there's been some changes in the industry and some sort of significant reshuffling over the last -- historically but including over the last 15 years. There's certainly -- so they, you know, have sort of moved locations, reset up operations, as maybe before we were talking about some of these goals. Certainly, utility issues. I don't know if or why they're different than in other places. But I don't know, just like --

BOARD MEMBER SPERLING: All right. Then let me just suggest --

SCIENCE & TECHNOLOGY POLICY ADVISOR McCARTHY: -- that this is clearly the opportunity. There
have been some national assessments that show that -- a
tremendous opportunity for dairy digesters in particular
but biogas in general resides in California more than our
share. You know, a third or more of all the estimated
dairy digesters in the country. The potential is here.
The U.S. Department of Energy -- pardon me -- of Ag has
strong goals. They want 500 digesters in ag. And it
seems like the opportunity is really here in California.

So if we haven't been able to capture it in the
past, you know, the hope and commitment is to really
capture that opportunity in the future.

BOARD MEMBER SPERLING: Okay. Let's just focus
on those questions this afternoon and going forward,
because it's nice to have all these reports and numbers,
but let's understand why it's not happening. Maybe we'll
hear that from testimony.

VICE CHAIR BERG: And Supervisor Serna.

BOARD MEMBER SERNA: Thank you, Vice Chair Berg.

I really appreciate Professor Sperling's
question. And wearing my local government hat as a county
supervisor here in Sacramento, we're currently dealing
with our first vanguard effort at making feasible
biodigestion activity mainly as it relates to food waste.
And one of the things that wasn't emphasized -- I didn't
hear emphasized but may partially respond to your great
inquiry is the fact that the ability to be successful
isn't just -- doesn't just rest at the feet of the
operators. It also rests with those that have to provide
the feedstock. And when you don't have the infrastructure
in place throughout a community, whether it be a city, a
county, a state, to have the kind of delivery of feedstock
that is necessary for these operators to become -- for it
to be feasible in the first place, I think therein lies a
large part of the issue. That's what I'm hearing here in
Sacramento from our -- from our one operator, who hopes to
go from currently 40 tons to 100 tons, and tells us at the
air quality management district, those of us that also sit
on the local regional sanitation district - because there
are some wastewater implications for these types of
operations as well - that there is a threshold passed
which things become relatively less complicated. And what
I understand is we're -- here -- at least here in
Sacramento we're not anywhere near that. And that
requires the cooperation and the ability for especially
restaurants to -- restaurant owners and operators to be
able to understand the landscape of what they're expected
to do to help provide that feedstock.

So I just wanted to add that.

VICE CHAIR BERG: So as we can see, we're going
to have some great discussion here. And so let's get to
our list of public testimony. And also we'll have some --
when some of the dairy people come up, it will be also
good follow-up.

   Hi, Mr. Greene.

MR. GREENE: Good afternoon. Vice Chair Berg and
members of the Board, I'm Larry Greene. I'm the air
director at Sac Metro Air Quality Management District.

   I just would like to express my district's and
our board's strong support for this effort. This is
important in so many ways. As I look across the list of
programs that were discussed during the presentation,
there are many points of contact for current programs and
for future programs, and we already have significant work
underway between ourselves and the Air Resources Board
staff in making all those programs happen. And it's been
a good cooperative effort. I think we've made huge
progress, and there's much to go. And these programs are
going to be very important in reducing air pollution and
the exposure of our citizens in Sacramento as we move
forward. Lots of potential here, not only on greenhouse
gases but for criteria pollutants. So we very much
appreciate this, and we look forward to continued strong
support of working together with the Air Resources Board.

   VICE CHAIR BERG: And thank you for all your
efforts as well.
BOARD MEMBER GIOIA: Vice Chair Berg, can I just follow up to Mr. Greene on Supervisor Serna's comments. So what role do you see local air districts having in addressing some of the issues that Supervisor Serna raised?

MR. GREENE: We have been very involved, as Supervisor Serna knows in his office on a number of occasions, trying to integrate between our needs at the air district the programs we have and other agencies that look at odors, impacts to local neighbors, trying to figure out how we divert food waste, how we work with the county; and are meeting with our county waste management folks here next week to try to further this discussion.

One school equals five restaurants. Schools are very wasteful for food; because the kids don't eat the food, right. Restaurants are very good at not wasting food. So how -- and we have 200 schools in Sacramento.

BOARD MEMBER SERNA: They're good restaurants.

(Laughter.)

MR. GREENE: So how do we get those 200 schools into a system where we can get that food waste in a manner that can be effectively transported to the digester. And there are 20 or 30 different streams of that same conversation.

So it's a very complex. And we're in the middle
of the conversation, but it's going to be a multi-agency effort.

I hope that answered the question.

BOARD MEMBER SPERLING: Yes.

BOARD MEMBER GIOIA: Yes, it did.


Following up on the conversation you're having now. We're in strong support of the goals you're proposing in the SLCP plan. And specifically we're supporting of the commitment to adopt strategies to phase down the disposal of organic waste.

As a state, we have spent considerable amount of time debating back and forth about what the exact emissions are from landfills; and I think you might get a little more of that today. Some advocates say 80 percent of landfill methane is never captured. Some industry folks say that 90 percent is captured. CalRecycle came up with a 62 percent number. I think the ARB released a 74 percent number a couple weeks ago.

What we do know is that no gas collection system can capture emissions before installed or for the decades after it is removed. And paraphrasing Director Smithline, the emissions from landfills are fortunately much easier to reduce than they are to measure.
To that point, we know that diverting organic waste accomplishes more than avoiding the emissions at landfills. These materials in landfills represent an opportunity cost for the rest of our economy. When managed outside landfills, these same organic materials can be made into a valuable soil amendment that sequesters carbon, increases soil water holding capacity, and reduces the need for and impacts of synthetic fertilizers.

Most private composters tell us that they sell out of every ounce of compost that they make at their facilities.

Additionally, you can divert this material to digesters to make valuable biogas to fuel vehicles or generate renewable energy.

And a significant proportion of the food that we throw away every single year is perfectly edible and could be diverted to feed those who are food insecure.

To the discussion that was just had, I would just say we're not reinventing the wheel at this agency or in Sacramento. There are a lot of communities that have implemented comprehensive organics programs, both in California and around the country and round the world. In fact, 23 states have some form of prohibition on the disposal of organic waste. Most of Europe prohibits the disposal of organic waste. And all over California,
especially all over the Bay Area, there are communities
that have great programs that are perfect models for the
rest of us around the State.

Establishing mandatory organics programs has been
proven time and time again to spur the development of
processing and recycling infrastructure; because
composters and digester companies can compete with each
other for this material as opposed to competing with
artificially low landfill tip fees.

That said, to ensure cost-effective
implementation of this plan, the ARB and CalRecycle and
the State as a whole will need to play an active role in
the development of these facilities. And we are pleased
to see the focus on infrastructure development in both
this document and the investment plan.

It also makes sense to partner with our local
organizations and local agencies to discuss what else we
can do to incentivize these facilities.

And, finally, we'll be submitting detailed
comments. But if I could leave you with one thing, it's
again a recommendation to spend some time with the
communities in the Bay Area that have implemented these
programs to see what works, what doesn't work, how to get
that material from the schools and the restaurants to the
digesters and the composting facilities.
Thank you.
VICE CHAIR BERG: Thank you.
MR. NOYES: Good afternoon, Vice Chair Berg, members of the Board. My name's Graham Noyes. I'm an attorney at Keys, Fox & Wiedman, speaking here today on behalf of my client, Sierra Energy.

Sierra Energy is an energy and fuel company based in Davis, California, that's doing amazing things with municipal solid wastes. They have a gasification process called the FastOx Gasifier, that takes municipal solid wastes and many very difficult to handle waste streams, gasifies that, and can convert that both to Fischer-Tropsch diesel fuel, so a liquid diesel fuel; they also have a DOE grant to go into hydrogen with that material. And they're currently developing a facility at the Fort Hunter Liggett Army Garrison in Monterey County that's going to take about 10 tons a day of the basis municipal solid waste, gasify it through a CEC grant. They're going to be making Fischer-Tropsch diesel fuel. And as I mentioned, they're also going to be going into hydrogen with that.

We have already submitted written comments, so I'm going to be very brief with you here today, to focus on two things:

Overall, we strongly support the Short-Lived
Climate Pollutant Plan. We applaud the efforts of staff. We've been engaged for about the past year on this providing this -- Sierra Energy's perspective on the plan and the opportunities here, and essentially looking at opportunities beyond just anaerobic digestion and organics diversion, which are great things to do but still leaves most of the waste going into the landfill, much of it being contaminated organics and other material that has this energy and fuel value.

And so where we see the immediate opportunities to sort of put this plan into action are actually in two separate places, things that other agencies are working on.

First of all with CalRecycle, you may be aware they have the AB 901 proceeding going on now, which is going to categorize the various waste streams, build out a much more robust system of following waste through the overall process, so to speak. That's an opportunity where we see a separate category for waste to fuels ought to be recognized so that we can see the effectiveness level around waste-to-fuels diversion. So we want to highlight that in this proceeding.

Second factor is taking this 20-year GWP that's used in this Short-Lived Climate Pollutant Plan and rolling that out in the Greenhouse Gas Reduction Fund
methodologies that measure effectiveness of grant spending out there. As everyone knows, how we spend money matters a lot. How we measure success in those programs matters a lot as well. So we'd recommend these two as immediate opportunities.

That's my time for Sierra Energy.

I have in the past represented some developers of anaerobic digesters and would be glad to just provide a minute on that perspective of the challenges to California if you would like to hear that.

VICE CHAIR BERG: Yes, one minute.

MR. NOYES: So in terms of California, these are specifically companies looking at anaerobic digestion and going into the highest value opportunity, which is low carbon fuels and particularly the biogas sector. Something I'm sure you'll hear about today that's an enormous barrier is the inability to get on to the pipeline system, so you can't get that highest revenue level that you can out there. You also see in states like Washington and Iowa and Wisconsin a streamline process for addressing all of the individual issues like CEQA and water quality and air quality, which are each individual challenges. So they're all really nuts-and-bolts development challenges, permits all those little pieces that add up to lots of development dollars and make it
I'm Jack Macy, Zero Waste Senior Coordinator for the City and County of San Francisco Department of the Environment.

I am here to express our strong support for the proposed banning of organics in landfills, to reduce methane emissions, and provide higher value uses for organics, with multiple co-benefits for the climate and for the economy.

We applaud your staff for this critically needed and bold plan to move organics out and being -- identifying the challenges and providing strategies to address them.

San Francisco in partnership with the Recology Companies has been implementing composting programs for food scraps for 20 years, and even longer for other organics recycling programs such as edible food recovery supporting that sector, and pleased to see that as well.

San Francisco has in effect banned organics from landfill. Since 2009 we've mandated the separation of food scraps and other organics from our trash landfill stream for all sectors across the city. And as a result of implementing mandatory with associated financial
penalties and the assistance we provide, we now have over 99 percent of all our properties in the city that are composting service compliant. That includes the 350,000 households, including about 9,000 apartment buildings and 90,000 businesses and institutions across the city.

So we are showing that you can get after these organics and capture them. And this is resulting in significant gains. When we did mandatory, we really saw a big jump. We were having a sort of a slow increase over the years. We implemented mandatory and it just shot up. And so having that key policy driver has made a significant difference and we continue to see the growth in that.

With compost, at two regional composting facilities being made at a high value nutrient soil amendment, feeding hundreds of vineyards and farms that are demonstrating that they are able to reduce or eliminate the use of energy-intensive pesticides and fertilizer, reduce irrigation, and sequester carbon, build healthier soils and healthier plants. And basically these programs are largely achieving what is being set out here.

So composting programs provide a triple win for the climate. We're preventing methane emissions from the landfill, they promote soil health and increase the soil carbon sequestration, and they decrease the need for water
and synthetic fertilizers. We've seen that once you're producing a consistent quality product, the market demand exceeds what you can produce for that.

So I just wanted to say that there's many social benefits from this, with increased jobs throughout the supply chain. And our climate action strategy is incorporating this as a key component. And we thank you for this vision and the proposed funding investment that is an important piece of it. And we're helping to share our experience to help move this along.

Thank you.

VICE CHAIR BERG: Thank you.

BOARD MEMBER TAKVORIAN: Vice Chair, may I ask a quick question?

VICE CHAIR BERG: Yes.

Mr. Macy.

BOARD MEMBER TAKVORIAN: Mr. Macy, I just wondered if your program is mandatory for schools and restaurants as well?

MR. MACY: That's correct. It is for all properties -- it's for everybody in San Francisco.

BOARD MEMBER TAKVORIAN: Thank you.

MS. LUPIEN: Good afternoon, Vice Chair Berg, members of the Board. My name is Sandra Lupien. I live in Oakland where I work for the organization Food & Water
Watch. We're an advocacy organization with 170,000 supporters here in California. And I want to start by thanking you for your work, staff, Board, and stakeholders, on the Short-Lived Climate Pollutants Reduction Strategy. It's a heavy lift and it's urgent work, and I think we all agree we need to get it done.

So I'd like to begin by applauding the Air Resources Board's to move to make California the first state, I believe, to require dairies to reduce their manure methane emissions. Huge important step mandating such reductions is critical toward making polluters accountable for protecting the climate and the health of Californians. So thank you so much for that.

And we also hope that you will make enteric emissions reductions mandatory as well in time in this plan.

However, we are very concerned about the heavy reliance of the strategy on the use of methane digesters, which I think is going to be a point of controversy today. We believe, and so do some of our colleagues who are here today, that they're not an effective long-term solution to methane emissions from factory dairies. We believe the technology's expensive and it frequently results in leaked methane as well as other greenhouse gases like carbon dioxide, nitrogen oxide, and those cause smog and public
health issues like asthma.

Furthermore, methane digesters fail to address the root cause of methane pollution from factory dairies, which is of course too many animals producing an unmanageable amount of manure-based and enteric methane.

So if the Air Board moves toward implementing the strategy next year, we hope it will eliminate or reduce digesters as an approach to reducing methane; and instead work collaboratively with appropriate State agencies to craft policies that reduce methane emissions by promoting sustainable dairy operations in California that emphasize pasture-based methods as well as appropriate herd sizes.

And, finally, we are pleased that the -- that by mandating methane reductions from factory farms, the strategy would if implemented ensure that such reductions are truly additional by eliminating new projects from eligibility as offsets to be sold in the State's cap-and-trade market.

And in order to ensure that the strategy achieves its targets, we urge the Air Board to also remove existing projects from the State's Cap-and-Trade Program instead of allowing them to generate offsets for up to 10 years of operation. And, likewise, we don't support any generation of Low Carbon Fuel Standard credits for any of these projects.
So we thank you for the opportunity to weigh in on the Short-Lived Climate Pollution Reduction Strategy. And once the strategy is finalized, we look forward to working with you to develop and implement a regulation that will achieve the targets for methane reductions from dairies while protecting communities and public health in California.

Thank you.

VICE CHAIR BERG: Thank you.

MS. LEVIN: Good afternoon. Julia Levin with the Bioenergy Energy Association of California. We represent more than 50 public agencies and private companies in California that are working to convert organic waste to energy.

We thank you, thank the Air Board and the staff for your leadership in this area, and we strongly support the goals of the strategy - they are challenging goals, appropriate given the urgency of reducing short-lived climate pollutants - and all of the co-benefits, which I think there haven't been enough discussion of today.

But to meet those goal it's really going to take several very important steps.

And, Dr. Sperling, to your question, I would take issue with your framing dairy issue as the primary strategy, because actually the single largest source of
short-lived climate pollutants is black carbon from wildfire. And I think that kind of highlights the fact that the strategy doesn't include a goal for black carbon, and so there is this perception that we just need to focus on dairy methane. And I think we need to set a goal for black carbon. The fact that it varies from year to year is not an excuse for not setting at least a decadal goal or some sort of a goal over time, in part because maintaining the carbon sequestration in our forests is a critical part of achieving our AB 32 goals.

In all of the organic waste sector, whether it's dairy waste, diverted urban organic waste, or forest waste, there are really three things that we need to answer your question.

We need a guaranteed market for the biogas. That has been a huge problem for the industry across all sectors. And the draw strategy actually recognizes that and said that we need a statewide policy to promote biogas. Senator Allen has introduced SB 1043 that would require the Air Board to do just that, so that we have a market for the biogas, which is a critical leg of a three-legged school. Much like we have an RPS in the electricity sector or we have the LCFS in the fuel sector, we need that in the gas sector now.

The second leg of the stool is investment. It is
going to take a massive amount of public as well as private investment to make these very significant and important transitions across all organic waste sectors.

We strongly support the Governor's proposed budget items for cap-and-trade revenues to support bioenergy. But how those are spent is going to be critical. And pointing to the Air Board in particular, you spent a lot of time this morning discussing the sustainable freight strategy. That's part of a $500 million proposal from the Governor for low carbon transportation, and yet only a tiny, tiny fraction of that right now is planned to go to low carbon transportation that reduces short-lived climate pollutants. That should be a filter over every investment that this Board makes. It shouldn't just be a small item off to the side in a $500 million fund to reduce carbon from transportation. The best way to do that is ultra-low NOx trucks that replace heavy-duty diesel trucks and run on carbon-negative biogas made from organic waste that reduces carbon in short-lived climate pollutants every step of the way.

The third leg of the stool is removing regulatory barriers. And the strategy correctly points to a number of important ways to do that so we can put biogas in the pipeline and on the electricity lines. We are working
with this Board and the PUC to do that.

    Thank you very much, and we look forward to
implementing this together.

VICE CHAIR BERG: Thank you.

MR. HELGET: Chair Berg and members of the Board.

I am Chuck Helget and representing Republic Services.

    Julia is such a hard act to follow. I'll try to
do my best here.

    Thank you for letting us, by the way, do the
group testimony. We've tried to organize our comments so
that we avoid redundancy.

    I'm going to be followed by Mary Pitto and Frank
Caponi and Jason Rhine from the League of Cities; so
they'll be taking different pieces of our group comments.

    As a group we have supported legislation and
regulatory action to divert organics from landfills, and
we will continue to do so. Therefore there is much in the
Short-Lived Climate Pollutant Strategy that we -- and in
the economic analysis that we do support. We believe that
both documents once refined can actually provide a
framework for working and helping us achieve the
short-lived climate pollutant's 2030 waste sector goal of
reducing methane by 5 million metric tons of CO2e.

    We believe that local government, the solid waste
industry, and State government have a history of
developing effective market-based solutions for diversion programs, including organics diversion. And those programs have been and continue to be an important component of the waste sector's GHG reduction strategy.

Recently implemented programs such as mandatory commercial recycling and mandatory commercial organics recycling are aggressive; and our analysis show that they can effectively reduce methane emissions without organics ban. Both programs have strict but achievable targets. They have effective milestones that will ensure targets are monitored and enforcement mechanisms that will help ensure that we're working in good faith to achieve your methane reduction goals.

While we do not disagree with the 2030 targets for the solid waste sector, we do disagree with the timing set forth in the strategy and the very stringent requirement that the waste sector effectively eliminate organics disposal by 2025. Doing so would require that we nearly triple our organics food and green waste processing capacity, compost facilities, anaerobic digestion capacity, and markets in under a seven-year period.

It has taken us 20 years to develop and build the current capacity of roughly 180 compost and AD facilities. Just building an additional 100 facilities under current CEQA requirements in air quality regulations will require
unprecedented cooperation from both industry, the State, and local regulators.

Finally, the economic analysis is based on several key assumptions. It assumes that facilities can be built without a significant impact on rates, and the GGR funding on the front end and LCF and RIN credits on the back end will offset costs. We do disagree with those assumptions since historically when we have added recycling programs and recycling infrastructure, funding came primarily through rate increases negotiated with our local governments.

Those rate increases take time and normally have been added to the garbage rate, leaving the assumption that recycling services are free. Unfortunately increased organics recycling will not be free.

We will be submitting written comments and we will be providing additional comments to your staff, and we look forward to working with them on some of these concerns.

Thank you.

MS. PITTO: Good afternoon, Vice Chair Berg and Board members. I am Mary Pitto with the Rural County Representatives of California, which represents 35 of our rural counties. I'm also here speaking on behalf of the California State Association of Counties that represents
all of California counties.

I'm going to address the current organics diversion requirements and then some facility siting and permitting concerns.

Mr. Helget referred to the solid waste industry group supporting organics diversions requirements. A coalition of both public and private sector solid waste industry representatives worked for several years on some -- to help craft some legislation dealing with organic waste diversion.

AB 1826 by Assemblyman Chesbro was enacted in 2014. This statute mandates commercial organics diversions that will be phased in over time to construct the extra infrastructure necessary to handle the additional organics that will be diverted. Its implementation just began in April of this year, and with the requirements for those businesses generating the most organics waste. And then next year, we'll go down to a smaller amount. And then finally in 2019 with its final implementation we'll go down to the smaller amount -- the smallest amount of this legislation to be diverted.

CalRecycle estimated that we would need 100 new -- 100 new or expanded either AD or composting facilities to accommodate this extra diversion. The draft strategy totally passed up the AB 1826 and then set a new
goal for 2020 at 75 percent instead of 50 percent, and
then 90 percent by 2025.

We appreciate ARB staff meeting with us and
listening to our concerns. And while the proposed
strategy has eliminated the 75 percent diversion goal in
2020, it maintains the 90 percent diversion goal in 2025.

We appreciate this flexibility very much but we
still believe that it is not sufficient to overcome the
challenges that exist in providing the infrastructure
necessary to meet the 90 percent diversion.

These are complex and complicated projects.
While we don't deny some projects can be accomplished
quicker, there's still individual site-specific,
feedstock-specific taking generally five to 10 years to
get them permitted, constructed, and operational. Just to
give you one example from a member county, Glenn County
was first approached by a developer in 2009 to build a
mixed -- wow.

(Laughter.)

VICE CHAIR BERG: It does go fast.
I will give you a one-sentence wrap-up if you can
please.

MS. PITTO: Well, they just were -- they started
It went to their board because it was appealed in December
of 2015. It went their board in March. And it is now expected to be litigated. And they were given a six-months extension to provide additional environmental information. And they do expect litigation of this project.

And we look forward to continue working with ARB staff into the future to have a successful and efficient project.

Thank you.

VICE CHAIR BERG: Thank you.

MR. RHINE: Hello. Good afternoon, Madam Vice Chair and members. Jason Rhine, League of California Cities. Thank you very much for allowing us to speak. And I'm going do my best to not repeat some of the things that have already been mentioned, but I do want to emphasize a couple things, you know.

One, I think the League and -- of Cities and, you know, our coalition, we have a long track record of working with both the Air Board and CalRecycle and the legislature on these important issues to get organics out of our landfills.

We certainly are supportive of the goals and objectives that are outlined in your report. We think that the timeline is a bit tight and will be very difficult I think for us to meet it. However, we're not
saying no. And we certainly want to be partners and want to continue to work on this issue. I mean, get those organics out of landfill.

We at local government, we're not wed to the idea of putting organics into a landfill. I mean, we want to put it to its best and highest use. If there's a better place to put it, if there's infrastructure in place for us to take it to, we certainly would rather take it there. I mean, it makes a lot of sense to do that.

To touch on some of the infrastructure that's needed: Mr. Helget mentioned the number of facilities that are currently available. We have about 13 digesters and about 169 existing compost facilities where we can take this material. That amount of infrastructure is completely inadequate if we are going to meet the goals and objectives in the report. We're going to need to triple that infrastructure. And by tripling an infrastructure, we're going to have to do siting at the local level, we're going to have to do CEQA, we're going to have to, you know, go through the zoning process. I mean, it's going to be a big deal.

It's not insurmountable, but it is a process. And we want to make sure we honor that public process before our city councils and we want to make sure the public is heard. We don't want to locate these facilities
in communities that have been overburdened to begin with.

So it just takes time. And I think if there's anything that I can leave you with is we can do it but it's just -- it's going to take time.

So since we're going to have to triple that amount of infrastructure that we need, it's going to be costly. And right now the amount that it costs to bring forward one of these projects really varies. It varies quite widely depending upon the size of the project. But the projects generally run from about 10 million to 50 million, depending on the size. So we're going to need 2- to 3 billion dollars in the next six to seven years in order to construct the various facilities that we are going to need.

And where is this money going to come from? Certainly it's going to come from local government. We're going to either use our general fund or our ratepayers are going to help fund that infrastructure. We're going to need assistance from industry. They're clearly going to need to help out.

And then of course the State. I think you've heard a couple speakers already reference the GGRF funds that are available, or potentially available I should say. The Governor has really shown leadership on this. He's brought forward a couple budgets in the last few years
that have earmarked funds for organics. The staff
presentation, you know, accurately pointed out there's
about 60 million for organic infrastructure, which is
absolutely needed. But 60 million really, I mean, if
we're talking 2- to 3 billions really is a bit of a drop
in a bucket. But it is meaningful. So our coalition has
certainly been very supportive of those funds and we will
continue to be supportive of those funds.

And if I could just, you know, one last piece. I
mean, surely the markets. We've talked a little bit about
the markets. Biogas, we're going to hear more from Frank
Caponi here in a second, and then Julia Levin also
mentioned the need to clear up some of the regs or
hurdles.

But compost itself. We need mark -- that does go
quick. All right.

(Laughter.)

MR. RHINE: My last sentence. We need markets
for compost. We've seen bills in the past that have asked
the State to purchase some of those materials. They
failed. We certainly would think that the State should
lead by example and help build a market for the material.

Thank you.

VICE CHAIR BERG: Thank you.

Good afternoon.
MR. CAPONI: Good afternoon. Vice Chair Berg, members of the Board, my name is Frank Caponi with L.A. County Sanitation Districts. Carry along with the group testimony.

I wanted to talk about the environmental framework - and I like that term that was used earlier - as also the barriers, as well as some of the opportunities that are out there.

First on some of the environmental framework. You heard from a representative from San Francisco that they're able to compost their waste and doing a tremendous job up there.

Well, let's move further south, say, to the South Coast Air Quality Management District or the neighboring San Joaquin Valley, which are the extreme nonattainment areas -- two of the extreme nonattainment areas in the country -- and try to see if we could do the same thing there.

Well, of course the answer is we can't. To build a compost facility, say, in the South Coast AQMD you have to essentially enclose that entire compost facility, vent the entire thing to a biofilter to clean up VOCs as well as ammonia. These are extremely expensive facilities. These aren't your old backyard "let's turn the compost." These are highly technical facilities.
So building these in these areas, which are the most populous areas of the State, are nearly impossible or highly -- very, very expensive.

So that drives us to digestion. You heard about some of the permitting barriers and some of the siting barriers from Mary Pitto. Those are very real and extreme barriers in siting these facilities.

But let's take the other component of it, the biogas. Biogas is a great product from these. But once again, we're not, say, in the Bay Area or some other area. We're in the South Coast AQMD or the San Joaquin Valley.

Back in the day we liked to take that gas and throw it in an engine. But we can't do that anymore, because the air emissions are just -- are just -- are too much from those facil -- from those projects.

Board Member Mitchell knows all the years that we fought on biogas engine rules down in the South Coast AQMD.

So the best use of that gas is clean it up and put it in the pipeline. And this now goes to Dr. Sperling's comment about why can't we do this stuff here? We heard about an inter connects costs well lets look numbers. It takes 10 to 20 percent of the capital costs of a project, 10 to 20 percent of the -- just to hook up to the pipeline if you want to do pipeline
injection. These are extremely expensive. If you go to other areas of the country, that cost is a fraction of that.

And then there's the cleanup. And so the cost of doing this is tremendous. But it can be done. With the right incentives and the proper funding, these things can be done.

And let's just talk about opportunities. We have a lot of organics, we've heard, to move out of landfills. We need the ability to do it as quickly as possible to meet the very stringent goals that have been set forth.

One of the opportunities is wastewater treatment plants. You heard that in the presentation. And these wastewater treatment plants are there, they're ready to take organics really tomorrow. We have the infrastructure in place to do that. And with the proper support and the proper funding, we can make a huge dent in the organics coming out of landfill and we could do it very quickly.

Thank you.

VICE CHAIR BERG: Thank you.

DR. BREZNY: Good afternoon, Vice Chair Berg and members of the Board. I'm Rasto Brezny with the Manufacturers of Emission Controls Association. Our members develop and commercialize the emission controls on mobile sources, including the high efficiency diesel...
particulate filters that are over 99 percent effective at reducing black carbon.

Our industry has continued to support ARB's efforts to develop innovative emission control programs to address air quality problems. And we certainly support staff's development of this Short-Lived Climate Pollutant Strategy. And I think there's a number of opportunities to go beyond what's proposed in this strategy, which I'd like to highlight.

We'll provide detailed comments in our written statement, but I just want to highlight some additional controls, for example, from mobile sources.

The reduction of black carbon from on-road vehicles has certainly been a success story in California, through the Diesel Risk Reduction Program, as well as other regulatory measures.

And since 2007, diesel particulate filters have been required on diesel engines for new vehicle -- new diesel vehicles. However -- and these devices reduce black carbon by over 90 percent below the regulated standard. And these opportunities, however, are lost on the off-road sector, where over 50 percent of these Tier 4 final engines are certified without diesel particulate filters.

So I think there's some opportunities for some
further reduction measures from the off-road sector.

We also believe that, you know, ARB's efforts to improve the Heavy-duty Inspection and Maintenance Program is also going to ensure that diesel particulate filters are working over the truck's entire operational life. And some of these inspection and maintenance measures could be applied into other sectors as well, such as the off road.

We support ARB's development of the inventory for methane leakage from the gas sector and the infrastructure. However, we believe some funding could be allocated to also understand leakage from fueling and operation of vehicles as well to get a complete picture of the climate change impact of methane leakage.

So with that, I want to thank you for your time, and I'd be happy to address any questions you might have.

VICE CHAIR BERG: Thank you very much.

MR. NOBLE: Hello, Madam Vice Chair Berg and Board. Than you for the opportunity. My name is Dan Noble. I'm the Executive Director of the Association of Compost Producers. We are the California State chapter of the U.S. composting Council. And you can find us on the web at healthysoil.org.

We are in support of the Short-Lived Climate Pollutant Reduction Strategy. In fact, if you counted the amount of times compost was mentioned in there, it was no
less than four dozen times. So compost factors in big to
the strategy, only behind manure, which I think was
mentioned just slightly less than a hundred times in the
Strategy.

(Laughter.)

MR. NOBLE: But you two actually work together,
because you can not only anaerobically digest manure; you
can also compost it. And if you -- and you -- when you
produce anaerobic digestion, you produce digestate, which
itself has to either be land applied or composted or
turned into some other soil amendment.

So we very much are in support of the strategy.
However, how it gets implemented will -- as you've heard
already and will continue to hear, depends on, you know,
the investment and the markets and the technology and
certainly the permitting.

So we looked -- our goal is to look at markets.
That's our mission. But when we talk about markets, it's
not just the markets for compost. It's the markets for
the feedstocks to compost. And in our association, we
compost all of the organic feedstocks, various members do,
whether it's biosolids from the wastewater treatment
plants, whether it's the green waste from landscape,
whether it's manure, or also food scraps which are of
course now entering more into the waste stream.
So, there's feedstock markets and they're competing right now against landfill tipping fees. Within the compost world there's kind of this rule of thumb called the 60/40 rule, where 60 percent of your income comes from the tipping fee, which means you're competing against the landfills. And if landfills are losing that material, how are we going to maintain the landfills in perpetuity even if we close them. So there's a financial issue about those investments that become stranded as a result of implementing the strategy.

On the other side of that you have the -- you know, all the different technologies in the technology streams which have to be invested in. Then you have the bioproduct markets including compost; but there's eight others, like biochar and biogas and animal feed and so forth. And then of course there's the market for capital. We talked about all the benefits of compost. We're engaged in some of those benefits for water conservation low-impact development. But those aren't being monetized in the marketplace yet. So who realizes those benefits and how does that feed into the system?

We propose, you know, working with industry through the implementation of this strategy so that all of these market barriers and benefits can become realized. So that's a piece we want to see as part of the strategy.
And we'll be including our comments with that.

VICE CHAIR BERG: Thank you very much.

BOARD MEMBER GIOIA: Sandy, can I ask him a question, just a quick one?

VICE CHAIR BERG: Yes. We have one question for you, sir.

BOARD MEMBER GIOIA: So what do you -- what suggestions do you have of what we local air districts, others, could do to help develop more markets that then drive the need for more facilities like the desired **AD-1 facilities permitted?

MR. NOBLE: Well, as I gave in testimony and as we've discussed in some of our letters, we're right at the cusp of moving from a disposal economy to a renewable or regenerative economy. So we're actually having a wholesale transition -- or transformation of our markets right now. We're in the midst of it. And that creates a lot of chaos in the capital markets. Because Wall Street doesn't really know how to invest in a circular economy, and Main Street doesn't much either. So I think there's an issue here about how do we analyze the markets. We need to have market research ongoing and financial research ongoing, and we all need to work from a similar model. We don't have that model right now.

I presented a model at biocycle conference last
month in San Diego, which we are just calling the bioproducts market assessment framework, that includes all of these. But that's not what, you know, economists are learning in school. So when they come out, they're not learning circular economics. Although the environmental economists are starting to do that.

So I think we need -- all need to work from a similar framework or at least agree on that framework, and then do the research that supports that.

BOARD MEMBER GIOIA: Thank you.

VICE CHAIR BERG: John Dans.

Laura Ferrante.

MS. FERRANTE: Good afternoon. My name is Laura Ferrante. I'm here on behalf of Recology, which is a fully integrated -- recovery company.

Oh sure.

We operate -- I'm Laura Ferrante with Recology. We operate 10 organics facilities -- organics processing facilities on the West Coast. And last year we composted over a billion pounds of yard trimmings and food scraps. And I'm here today to express our strong support for the proposed strategy, particularly the organics diversion goals intended to reduce methane emissions.

I also would echo some of the comments we've heard already on this issue, particularly those by Jack
Macy and Nick Lapis.

We do knowledge some of the substantial hurdles to reaching 90 percent diversion by 2025, namely, permitting of new and expanded facilities -- organics recycling facilities, which will require much coordination and cooperation with local jurisdictions; as well as the financial challenges of developing these facilities, which industry cannot bear alone.

However, we don't see these as reasons to not move forward with these goals. Our facilities have had much success with evolving practices and technologies while dealing with some of the same air nonattainment issues that have been mentioned earlier today. That's some of the other areas of the State are encountering. And we are still succeeding and moving forward.

Additionally we do not necessarily agree that the -- there is -- that the market for finished compost is not already fairly robust. In our experience we can't make compost fast enough. There's always a need for more.

Eliminating dispose of organics will guarantee feedstock at our facilities and at new and expanding facilities, such that the demand for compost products may be better met.

Look forward to continuing to work with the Air Resources Board and CalRecycle moving forward in
developing these regulations and implementing these goals.

Thank you.

VICE CHAIR BERG: Thank you.

I'm going to have anybody who is interested in signing up for this item, if you could do so now. We're going to cut off the testimony here in five more minutes. So if you want to testify, the remaining -- we have about 30 people left. And so we would really appreciate if you could really explain to the Board succinctly - really kudos under three minutes - but we're going to have to absolutely acknowledge the three-minute rule. Otherwise we're going to be having dinner together.

And so we would appreciate if you could really explain to us the key points that you want us to address. Okay?

All right. So let's continue with Christopher Berry please.

MR. BERRY: Good afternoon. And thank you, Board, for addressing this issue and for all the work that you put into it. My name is Christopher Berry. I'm an attorney at the Animal Legal Defense Fund headquartered here in California. And I live in Berkeley, California, as well.

I want to again express gratitude for looking into this issue. To the best of my knowledge, this is the
first time that a regulatory body has proposed regulating
the animal agriculture for its impact on climate change,
and I think that's really important.

But I've sensed some tepidness in the proposed
strategy and from some of the comments today that I think
is really unwarranted.

So I want to step back just for a moment to give
sort of a high level overview of the impact of animal
agriculture on the environment.

Animal agriculture takes up about a third of
ever's land. And that's primarily to produce feed that's
used to then feed the cows. It's a very inefficient way
to produce nutrients and protein and it's grossly
unsustainable.

In addition, half of all water in the United
States is used for animal agriculture. Again, that's
mostly for the animal feed and is highly unsustainable.
It's an enormous source of nitrate water pollution. It's
responsible for 14.5 percent of all greenhouse gas
emissions, which is roughly comparable to the entire
transportation sector, which has received a ton of
regulatory attention.

And of course here in California, about -- over
50 percent of methane emissions are attributable to the
livestock industry.
So, frankly, we should be thinking about animal agriculture the same way we think about fossil fuel. There are much more efficient ways to get nutrients and protein than by funneling all these resources through animals that produce so much methane emissions.

And we can see that echoed by a lot of authoritative statements by high level officials here in California. Last year Governor Brown said, frankly, we should be eating more veggie burgers in response to the drought in California, which I think is equally applicable to climate change.

In the Paris Climate Talks in December of last year, Governor Schwarzenegger, who of course signed AB 32, said that we should be shifting to a vegetarian diet.

And other authorities, including the UNFAO, has been sounding the alarm on the livestock industry since 2006.

I would encourage everyone who hasn't read it to read Livestock's Long Shadow by the UNFAO, or at least read the Wikipedia entry about it to get the general gist of what it says.

But subsequently the U.N. has continued to ringing the alarm bells about it, and it's received very little regulatory attention.

Accordingly, I think strong action is necessary,
it's equitable; and it's sound public policy for this Board to take decisive action. I think it should do so with strong direct regulation or market-based approach and shift away from this voluntary incentive approach that it's been taking and it's been failing so far.

Thank you, everyone.

VICE CHAIR BERG: Thank you, Mr. Berry.

MS. BROWN: Hi. Thanks to all of you on the Air Resources Board for your significant commitment and work on this climate crisis that we're facing. I'm here from SCS Global Services. We're a California benefit corporation providing third-party environmental and sustainability certification. And we're an accredited verifier under the California Cap-and-Trade Program.

Let me just say -- I was going to talk about a litany of issues of what we're observing. But the most important thing is that what we're observing in terms of climate change now, it's very sobering to realize that all of these changes we're experiencing at levels far below 2 degrees Celsius, the Paris goal, and even far below the 1.5 degree aspirational goal of the Paris Treaty. Things are happening right now in front of us that we need to address.

Our net radiator forcing levels are rapidly increasing from the current levels of about 2.3 watts per
square meter to 2.6 watts per square meter, which is the threshold above which we will hit 2 degrees Celsius in temperature rise. So we must take very prompt and concerted action within the next five to 10 years, not 2030, 2050. We need to be thinking now, because we're going to set into motion within this next five to 10 years things that we can't pull back.

What is needed to complement your very good work in the proposed strategy is an updated analytical framework to better assess the relative benefits, costs, and trade-offs of all the mitigation options you've put forward, including an ability to determine whether the scale of each type of project will meaningfully influence climate change and push the bar.

Fortunately, there is work nearing completion within the American National Standards process to develop updated climate accounting metrics that are based on the latest climate science reflected in the IPCC 5th assessment report. The new metrics integrated the IPCC framework with advanced lifecycle assessment midpoint characterization. In a nutshell, this approach makes it possible to evaluate each mitigation option more fully in terms of the scale of its potential benefits as well as the full range of environmental trade-offs. The net result is that we can more clearly identify and prioritize
the projects so that we're spending the money most wisely. We can't spend money on everything. There isn't enough money to really go around; and you've heard a lot of competing desires for that -- where that money needs to go. So we -- the analytical framework will help that process.

I'm also pleased to tell you that the same new advanced metrics with climate scientists supporting these metrics are being put forward in the international forum.

I had two very, very quick last things. One, it would be very beneficial --

VICE CHAIR BERG: If that's two sentences, that's fine. Not five.

MS. BROWN: Would be very beneficial if the scope of the scope of the proposed strategy would consider upstream vendors to the State in the public and private sectors. And it would be very helpful to include the formation of tropospheric ozone within your scope of short-lived climate forces, not just the ones that have been included.

Thank you very much.

VICE CHAIR BERG: Will my timer please change the time to 2 minutes 45 seconds.

(Laughter.)

VICE CHAIR BERG: Okay. So let's go with
Christina.

And then, Kevin, will you tee up so we can keep it moving. Thanks.

MS. BENZ: Good afternoon. I'd like to start by thanking the Board and the staff for your leadership on climate. My name is Christina Benz. I'm here today representing Napa Climate NOW, a Napa County citizens organization formed to advocate for smart action in response to the climate crisis we face at the community, state, national, and international levels.

We're very encouraged that you have recognized the importance of mitigating short-lived climate pollutants as a priority for California. And in the interests of further strengthen the State's climate change position, we hope you take these additional observations to heart.

One of the keys to tackling climate change is to focuses on radiative forcing, as the IPCC has done in its 5th assessment report and not just on temperature rise. The net increase in radiative forcing drives the rise in global mean temperature.

As the previous speaker mentioned, we are very close to a critical radiative forcing threshold. In short, this means that we need to make every minute and every dollar count. We are taking efforts to mitigate
methane, black carbon, and fluorinated gases in our -- in
the draft strategy. But we should also be addressing
tropospheric ozone head on, as it is 1,000 times more
potent than CO2.

We also need to think about getting the most bang
for our buck. And that means investing not just within
the State's borders but beyond our borders. It turns out
that we could significantly multiply the effect of our
mitigation dollars on global temperature rise if we
invested it in black carbon hot spots around the globe.
That would make California a true leader in the global
climate fight and set an important example.

Your actions and decisions will be crucial for
all of us operating at the city and county levels to
create effective local climate action plans.

We look forward to tracking your progress and
continuing the dialogue.

Thank you very much.

VICE CHAIR BERG: And thank you, Christina.

Hi, Kevin.

MR. MESSUER: Hi. Kevin Messuer. I represent
the Association of Home Appliance Manufacturers. I can
and will be brief.

Two things: Organics. Think of food waste
disposers. Actually that can divert it from landfill.
And that's not a theoretical situation. Philadelphia actually delved into this whole pilot and is implementing that as a reduced organic.

Second thing I wanted to mention is on refrigerants. The alternatives to go to for refrigerators and air conditioning, yes, they're available. But availability is simplify -- overly simplifies it. There's problems and -- or there's challenges that need to be overcome. I'm only going to mention one - safety.

There are safety standards that exist out there that are problematic -- well, I shouldn't say problematic -- that exist out there. The safety standards in the U.S. are stricter than in Europe in this area, and so it limits the charge size.

And so that's one of the big barriers. And the manufacturers don't have control of these safety standard organizations. And, believe it or not, CARB doesn't have control even over the safety standards. So we don't have control over these things. And we can't control when and if and how they'll do these standards.

Now, the proposal recognizes that and understand it so that's good. But at the same time it proposes a potential ban of these refrigerants. So you can't ban on a certain date if there's barriers there on safety issues that have to be resolved in others. So I just wanted to
highlight that to the Board. We're not trying to be obstinate here. There is a safety standard issue that has to be overcome, among some other things.

So thank you.

VICE CHAIR BERG: Thank you.

CHAIR NICHOLS: Mr. White, hello.

MR. WHITE: Hello. Thank you, Madam Chair and members. I'm now retired from Waste Management, but I'm still providing consulting services to the solid waste and recycling sector.

I don't oppose this plan. In fact I support it overall. But I do want to discuss that one sentence: "ARB in conjunction with CalRecycle will develop a regulation by 2018 to effectively eliminate the disposal of organics in landfills."

We've already heard about the fact that California's got aggressive legislation in place to remove as much as 50 percent or more by 2020. Yet by 2018 you want to move forward with other -- further policies.

There's a big question about what the cost is going to be, which could run into millions; who's going to pay for it; what the facility's siting is going to be; the environmental reviews; and the permitting.

One of the concerns I have is that doesn't it seem that strategy has recognized the landfill early
action measure that was one of the first actions adopted by the Board after AB 32 that resulted in very tight controls over the emissions of methane from landfills. That doesn't seem to have been factored into this strategy.

Further, the strategy recognizes there's a tremendous uncertainty over landfill methane emissions. Quantify -- Your own report says quantifying landfill emissions is difficult due to the area-wide nature, and estimates vary from all over the place. You rely on your projections using a first order decay model, which many folks feel is relatively inaccurate and relies on a tremendous number of assumptions and our view has not been field verified. There's been a myriad of direct measurement studies that don't -- aren't incorporated into the plan to recognize what is being done in the industry to minimize methane emissions from landfills.

California what, lead the way in developing a new model called the **CalMem model that was financed by California Energy Commission to have a better handle on methane emissions. Yet that hasn't been used or recognized. And we certainly recommend you taking a look -- a strong look at that model moving forward. Look at landfill -- improved landfill strategies. I think Nick Lapis mentioned the problem of early
emissions of methane after the initial placement of waste. Well, there could be things done to immediately install gas collection systems at the time of waste placement. **Remenias** **Danya in nearby Yolo County is evaluating that.**

And my final point really is that Low Carbon Fuel Standard is heavily relying on renewable natural gas from landfills, mostly outside of California being piped in. If you cease the development of methane capabilities from landfills, no one's going to invest in further development of those in California, and you're going to be totally relying on landfill gas coming from out of state.

I would suggest that the Board consider amending that one sentence I referred to and take a look at all the opportunities for reducing short-lived climate pollutants from the solid waste and recycling sector and not move into a banning, in a sense, or effectively eliminating regulation in 2018. Wait until some of these other programs and policies have been further evaluated and played out.

Thank you.

VICE CHAIR BERG: Thank you.

Mr. Abbs, good afternoon.

CAPCOA EXECUTIVE DIRECTOR ABBS: Good afternoon, Vice Chair Berg and members of the Board. My name is Alan
Abbs with the California Air Pollution Control Officers association, representing the 35 local air districts. We are in full support of the strategy.

I'd like to start by commending staff on the development of the strategy and for setting aggressive goals for reduction of short-lived climate pollutants. And I appreciate the acknowledgement of the past work in achieving reductions both at the State -- both by the State through ARB and at the local district level.

We're ready to continue our partnership with ARB, and this strategy has a lot of opportunities for that to happen:

Landfill and organics diversion, dairies, oil and gas, wastewater treatment plants, prescribed fire and ag burning, wood stove replacement, diesel equipment, and refrigerant equipment.

Air districts have a lot of experience at these facilities. And in some of these areas, like oil and gas, we've been working together with ARB for a long time, so we have a good head start on meeting some of these goals.

With respect to organics, the air districts are gearing up district staff to look at local air district permitting and siting of these facilities so that we can help be part of the solution for the 2018 regulations package, and we hope to be a part of that process as well.
I'd also like to thank ARB for supporting CAPCOA's wood stove replacement proposal in the 2016-2017 State budget. And we think incentive programs like this are going to be able to deliver quick and quantifiable reductions for the Short-Lived Climate Pollutant Strategy.

The last comment I have is to echo staff's comment about co-benefits from this reduction strategy. And as we move forward, I hope that we focus on programs that achieve these co-benefits and also get the highest and best possible uses of the byproducts so that we can see NOx and PM reductions along with reductions in methane and not going at cross-purposes where we get increases in one at the expense of reductions in another.

So in sum, thank you for the opportunity to comment. And the air districts look forward to working with ARB to get these reductions.

Thank you.

VICE CHAIR BERG: Thank you.

Diana.

On to page 2. Sarah.

MS. DESLAURIERS: Hello, Vice Chair Berg and Board members and other staff and State agencies.

My name is Sarah Deslauriers. I'm the program manager for the California Waste Water Climate Change Group, the numbers of which represent the waste water
community perspectives on climate change issues.

And we applaud the staff for the hard work and extensive cooperation developing the proposed Short-Lived Climate Pollutant Reduction Strategy. And we continue to strongly support the inclusion of the wastewater sector as part of the solution to reducing methane.

Municipal wastewater treatment plants, as you know, provide a media pathway for significant methane reductions capable of accepting upwards of the 75 percent of food waste and fats, oils, and grease from landfills as was mentioned in the presentation today, and taking that material and co-digesting it with sewage sludge. The products are bioproducts, biogas and biosolids, and both can be beneficially used, the biogas for energy production or putting that -- processing it and putting into a pipeline, as well as processing it into a transportation fuel as was included in the economic analysis.

Also, soil amendments are the biosolids used as a soil amendment to offset synthetic fertilizer use and production, sequester carbon in the soil below, and offset irrigation demand because of the moisture that's already in the biosolids, and increase crop yield as well as plant health.

And it can also be used to reclaim fire-ravaged land.
We do want emphasize that it's critical that there's a plan in place for the beneficial use of biosolids. There is acknowledgement of it as a soil amendment. But it's not addressed explicitly in the Healthy Soils Initiative nor is it in the natural and working lands efforts or in the ag sector's Forest Carbon Plan.

So to make all this happen, then we do see the wastewater sector being a partner with the waste management sector, the waste management sector providing the pre-processing of diverted organics into a digestible form. And because infrastructure is in place, some of the necessary permits are already in place, and trained staff, the municipal wastewater sector is uniquely positioned to take on that material and help the State achieve not only diversion goals but renewable energy goals, low carbon fuel goals, methane reduction goals, and contribute toward the Healthy Soils Initiative through land application of biosolids.

We are preparing a letter providing a full set of the comments as well as some detailed comments on the economic analysis.

We thank you for your time today, and we look forward to continued discussions with ARB, the Air Resources Board, and other state agencies in helping
achieve all of these goals.

So thank you.

VICE CHAIR BERG: Thank you.

Katerina, followed by Debra please.

MS. ROBINSON: Good morning, Chair and members.

Katerina Robinson on behalf of John Wick, cofounder of the Global Compost Project and the Marin Carbon Project. I want to thank you and Board staff for working with us and other stakeholders in the last few weeks.

First, we're here to strongly support the goal of diverting 90 percent of organics from landfills by 2025. This organic material can be beneficially reused to improve the State's soil and natural -- and help natural and working lands be more resilient to climate change while sequestering carbon in soils.

Research from the Marin Carbon Project and UC Berkeley shows that a one-time dusting of compost on range lands can lead to a one ton per acre of CO2 equivalent sequestration of carbon every year in the soils, and then that can persist just from a one-time application for 30 years and potentially up to a decade -- or up to a century. I apologize.

This carbon is permanently removed from the atmosphere and stored deep in soils. And further compost application on range lands and farm lands reduces water
use by about 25 percent, which helps farms and agricultural facilities be more resilient in the face of climate change.

Though there are some existing capacity concerns for compost facilities today, we think that it is completely feasible for the facilities to be built up in a timely manner to accept this organic waste. And we strongly support programs to provide financial incentives, particularly to small and medium-sized compost facilities that are struggling under existing regulations.

Turning to methane reductions from California's dairies, we support the goals of the Board to create more sustainably managed farms and to reduce emissions from dairy facilities. But we hope that the staff can continue to work with stakeholders to ensure that the methane emissions reductions are real and that we aren't just leading to dairy industries moving out of state where they will continue to produce methane emissions.

We thank the Board for the inclusion of conversion to dry scraped areas in the current plan, which we feel will reduce methane from lagooning of dairy manure. And conversion of dry scraped dairies will also aid in addressing local water quality concerns, which is key to protecting low income communities struggling with contaminated well water.
Further, dry manure will be able to be co-composted with organic material and other agricultural green waste and even dead and dying trees, to create more composts that can be used on agricultural lands.

From our work with landowners and resource conservation districts, we have found that landowners are willing to engage voluntarily in these practices, and we feel that incentivizing the industry to shift practices is the appropriate course of action at this stage.

The main concern I think with landowners is the fear and the risk of adopting new practices. Digesters can be costly and complicated, and dry scrape conversion, sometimes less expensive, is also frightening. But if we can help incentivize landowners, then we can turn the corner with landowners and help them see this as something they're willing to move into with our next generation of our farmers.

Thank you very much.

VICE CHAIR BERG: Thank you very much.

MS. KAUFMAN: Good afternoon. I'm Debra Kaufman with Stop Waste, the Alameda County Waste Management Authority. Our county includes 17 jurisdictions, housing 1.5 million people.

I'm here to express our agency's support for the development of a regulation to reduce and ultimately
eliminate organics from landfill to reduce methane emissions.

Our county banned planned debris from landfills -- Alameda County landfills in 2009. All our jurisdictions offer weekly organics collection service. And our cities are urban and suburban and range in size from 10,000 in Emeryville to 300,000 in Oakland. Residential and commercial organics collection has worked well across the county and communities, large and small.

Our cities and county would not have been able to achieve a diversion rate that exceeds 70 percent without diverting organics from landfill.

Combining regulatory and financial assistance to increased compost and anaerobic digestion processing capacity combined with phased-in ban on organics at the landfill will help the State and our jurisdictions meet high diversion and greenhouse gas reduction goals. It will also help us divert edible food to hungry people.

Additionally, it will help our agencies meet demand for compost and mulch, which will help them meet water conservation goals, improve soil quality, and increase climate resiliency.

Many of our communities send their organics out of county to counties that are in nonattainment for VOCs; and compost facilities have many cost-effective and
practical ways for minimizing and reducing VOCs, including applying finished compost to windrows.

So I want to thank you for the opportunity to comment.

VICE CHAIR BERG: Thank you very much. Paul. And followed by Rachel please.

MR. SOUSA: Good afternoon, Board members. My name is Paul Sousa. I'm with Western United Dairymen. I'm the director of environmental services.

While California dairy families have made tremendous strides to reduce the carbon footprint of each gallon of milk by over 60 percent since World War II, we are prepared to do our part to make further reductions.

We insist however that that be done based on sound science, realistic goals, in an economically feasible way.

Unfortunately the goals outlined by staff are entirely unachievable by 2030 under the best of circumstances, let alone the circumstances that currently exist.

The current proposal unfortunately sets up our dairy families and this Board and the State for failure.

We can show -- we can only show further leadership for the rest of the nation and the world if we work together to develop realistic goals and an
economically feasible path forward. If we try to force this issue, the end result will be broad emissions leakage as dairies exit the State. The State will not only lose control of emissions, but the San Joaquin Valley will lose countless tens of thousands of jobs.

We have lost more than 600 dairies in the last decade alone, going from over 2,000 to just 1,400 family dairies today.

We lost over 40 dairies last year, and we have seen a significant number of closures or moves this year. Some are closing, while others are choosing to set up operations in other states such as Idaho and Texas and others.

It's also important for the Board to understand that dairies have zero ability to pass on increased regulatory costs to our customers. Our prices are set by the State Department of Food and Agriculture. This reality will further exacerbate leakage if greenhouse gas policies are not balanced and economically feasible.

The plan as proposed does not achieve that balance and will fail. We encourage you to direct staff to work with us to develop balanced, economically feasible, and realistic goals to further reductions and a clear path forward on how to achieve these goals. Western United Dairymen is working with Dairy Cares to provide
comments specifically on the economics.

And I thank you for your time, and if you have any questions.

VICE CHAIR BERG: Thank you very much.

MS. O'BRIEN: Good afternoon, Board and staff.

Rachael O'Brien with the Agricultural Council of California.

Ag Council is a member-supported organization advocating for more than 15,000 farmers across California and the State's three largest dairy cooperatives.

California dairies have been an engaged partner throughout this process; and while they're committed, as Paul mentioned, to doing their part, there are many concerns that persist.

Currently we see the planned dairy methane reduction goals as unworkable and unrealistic. Setting a reduction goal of 75 percent by 2030 when no clear plan exists on how to get there is troubling for our dairymen.

Far more research is needed to identify, validate, and quantify the opportunities for dairy nothing reductions. Removing economic barriers and obstacles is needed as well as understanding the cross-media environmental impacts.

We contend that more information is needed to chart realistic time frames for achieving the proposed
reduction goals.

Another concern remains on the front of enteric emission reduction targets in the dairy sector. Industry, as Paul noted, has made grade strides in the past in improving our efficiency and the GHG footprint for each gallon of milk produced in California. And for those reasons we really contend that ARB should put in voluntary approaches that could be more effective in achieving reductions at facilities without causing leakage of California dairies across the State.

You'll hear more comments from others, but Ag Council does ask the Board to direct staff to continue to working with us to resolve our concerns and find opportunities where we can get this right. You know, we've had I think a really good process thus far with staff. They've always had the door open. We've been able to take them out to dairy operations and show them on the ground how this works. We want to continue to have that open door.

And we do thank you all for your time.

VICE CHAIR BERG: Thank you.

Good afternoon, Kevin.

MR. ABERNATHY: Good afternoon. Thank you, Madam, members of the Board.

Dr. Sperling, thank you for asking your question.
And, Ryan, I really appreciate you giving it a shot there.

It's complicated.

(Laughter.)

MR. ABERNATHY: Now, that's about the only way to put it. Dr. Sherriffs and Mr. Eisenhut.

The process for putting together a digester -- and there's been so many ebbs and flows through this process over the iterations of funding cycle starting, funding cycle stopping, starting to build projects. I actually have been working with as part of an interdisciplinary team of all the different layers of folks that it takes to put together a digester project from a dairy family's concept mentally to actually seeing one up and running and push the button and the switch starts and it's actually creating power.

That process requires a tremendous dedication on behalf of the dairy families, also a tremendous amount of capital investment on the front side of things, with potentially not being able to get a power purchase agreement that actually will pay for the project, in combination with getting an interconnect proposal from PG&E, as an example, that doesn't cost more than the project to build. I personally turned $5.4 million back into 1603 funds because the interconnect proposal was more than the project we were going to build.
So there's a lot of complicated things that go along with this.

And we talk a little bit about, you know, leakage and other things. California dairy families, they're good at milking cows. The complexity of running a digester is just that. It's a whole 'nother entity within an entity.

But I want to make this comment. I usually don't talk about pricing at all. But California dairy families from 2010 to last month have an economic pricing disadvantage compared to the federal milk pricing orders where cumulatively California dairy families have not received $1.9 billion in funds based on our pricing system.

That's just shy of $1.2 million for an average thousand-cow dairy since 2010.

"So, jeez, do I want to put up with all the rules and regulations in California or do I want to move to Iowa? There's none of that and I make more money."

So that's one of the reasons that this leakage is such a prominent discussion, and it's a reality. I actually happen to work for most of the families that either have facilities existing out of state that have been built in the past 10 years because we've had one profitable year in the past 10, and that was 2015.

Staff has been great. Let us keep working with
staff. We need to put together a reliable program because we want to do what's right. And we can do what's right if we have the time and the dollars to implement it.

    Thank you.

VICE CHAIR BERG: Thank you very much.

MR. CATIVIELA: Good afternoon, Madam Vice Chair and the members of the Board. My name is J.P. Cativiela. I'm here for Dairy Cares.

    I want to start by pointing to an earlier commenter who pointed out a United Nations FAO report on livestock emissions, and just say if you read the rest of the story of that report, it very clearly points to North America, and the United States in particular, as the most efficient producer of milk in the world from a GHG standpoint per unit of milk.

    And its greatest suggestion in that report is that more countries produce milk the way we do. And that was kind of left out when the impact of that report was discussed.

    The staff in analyzing the dairy industry in California has stuck to sort of an emissions factor per cow approach. And we think it's very important that we use in California the same standard that everyone else in the world uses, which is emissions per milk produced. On that, we are clearly world leaders in efficiency.
Doing it the way we do it now is a little bit like comparing a bus to a small car, where even though the bus has slightly more emissions, it can carry 50 people instead of a couple of people. And that's really what we have here. We produce much more milk with the same emissions as cows in other places.

I'm here today to focus on the impacts to air quality that could result from a rushed approach that sets goals or mandates without research to understand the environmental and economic factors related to those.

In particular, this strategy focuses on three components - digesters, converting dairies from flush systems to scrape systems, or converting dairies to pasture. All three of these prevent significant problems. Digesters create NOx; flush to scrape systems will create VOC, ammonia, and PM emissions; and pasture dairies, although we support our pasture dairies, it's not even clear that this wouldn't increase GHG emissions to force that type of an increase.

And they certainly would not use the resource of manure to create energy. They would use more water and more land to create the same amount of milk. And they increase in enteric emissions.

So for all those reasons we should examine this. The Environmental Analysis provided with the
draft strategy is inadequate. It mentions that impacts exist, but often there is no serious discussion or evaluation of those impacts. For example, on flush to scrape systems in digesters, you have very little information except that VOC, NOx, PM may increase or they may decrease, with almost meaningless evaluation of what that means. The shoulder shrug does not help us. We can and should do a better job of evaluating these emissions impacts.

VICE CHAIR BERG: Thank you very much for your testimony.

MR. CATIVIELA: And in conclusion I'd just say that California dairies have already done more than almost anywhere else. We're willing to do more, but it must be done in a smart and strategic way. And we urge you to direct your staff to work with us to develop a feasible plan with achievable goals.

Thank you.

VICE CHAIR BERG: Thank you.

MR. BOCCADORO: Thank you. And I'm going to go fast. Michael Boccadoro also on behalf of Dairy Cares.

And I'm going to try and give you a little perspective on why I think Secretary Ross said she was scared of targets. And it's because they really are unrealistic.
We've already talked about the 14 dairy digesters -- it's not 13. We commissioned the 14th earlier today just a few short miles from here and were able to make it back.

We have 14 digesters today. The plan assumes we're going to have 500 -- or dairy digesters serving 500 dairies by 2030. How do we go from 14 in the last 12 to 14 years to 500 in the next decade?

Unachievable.

The plan is built on the concept of 55 regional digesters where we would haul waste from multiple dairies to a centralized location. We don't have one like that today in California. We had one. It failed down in the Chino basin due to economic reasons.

So again, we think that that part of the plan is unachievable.

The plan assumes significant revenue from dairy methane into transportation projects. And I'm one of the biggest proponents of that. And I know this is an area Mr. Sperling has a lot of expertise. But that -- those revenues, 80 percent of the revenues in a dairy biogas to transportation project comes from LCFS in wind credits.

Okay. Those credits are volatile, they're unpredictable, and they're politically dependent. You can finance today a dairy biogas to transportation fuel on
credits. Impossible. If you can find a bank that will
give us the loans, we'll put the projects.

That's another reason why we think it's highly
unlikely these projects are going to get built.

The plan assumes the overwhelming projects will
inject pipeline biomethane. We don't have a single
project -- dairy project in California injecting pipeline
biomethane today. We'd like to get there. But we're not
there yet. We're certainly not going to have 500 of those
projects in the next 7 to 10 years.

And, finally, the plan assumes regulation at some
point in the future. Understand, once you regulate and
mandate these types of projects, the reductions -- the
revenue streams from the credits go away. Okay. Or they
get substantially reduced, and make the economics, that
are already difficult, worse. And for that reason, we
think it's unrealistic.

So in closing, we're not saying, as others have
said today, that we can get more done. We can. But we
need to do this in a smart way. If we do it in a smart
way and work with staff to come up with a realistic plan,
we cannot only get methane reductions, and significant
ones, but we can actually improve water quality in the San
Joaquin Valley and we can dramatically improve air quality
through replacing diesel with renewable transportation
Please direct your staff to continue working with us to get to a reasonable plan.

I'm happy to answer any questions people have.

VICE CHAIR BERG: Thank you.

MR. BOCCADORO: Thank you.

MR. ANGERMANN: Good afternoon. My name is Till Angermann. I am the technical program manager for the Central Valley Dairy Representative Monitoring Program, and I have been providing technical services to that organization since its inception in 2010.

I also served on the ag expert panel convened by the State Water Board in 2014 to make recommendations for reduction of nitrates in groundwater.

I'm presently leading the research efforts in collaboration with University of California agronomists towards identifying dairy farming management practices that are protective of groundwater quality.

The proposed SLCP reduction strategy proposes conversion of flushed areas to solid scraped areas as a means to reduce methane emissions. I am here today to bring to your attention the fact that the strategy's proposal fails to consider, let alone solve, very basic realities of nutrient management and water quality protection.
Nitrogen is one of the primary elements that farmers apply to crops to support plant growth. Nitrogen uptake is crop specific and it varies throughout the growing season.

Corn, which is the most important forage crop grown by California dairies, is known to agronomists as being particularly challenging for nitrogen management because uptake is extremely variable throughout the growing season.

One of the most basic tasks for a farmer is to match in applications to the crop demand to ensure good yields and minimize impacts to groundwater. Dairy farmers presently do this by blending liquid manure with irrigation water at different rates throughout the growing season. Converting dairies from flush to scrape converts manure from the liquid to the solid form and it derails the mechanism for delivering manure nutrients to crops when they are needed for plant growth. There is currently no application mechanism to deliver solid manure throughout the growing season to the crops.

So the strategy's proposal to convert dairies from flush to scrape removes dairy operator's ability to locally recycle manure nutrients by fertilizing the crops at the right rate throughout the crop growing season. Worse, it would require farmers to purchase large
amounts of synthetic fertilizer to replace the manure nutrients that they can no longer use while creating another yet-to-be-solved challenge. The farmers would have to secure a reliable mechanism to export vastly increased amounts of solid manure. There is presently no market for this low value commodity, which can economically be hauled over short distances only.

My colleagues and I will provide more detailed written comments to you on this issue. So we urge you and your staff to consider conversions from flush to scrape much more carefully before relying on it as a strategy for reducing GHG emissions.

Thank you.

VICE CHAIR BERG: Thank you.

Cynthia.

MS. CORY: Cynthia Cory, California Farm Bureau.

Thank you, Vice Chair Berg.

This has been said and I'm going to say very short and sweet: If we don't keep it voluntary, you're going to break the number one commandment of AB 32, leakage. And you're going to get it. They will leave. We will increase are carbon footprint. And we will, I'm sure, as many of us enjoy our many flavors of yogurt and our wonderful cheese, they'll come from North Dakota and Nevada instead of Lodi and Sonoma, and that is a travesty.
So we need to rethink it. I -- Dr. Sperling, I encourage you, if you haven't gotten a full answer about why these aren't working and why we only have 14 now in this State after trying really hard, I assure you we can give you more answer.

I would encourage you to turn to page 109 or 114, it depends on -- I pulled mine off the web a little earlier. But Chapter 8, Table 11. And it's got all of the economic assumptions there. As Michael said earlier, if we don't have RIN credits and we don't have LCFS standard - which you know very much about - then these all go away. Those assumptions that these are built on, all that revenue, all that cost effectiveness, goes away.

So there's folks out there that are willing to do it. But we got to work with them. We've got to keep this voluntary.

And I ask you to ask the staff hard questions, to look at these assumptions carefully. And we want to work with you. We want to work with the staff and continue to find a viable solution. But what you have in front of you now is not it.

Thank you.

VICE CHAIR BERG: Thank you, Cynthia.

Stacey.

MR. SULLIVAN: Thank you. Stacey Sullivan,
Policy Director with Sustainable Conservation.

We appreciate the opportunity we have had over the last year and a half to work with the staff on -- based on our experience -- a long-standing experience working with the dairy industry on issues having to do with waste -- the environmental impacts of waste on air, water, and greenhouse gas emissions.

We appreciate -- we've appreciated being able to work with them. We appreciate the fact that a study that we did last year has -- was cited by the staff in the draft.

We're an environmental organization. We have worked with the dairy industry, but we are not the dairy industry.

Our concern is to get real reductions in greenhouse gas and real reductions in risks developed in air and water quality as well. We are very concerned about leakage. We feel -- and we got a very strong sense from the administration that what they're trying to do is to create like a model approach to greenhouse gas reduction that can be replicated in other places.

I'm very uncomfortable being up here having had to fill out an "opposed" card. I wish there had been one that was -- said "concerned and puzzled."

(Laughter.)
MR. SULLIVAN: But the -- we will be submitting comments. We made a lot of comments on the draft regulations. We feel that to a very large extent they were not addressed. But there are two new elements in the current draft that we want to bring attention to. One is the increased emphasis on regulation. And also the economic analysis, particularly those areas based on, as Michael was referring to, some of the assumptions being made on both the costs and the benefits that can be accrued from -- both from flush to scrape conversion and from vehicle fuel and pipeline injection.

We are concerned that this regulatory process is going to have the effect of locking in the targets and making -- basically making them mandates before we understand how we're going to get there. And we feel that's backwards. We really feel that we should know what is it -- you know, what is the cost of flush to scrape; what are the exact reductions that we can get from it; what are the possible impacts on other environmental concerns, particularly air quality? Do we have a market? Do we have an infrastructure? Do we have the technology for vehicle fuels? Do we have these things for pipeline injection? Have we figured out how to deal with the interconnection issue?

But these are things that need to be figured out
before any steps are taken to turn any of these targets into mandates. And we feel that keeping things voluntary is the way to go.

Thank you.

VICE CHAIR BERG: Thank you very much.

Brent Newell.

Okay. Nathan.

Oh, Brent, there you are.

MR. NEWELL: Thank you, Madam Vice Chair, members of the Board. I'd like to thank the staff for all their work on the plan. It's -- you know, there's been multiple drafts, multiple workshops. They also did an evening workshop to ensure community participation.

The plan is supposed to prioritize the development of measures that provide co-benefits, the air quality, the water quality that benefit disadvantaged communities. So within that lens, we want to applaud the plan's mandatory regulation strategy for manure management.

We also want to highlight that the plan does not require mandatory regulations for enteric emissions, which account for 20 percent of the State's emissions. So it's important that the plan also address enteric emissions and not leave that to a voluntary strategy.

The goal here is to reduce methane, not to
achieve the lowest greenhouse gas intensity per gallon of milk produced in California. We've got to reduce methane. Dairies emit 45 percent of the State's methane, at a global warming potential of 84. That's huge. That's a huge impact.

Now, this Board and other leaders in California made a big deal about the Aliso Canyon leak at Porter Ranch. Well, dairies on average per day emitted 2.3 times the amount of methane that came out of Aliso Canyon. Even at the peak of that leak dairies in California emitted 1.4 times the amount of methane coming from Aliso Canyon. There is no reason why the Board should continue a voluntary control strategy for dairies that it has been using since the 2008 scoping plan. Years of unabated methane emissions have entered the atmosphere.

It's time to immediately and as quickly as possible adopt and implement mandatory controls at dairies to reduce these emissions.

Towards those ends, the Board should support the transition to pasture-based systems. Pasture-based systems provide multiple co-benefits, including carbon sequestration and healthy grasslands. That's a negative greenhouse gas impact. Pasture-based systems avoid the emissions of methane from liquefied manure.

Pasture-based systems also don't rely on massive
amounts of have corn silage, which is the largest source of volatile organic compounds in the San Joaquin Valley. We're talking about massive co-benefits.

Digesters burn methane gas and emit NOx in that same air basin in the San Joaquin Valley. That doesn't benefit disadvantaged communities. It harms disadvantaged communities by increasing emissions compared to the emissions from a natural gas combined cycle power plant. Those power plants are much more efficient at generating electricity than dairy digesters.

So in conclusion, please regulate methane.

Thank you.

VICE CHAIR BERG: Thank you very much.

MR. BENGTSSAN: Good afternoon, Board members.

Nathan Bengtssan with PG&E.

Let me start by saying that PG&E strongly supports the State's GHG reduction goals and that the ARB's focus on SLCPs is highly warranted and rightly introduced as a temporal dimension into the State's evaluation of GHG emissions.

We've done a great deal of work on methane emissions from our natural gas system in recent years. And we're proud to have been recognized by the Obama Administration for some of our voluntary efforts on the future of methane emissions. We're with you on this.
There are many parts of this plan to celebrate in our written comments and I will address them in my now 2 minutes 30 seconds today. I want to focus on the sector-specific targets for methane.

So, believe it or not, with this baby face, I had been a professional long enough to have been a third grade teacher in a past life. And in the classroom, as in combating climate changes, as this group well knows, setting good goals is critical. They should be ambitious but feasible. Where you're going, transparent, how you get there. And based on good data, where you're coming from.

So first the idea of where we're going and how we're going to get there. ARB's methane emissions reduction target for the oil and gas sector is based on a U.S. EPA proposed emission standard, which might be an imperfect proxy for California.

Also, reductions are expected from rules and procedures still under development at the ARB and CPUC and elsewhere. And the SLCP does not provide a really good breakdown of the emissions reductions for each measure. Nor does a critical component, the CPUC leak OAR, quantify expected reductions.

So we urge the ARB to continue the discussion with us and the rest of industry to ensure that the
methane target for the natural gas sector is indeed achievable. At the least, clear quantitative lines need to be drawn between the sector-specific targets in each of the measures to obtain them.

More generally on the state of goals, it's critical that the individual pollute reductions broadly, take into account technical potential and cost effectiveness.

GHG reductions are best achieved under a flexible policy framework that optimizes sustainable and cost-effective reductions from the portfolio. And the SLCP does not currently provide sufficient information on total cost and associated emissions for all of those. It does in some cases.

We recommend that the strategy consider these issues in greater depth before finalizing the sector-specific target.

Also really quickly, where we're coming from, the issue of data. I don't think any teacher would use their third grader as kindergarten beginning of your diagnostics to plan for their end-of-year goals. Similarly, we urge the ARB to update the methane inventory data and business-as-usual scenarios before finalizing the emissions targets.

The 2013 ARB emissions inventory uses 2007 oil
and gas survey to estimate emissions. This may not
capture the many gas infrastructure improvements that have
been made. And additionally there are other academic
efforts and regulatory efforts to improve this inventory.
We hope that they're considered. And we look forward to
working with staff on hopefully pushing these refinements
forward.

Thank you very much.

VICE CHAIR BERG: Thank you.

MR. SKVARLA: Hi. My name is Mikhael Skvarla.

I'm here on behalf of the California Council for
Environmental and Economic Balance.

We appreciate all the work that staff's done.

However, we're here to -- we've got some concerns and
questions.

Initially we question the environmental and
economic efficacy of single emission caps of short-lived
climate forces. We believe that a comprehensive climate
policy is the best way to approach a climate change in
general. And the Pacific Northwest Laboratory has brought
this up in a study from 2013 that the benefits of going
directly at methane, black carbon, and other short-lived
climate forcers may not get the outcome for the costs that
we're looking to achieve. And since economics and the
budget is finite, we must encourage you to go for the
biggest bang for the buck, which we still believe is the Cap-and-Trade Program.

Furthermore, we have concerns about how these individual caps in some of the proposed regulations may impact the Cap-and-Trade Program, specifically additionally and the ability to -- of the flexibility that that program provides in reducing costs and allowing us to achieve great emission reductions for the lower possible costs.

And, again, the 20-year versus hundred-year values that -- the global warming potential, that is kind of factored in with the -- as we look at the programs as a whole. By focusing on a 20-year value versus a hundred-year value, it puts us out of synch with the international progress that's taking place right now. And we want to make sure that our base lines are also in synch with those. And this policy proposes a different base line than what we've base -- what we've been moving forward with, which was 1990. By saying 1990 on the black carbon front, we lose all the emission reductions that we've achieved. And a research project that's been presented in front of this Board has shown that we are 85 percent below 1990 levels for black carbon due to our diesel rules.

Now, you're discounting the billions of dollars
of investment by industry and the compliance entities in making that progress and misleading the public in a certain sense that they are unaware of the fact that now we're trying to achieve another 50 percent on top of that 85 percent. Which I think roughly on the back of the envelope is 96 percent reduction from 1990 levels. It's pretty substantial and creates some issues when you start to think about that from anthropogenic sources only, which is what the **Lar legislation proposes. We do believe that looking at the black carbon from the sense of forestry is a great thing, because a forest fire can often diminish all of the efforts that have been made in the SIP.

So with those, we'll present the rest of our comments in writing.

Thank you.

VICE CHAIR BERG: Thank you very much.
Bonnie, we're going to go ahead and take a 10-minute break to give our reporter a break.
But we're going to stick to 10 minutes. I'm actually going to sit here and just do email.

(Laughter.)

VICE CHAIR BERG: So be back 10 minutes. Okay?

Thank you very much.

(Off record: 3:43 p.m.)
(Thereupon a recess was taken.)
(On record: 3:50 p.m.)

VICE CHAIR BERG: So if we can get back to our seats quietly, then we will have Bonnie Holmes-Gen start us off.

Thank you, Bonnie.

MS. HOLMES-GEN: Thank you, Vice Chair Berg and Board members, and thank you for the 2 minutes 41 seconds.

The American Lung Association in California and health organizations are strongly behind your efforts to develop and adopt this short-lived climate pollutant package, or what we call the super-pollutant package. We're strongly supportive of the targets, the regulatory measures, incentives, and the phaseout of harmful pollutants.

We believe the targets are necessary and achievable and long overdue. And we -- we certainly support incentives, are supporting over 200 million in incentives. The Governor's proposal. And we're supporting augmentations of those incentives. But there's nothing that can replace the certain and ongoing emission benefits that we can get from regulations. So we strongly support that emphasis.

We know that there will be concrete health payoffs from the measures that are in this strategy. And
we appreciate that you have a health analysis and hope you continue to flesh out some of those benefits.

Just to quickly run through. These measures are going to cut heart, lung, and cancer risk hospitalizations and premature deaths associated with pollutants like diesel exhaust, residential wood smoke and the smoke from fires, improve local air quality, reduce food and security and food waste. We've had a long discussion about that. And reduced the broader health impacts from climate change as we substantially slow the climate change -- the acceleration of climate change, which is so important for our health leaders.

Some quick recommendations as we move forward with this strategy. We urge you of course to maintain a strong focus on these regulatory approaches, as opposed to voluntary approaches to cut super-pollutants and improve health.

We are strongly supportive of regulation on the dairy waste and oil and gas sectors that you've discussed today. It's really important to move forward as quickly as possible with these measures.

We support a strong emphasis in the strategy on transitioning the freight and off-road equipment sector to zero emission as broadly and as quickly as possible. I know you had a long discussion this morning. And we
appreciate the goals, targets and specific emphasis in the mobile source strategy and the sustainable freight strategy on zero emission.

And we support action to reduce wood burning for residential heating. And we'd like to work with you and work with the air districts to do everything we can to align the regulatory efforts and incentive programs to support this goal of moving away from residential combustion. It's really important for health and air quality attainment around the State.

So, finally, we will be submitting a letter. We already have a letter in with over 34 health organizations supporting strong targets to cut super-pollutants.

Thank you for your time.

VICE CHAIR BERG: Thank you very much, Bonnie. Bill.

MR. MAGAVERN: Hi. Bill Magavern with the Coalition for Clean Air. And we've been for many years advocating for action to reduce these short-lived climate pollutants. So today's an important step along the way. It's urgent that we reduce these pollutants, both because it buys us some time for the carbon reductions we need to get out of the climate crisis; and also because many of these pollutants are also harmful at ground level.

So we worked closely Senator Lara on SB 605, and
I would say that the plan you have before you today is a faithful implementation of that law, although it's a little bit past the deadline. Which I say just to emphasize the fact that we need to move speedily towards implementation.

I also want to make clear that before SB 605 this Board already had the authority to address these pollutants, both under AB 32 and under the California Clean Air Act. So whether SB 1383 passes or not – I hope it does – but you will continue to have that authority.

It is essential that we use a time frame of 20 years or fewer because of the urgency of getting these pollutants under control. And no sector should be exempt. The organics diversion goal is absolutely crucial, and we heard Howard Levenson from CalRecycle say that it's doable. Doing it by 2025, we don't need any new inventions to make that happen. That can be done.

The oil and gas rule also, which has been pending here for a while, that needs to be adopted by ARB. And we need to make sure that in the future we don't have any more Aliso Canyons. That catastrophe cannot be repeated.

The dairies of course need to be regulated. As you've heard, they are the biggest emitter of methane in the State. Purely voluntary approaches don't work. We need a mix of carrots and sticks.
And the HFC phase down, we also support where there are substitutes available. We need to get those more greenhouse friendly refrigerants into place as soon as possible.

So we are eager for this plan to go forward. I know you're not doing that today, but hope that you will adopt it later this year.

Thank you.

VICE CHAIR BERG: Thank you, Bill.

Martha.

MS. ARGUELLO: Good afternoon. My name is Martha Arguello. I'm the executive director of Physicians for Social Responsibility, and also a member of EJAC for the last -- well, since 2006.

I want to -- I'm very excited that this plan is finally out. We want to commend the staff, and we want to thank the staff for also incorporating some of the EJAC recommendations, and we'll continue to work and push to make sure more of those are incorporated.

Our organization -- as an organization, Physicians for Social Responsibility has long argued that we need to act on the short-lived climate pollutants to stabilize the climate, but also because these pollutants at the ground level, at the community level will have real impacts on health. And reducing these will have real
benefits to people.

So I want to focus right now around the methane issues. We want to make sure that around the dairy regulations that they are mandatory. We have many years of experience of watching voluntary programs fail. And this is too important for the health of our communities but also to start finding the alternatives so that we can have milk and that we don't have to sacrifice health of the planet in ours to have milk. We can figure that out. But we're not going to do that if those measures are voluntary. We're going to have to lead the horse to water and make that horse produce milk and then drink it.

(Laughter.)

MS. ARGUELLO: So, yes, I know it's not going to be that easy.

And we also want to focus on the oil and gas issues. We work with many urban communities that are living next door to oil and gas operations. And we need -- we need assistance because we're finding that local governments are not coming to the rescue of communities that live on those fence lines. So we are depending on you to have strong oil and gas regulations so that we're not pulling oil where people live, learn, worship, and that we don't have another Aliso Canyon. And that my big fear is that the next one will happen in a low
income community, a community of color that is already being ignored for many years around these issues.

So, again, we encourage you to take strong action. And we will -- both EJAC but also my organization and many of our allies will continue to work with you to ensure that we stabilize the planet, clear the air, and make it healthier for everyone.

Thank you.

VICE CHAIR BERG: Michael -- sorry, Tim. Tim Carmichael.

MR. CARMICHAEL: Good afternoon, members of the Board. Tim Carmichael with Southern California Gas Company. We're generally supportive of the plan before you. We're going to submit more comments in writing.

I'll just flag one issue. We've been in touch with the staff, Ryan and others, talking about some of the data that's being used on the oil and gas portion that was referenced earlier. But there's a disconnect between what we think some of the data points are and what staff seems to be using, both historical and projections. And we'll continue to work with the staff on that piece.

Thank you very much.

VICE CHAIR BERG: Thank you very much.

Gary.

MR. LISS: Gary Liss. I'm here representing Zero

I'm here to strongly support the 90 percent by 2025 goal to phase out organics from landfill. This is critically important, particularly to get food to people, then animals, and getting the organics back to the soil.

There are many national initiatives that are also helping to support this. In your document you reference the Paris Climate Accords and the President's Climate Action Plan and his methane initiative. But there's also very exciting initiatives that are also underway. I just participated in the G7 alliance on resource efficiency. I had -- the first U.S. workshop in Washington D.C. This is an effort by the G7 nations to focus on efficiency as the key to the circular economy and the future for sustainable materials management.

Those are all the key new buzz words that everyone's talking about, EPA's promoting.

EPA also has the food recovery challenge. It's the first national goal for solid waste ever in the history of the United States. So the fact that this could contribute to helping provide the resources for the support of getting food to people for those who need it is really important.

The EPA has a website on managing and
transforming wastestreams that I just helped to develop. Over five years of effort to develop a hundred different policies and programs and 250 examples with real life examples of ordinances, programs, contracts, and other initiatives are listed, and if you go to EPA.gov, managing and transforming waste streams.

In zero waste it's all about efficiency and it's also about getting the health benefits. I just heard Bill Magavern and a couple of other people speak about the health benefits. I'd really encourage you to strengthen that. When I worked on the Prop 23 -- the anti-Prop 23 campaign that was to repeal AB 32, that was one of the messages we were trained on. I was mayor and on the council of Loomis, California, at the time. And in the training they emphasized that people get clean, they get health. That's what really is most important to stress.

So, yes, climate change is important, and I don't want to see the 80 feet rise in 10,000 years that we're going to see in the oceans.

But what people get is the health benefits. So I really encourage you, as you roll this out, as you highlight this, that emphasize that the health benefits are really important.

For our particular piece of the plan on organics out of landfills, one of the things that we've heard is
that some landfill operators are saying, "No, no, keep it in there." These are the same operators that have worked to reverse bans of yard waste in other states to get more organics in landfill in order to create landfill gas recovery systems. That is the least efficient way to recover that energy. If you want to recover energy, put it in anaerobic digesters, don't put it in the landfill.

Thank you for your time.

VICE CHAIR BERG: Thank you very much, Gary.

Dr. Sawyer.

Welcome.

DR. SAWYER: Thank you, Vice Chair Berg and Board members. I'm Bob Sawyer. I'm a professor of energy emeritus of the University of California at Berkeley and former chair of the Air Resources Board.

When I arrived at the Board 10 years ago, I had a to-do list. And on that to-do list was acting on short-lived climate pollutants. Staff at that time convinced me it was a bad idea, citing three reasons:

One, that the scientific understanding, especially the quantification of the warming potentials, the appropriate time, and the inventories were just not adequate to take action; two, that developing a regulatory policy would be extremely complicated; and, three, that the staff resources were inadequate.
I'm delighted to see that all of those blocking reasons have disappeared and that you're ready to move ahead at this time.

I commend the staff on the program that they're bringing forward, and I encourage the Board to act appropriately when it's presented to them.

Thank you.

VICE CHAIR BERG: And thank you. And thank you, Dr. Sawyer, for all your dedication and work.

Sean Edgar.

MR. SEAN EDGAR: Vice Chair Berg and Board members. Sean Edgar. I'm the director of Clean Fleets. And I'm going to have some focused comments on fleet emissions, black carbon from the non-forest sector.

I'll just open by saying that the hour is late, the time is short. And my working title was going to be "How to get from here to there." But I'm not Burt Lancaster, so it won't be "From Here to Eternity." I'll make my comments very focused.

The staff estimate on black carbon emissions looks at the base case of 2013, and 58 percent of the black carbon emissions are from mobile sources. And that drops to 32 percent in the 2030 case, and presumably reflects the reduction in emissions that are anticipated from the historic diesel regulations I've been working on.
for the last 16 years with the Board. And I guess my only challenge there would be, it's a great projection but they're efforts that have not yet occurred, and I'm not certain that this -- you know, having been in this chamber for many years on how aggressive the Board makes the regulations, I'm challenged that, similar to the testimony on sustainable freight earlier today, without adequate resources to make the investments that are needed, I'm not sure that California fleet owners are going to get to the clean fleets that the Board envisions.

So I have a couple focused items specific to small fleets if 41 percent of the trucks are still owned by small fleets. And those decision points are somewhere over the next two to four to six years for them to make decisions on how to get to the cleanest vehicle, absent the incentives for them to get to the cleanest vehicle, they aren't going to get there on their own. And I say that because on the Board's behalf I've been out in front of over 5,000 fleet owners doing training across the country on your regulations and many of the fleet owners that I speak to just aren't quite ready to get to the first clean truck, let alone the second, third, and fourth or fifth cleaner truck for technology that's not really moving strongly today.
So I'll just reiterate that by saying that Prop 1B is the last year here, and so that's going to -- my encouragement will be that the Board should redouble its efforts toward finding financial incentives to get to those cleaner trucks if we're going to be reducing black carbon emissions together.

In the time remaining I'll just reiterate my colleague Julia Levin did a great job on talking about harnessing a larger portion of the low carbon transportation funding at $500 million, harnessing more of that to get the low carbon transportation. Because what's currently proposed for the near-zero engine is about $23,000,000, and we would like to see funding for that increased in the short term. So if a short-term action is needed to reduce short-term pollutants, we're here to work with you and suggest that you strengthen the plan in the ways we've recommended.

VICE CHAIR BERG: Thank you very much, Sean.

Neil Edgar.

MR. NEIL EDGAR: Good afternoon.

VICE CHAIR BERG: Good afternoon.

MR. NEIL EDGAR: Or good evening. I'm Neil Edgar on behalf of the California Compost Coalition, and we're here in full support of the methane reduction strategy elements related to landfill -- removing landfill
organics.

We represent about half of the current compost production in those materials that are being moved. That's about 10 million tons of material, putting them to higher and better uses in climate, smart agriculture, water efficient landscapes, renewable fuels production and other purposes that have positive impacts in all five of the pillars.

We are selling all of the compost that we can produce. Markets continue to grow. We've heard from landfill owners today, both public and private, who are opposed to removing those organics from their income stream. We understand that. It's probably a problem for them.

Another myth that I've heard today was landfill gas being a renewable resource. I don't think we can consider a waste byproduct a renewable resource, but some folks will likely shave it that way.

Our members are eager to get to work achieving the goals that you're setting forward. We have many operators ready to develop the needed capacity. This strategy will provide some certainty of feedstock. That will help provide clarity of investment.

It will help stimulate investment by building economies of scale. AB 1826 is a good first step, but
it's only the commercial sector. It doesn't go far enough or fast enough, and we're hearing backlash from jurisdictions in Southern California in particular that they don't believe it's enforceable and they're just going to wait for somebody to show up and tell them they need to be in compliance. We don't know when that's going to come. But in the meantime that's inhibiting the ability of our industry to grow. And investors do not like uncertainty.

They will -- people will come forward, people will step up. They'll see this as a market signal to start moving forward on projects. Some of the landfill operators you heard from today are fully prepared to put composting facilities at their landfills. And if you force the issue, they will continue to develop those operations.

You've heard about cost factors. And, yes, it will be costly. If you refer to Appendix D, Table 23 in your document, you'll see that the combination of AD and compost is most cost efficient. The Legislative Analyst's Office issued a report last week that said organics processing loans and grants were among the most cost efficient investments, with greenhouse gas reduction funds right at the top of the list of about 50 items.

So we look forward to working with staff and
helping to move forward with a policy that seems to make
sense. But the time is now to move forward. Waiting on
this is only going to delay implementation.

Thanks.

VICE CHAIR BERG: Thank you very much.

And our last speaker, John Dans.

MR. DANS: It's a hard act to follow the two
Edgar brothers. And for the record, I'm not the third
Edgar brother. He's not here today.

My name is John Dans, and I'm the executive
director of the California Resource Recovery Association.
We have a variety of members. But germane to this
conversation, we have many who are local recycling
coordinators who work for public agencies.

We have been and we continue to be supportive of
your efforts to address short-lived climate pollutants,
particularly through the reduction strategy that you're
currently fine-tuning.

We naturally have a particular focus on methane
emission reductions from landfills. We encourage you to
continue your work with CalRecycle implementing the
provisions of AB 1826. It's operational now. It presents
immediate practical challenges for many of our members.
And we hope that ARB and CalRecycle coordinate those
efforts between the regulations that we see coming
downstream and the requirements of AB 1826 right now.

Once again, we're supportive. We appreciate the opportunity to say so.

Thank you.

VICE CHAIR BERG: Thank you very much.

Well, that concludes our witness lists for today. Since today is the first of two public hearings, there is no need to close the record today. And we will go to Board comments.

Before we do that, I would like to ask Richard Corey if he could help the Board frame up the fact that what we're looking at today is a plan much like the scoping plan. And we've heard some very deep concerns, specifically from the dairy, and, quite frankly, from the landfill and organic waste and a few others about the suggested reductions, about the cost containment, about the investments that are going to be needed.

And the fact that a lot of this does translate into regulation, can you please for the Board frame up the conversation so that we understand the -- what the intent of the plan is and what you're thinking and your staff is thinking about what you're going to be doing for next steps and interacting with these stakeholders. And then event -- this is going to come back to us in a form of a vote on a plan and how that translates into the next steps
EXECUTIVE OFFICER COREY: Sure, Vice Chair Berg.

So just at the highest level, SB 605 recognized the importance of short-lived climate pollutants in terms of their contribution to climate change. And the directive was develop a plan, basically to, one, look at the emissions of short-lived climate pollutants in the State, look at opportunities for reductions. What the plan does is both those things.

The inventory, as best that we can characterize it, to where the potential opportunities lie. And I'd characterize it as it clearly identifies options for further reductions. But I wanted to dig a little bit more into that.

The conversations from the folks really that -- the range of folks that testified, we've had a number of really constructive conversations. And I think that came through. Not always necessarily in agreement, but I think a healthy exchange. And the fact is, what we did in this draft plan -- and I'm characterizing this -- is put our cards on the table. Put our cards on the table in terms of where we believe the reduction opportunities lie, put our cards on the table in terms of the potential measures, as well as a current characterization of costs and benefits. And what I heard from folks, a number of folks
say that with respect to the comment deadline of next week, we're going to be getting a number of written comments. I think you're going to go, based on what I'm hearing, pretty detailed in terms of responding to the information and documentation that we've put out. I actually am looking very forward to that. I think that actually is very useful, and that's the kind of exchange that we need to have. I heard specific concerns about with respect to, Vice Chair, the point you just made, dairies and the organics diversion.

Heard concerns about barriers, concerns about interconnection, concerns about leakage. Those are fundamental issues that need to be having a clear understanding of the underlying economics, the opportunities and the risks. And to me, for folks to lay that out from their perspective, I think its going to be really useful.

So from a next-steps standpoint, here's what I think needs to happen. We get those comments next week. And my commitment, our team's commitment is to sit down with the commenters, particularly on those two areas I just talked about, organics diversion and the dairy digester folks. Deep dive, particularly in economics. That the -- I heard comments about the value of the, just as an example, low carbon fuel standard RIN credits, which
you all know low carbon fuel standard credits are quite high right now. But I heard concern about you can't finance against those credits and there's uncertainty. We're going to do a deeper dive on that conversation.

We also need to have a deeper conversation with respect to leakage concerns. Because you all know that a -- you know, I'll call it the prime directive for any Star Trek fans here -- is you don't win if you just push a business out of state and the activity continues elsewhere, in fact, often with higher emissions.

Understanding what leakage risks -- what the leakage risks are and the underlying economics is a key question. It's an important one to us. And I would say that's embedded in the type of measures that we brought before this Board. And this is -- it's clearly a priority of this Board that we not -- that measures and actions that are taken not translate into significant leakage-related issues.

That'll be the conversation. That'll be the deeper dive. That'll be the nature of the analysis and follow-up. And the question's going to be, does that underlying work -- how does it inform any revisions to this plan that we will be bringing back to the Board in the fall? So it will allow time. And I don't think -- this is not going to happen in one meeting. We're going
to have to -- we're going to have to iterate on this. But I think where it starts is a deeper analysis. We certainly would have constructive conversations. But I think the report in a way is forcing a deeper level of conversation because the analytics are now in there.

I want to answer one -- though one more element, Vice Chair Berg, because I think it's an important one. And you posed this question. And I think it's the distinction between a plan and a regulation or a measure.

And I don't want to in any way minimize the importance of a plan. This plan is really important, clearly is laying out a roadmap for a priority to deal with short-lived climate pollutants. It's laying out a roadmap where we think the opportunities for reductions are. It's also laying out a roadmap where we think incentive-based strategies or regulatory-based strategies would be a viable approach.

But if I use the scoping plan as an example. If you look at the original scoping plan, you could say the same about the second scoping plan or the update. What that plan did was lay out -- California has a target to get to a 2020 GHG -- basically to get to 1990 emissions by 2020. And what that plan did was lay out -- here's our inventory. Here's where the emissions are currently coming from. Here's BAU, our best characterization that
business is usual in 2020. Here are the opportunities for
reductions, reductions from the HFO -- these. There were
mobile-source-related measures. There were the landfill
measure. About two dozen measures in that plan.

But what we found out -- and it was our best
assessment at that point as to where the opportunities for
reductions were. But when the Board acted on that plan,
basically the Board directed us, go forth and do the
analysis on those individual measures. And what that
meant was, even though the plan was a considerable amount
of work, the actual deep dive on individual measures was
even much more, because anything that becomes regulation
typically is a two-year -- at least a two-year process of
iterating, going deeper on economics, often independent
studies, expensive exchanges with a broad spectrum of
stakeholders to ultimately develop a proposal that we
bring back to the Board. And if you ask the question of,
well, you know, how did it play out with the original
scoping plan in terms of -- so you'd identified a number
of measures. I'd put what we actually did and what we
actually brought to the Board in a few different bins.

Some measures, we'd actually -- as we identified
them or described in the scoping plan the ultimate
regulation, it was pretty close to what we ultimately
brought to the Board, and we were getting the reductions
pretty close to what we anticipated.

Others, there -- what we found, we did the analysis, there wasn't as much there. Some didn't move forward. We didn't actually move the measures forward because there wasn't enough opportunity.

Some what we actually thought was the measure, as we worked through the process with stakeholders it morphed into another approach because it was -- the original approach as it was conceived in a scoping plan, as you learn more and go deeper, it was, well, actually this is not the quite right way to do it. The process allowed for the natural evolution that plays itself out when you go through a deeper dive of learning.

So I don't look at the short-lived climate pollutant plan any different -- any differently, because I think -- and again, I think, again, it's important because the original scoping plan was important. But the process of forwards, that sort of learning and evolution that takes its place -- that takes -- you know, that plays itself out. But no doubt, if there -- the concerns that are raised here, we want to get as close to right and complete as we possibly can. But I think this distinction between a plan and a regulation, which I heard several references to it being a regulation, I think the distinction is an important one to make here.
VICE CHAIR BERG: All right. Thank you very much for framing that up for the Board members.

And so I'll start down with Mr. Eisenhut. Will you kick us off on -- what we're looking for are recommendations from the Board to the staff as we go forward with this plan.

BOARD MEMBER EISENHUT: Thank you, Vice Chair Berg.

Mr. Corey addressed some of the concerns I had, but let me work through this. I would suggest that the answer to Dr. Sperling's question, while it's more nuanced than this, is largely a matter of access. Because access for the -- either the gas or the electricity produced by -- and I'm going to confine my comments to the dairy sector of this discussion.

The access drives the economic benefits. And I'm aware I believe of a number of shovel-ready digester projects that are not being moved forward due to the cost of the access.

And so I would suggest as we move forward with this discussion, while this is not our area of authority, that we have some responsibility to work with sister agencies and utilities to create a better access for these projects.

I would -- I do endorse staff recommendation for
initial investment. I think that the reduction -- the
cost benefit reduction that's achieved with these projects
is solid and probably deserves a decently high ranking in
terms of investment. It allows for participation on early
adopters, which gives us the opportunity to -- because
otherwise folks would not be inclined to adopt it till the
regulatory deadline, financial incentives are going to
move this process along. And the -- those early adopters
are going to provide the basis for us to continue -- as
Mr. Corey indicated, continue to evaluate projects and our
assumptions.

I would request that when we see the plan again,
that there be milestones indicated, reports to the Board.
I won't suggest the -- what the interval would be, but I
would request we have a process for staff and Board review
in a very formal way so that we know where we're -- we
know that we're achieving our goals.

On slide 11, there was indication of a work
group. And I would request that -- and again, Mr. Corey
committed to this, although in a slightly different way,
but I would suggest that the work group be sooner rather
than later pre -- before we see you again that this work
group be formed.

And that it would include, maybe, but not limited
to, our representatives from the AG community, utilities
or the utility commission, CDFA, dairy industry, and dairy developers.

And the topics. And I have to add here that I think one of the points of pride of this organization is we are a data-driven organization. And we’ve looked at the data in this plan and our analysis and acceptance of the data -- and I compliment staff, there have been a number of constituent meetings of seminars -- but our analysis of the data is very diverse. And I’ll leave it at that, it’s very diverse. And this should be data that is more discrete, lends itself to more agreement in our understanding of the data, and I would request that that be one of the agenda items on the work group that our assumptions are vetted.

Including issues like barriers reductions. I already mentioned that access financing. The issue of whether the impact of low carbon fuel standard financing options and cost benefit ratios. Secretary Ross raised the issue of unintended consequences. And one of our speakers, as we -- one of the options is converting to scrape.

BOARD MEMBER GIOIA: John, you may want to talk in the mike. We’re losing you.

BOARD MEMBER EISENHUT: Oh, sorry.

One of the -- Secretary Ross addressed unintended
consequences. One of the issues was scrape, has to do with the manner in which it's used, whether it has really a positive or a negative effect on water quality. And I heard enough questions so that I'm not confident that that option creates the positive impact that we hope it will.

   So those are my thoughts.

VICE CHAIR BERG: Thank you.

Dr. Balmes.

BOARD MEMBER BALMES: No.

CHAIR NICHOLS: Dr. Sherriffs.

BOARD MEMBER SHERRIFFS: Thank you, Mr. Eisenhut, for your comments on the dairy issue.

   Interesting, we had a big food fight here. This thing started out in terms of the organic diversion. And it turned out the food fight was a lot more fun than playing frisbee with these cow patties.

   (Laughter.)

BOARD MEMBER SHERRIFFS: You know, unfortunately, you know, the -- we have no choice. We have to address this. It's big. And would certainly endorse Mr. Eisenhut's comments in terms of, yes, this is a tremendous opportunity and we clearly need to move closer together on it. And they're clearly issues that are beyond our scope in the sense of power purchase interconnectivity that are big, big barriers and we need to help move that.
On a slightly different issue, a very different issue -- well, I'm not saying issue -- for oil and gas. From the Central Valley standpoint, a big concern that management of methane and oil and gas may lead to more flaring, may lead to more NOx emissions which would obviously be a big, big issue in terms of the challenges we have for ozone and particulate matter. And I know there have been some very constructive and collaborative discussions between staff and the San Joaquin district in terms of better understanding and agreeing on numbers. I think we're talking order of magnitude 21 tons a day, 4 tons a day. And who knows where it may actually, but we're certainly in the same ballpark. And those are not big numbers. Those are not big -- big numbers that I don't think we can't figure out ways to deal very constructively with.

But want to be certain that we are committed -- we're committed as a board to be cognizant of that, address that, and not let what we're doing with one hand create problems with the other hand, that we're thinking about how we're going to fix a problem that we may create if we're causing a problem in terms of criteria pollutants as we address the greenhouse gases.

We have to figure out how to make up for that, where to find funding or other kinds of programs to make
that whole.

VICE CHAIR BERG: Supervisor Serna.

BOARD MEMBER SERNA: Thank you, Vice Chair Berg. I'm going to keep my comments brief here, and it really does continue to dovetail off of what I mentioned earlier -- now much earlier -- about --

(Laughter.)

BOARD MEMBER SERNA: -- about maybe the tendency to oversimplify something as complicated as organics diversion, biodigestion. And as was I think mentioned by the representative from the League and others, that there are a number of other very real obstacles that we have to overcome locally, including, as Larry Greene mentioned, air quality nuisance issues. There's also a very real issue with water quality control. And the effort to maximize the value of any and all byproducts that come from organics diversion, including the potential for fertilizer to be one of those products.

So I would just continue to encourage staff as we move forward to please consult with your local governments and please consult with our local air quality management districts so that we don't rush to judgment about the simplicity with which we think we're able to, you know, implement legislative directives to do what we all want to do, including the local government and local air quality
management districts, which is to really get one of the
most potent greenhouse gas types out of our atmosphere.
So let's just continue to give a lot of necessary
thoughtfulness.

Thank you.
VICE CHAIR BERG: Thank you.
Ms. Riordan.
BOARD MEMBER RIORDAN: Yes. Let me build on
Supervisor Serna's comments.

The waste diversion programs that we'd like to
establish in California are very good. While we've heard
I think the full range of, yes, it can be done; yes; no,
it can't be done in your time frame, my thought is the one
constant in that wide spectrum of whether it can be done
or not in our time frame according to our plan is the
barrier issue.

And I would just say that, as Mr. Corey correctly
said, he's going to do some deep diving after this meeting
today, that may be one of the issues that might help most,
trying to understand what those barriers are. And if we
can work through some of them, it may be very, very
helpful.

One example I would just give you where I know of
one one time, a permitted composting facility wanted to
expand, not even -- I do not believe it was even 50
percent, but somewhere between 0 and 50 percent. It's five years later, and I don't think they still have a permit for the expansion.

Well, that would be a great case. And if you want to further analyze that, I'd be happy to provide the information. But I think we -- we've got to look at some of these barriers to make this successful.

I don't when you do that deep dive, Mr. Corey, but maybe it's too early to do that. But we've got to understand there are barriers.

Thank you.

VICE CHAIR BERG: Thank you.

Supervisor Gioia.

BOARD MEMBER GIOIA: Thanks. And thanks to everybody for coming. Clearly a really important area. Thanks for staff for all the good work in putting this together.

I think the effectiveness of ARB has really been in large part because we have set aggressive goals, and then we work toward them. And we understand there's obstacles and challenges to those goals, and we figure out how to work through them.

And I think the same thing applies here. I think it is important to think about setting aggressive goals, while acknowledging that there are some challenges. And
as someone in local government - and there's a few of us
up here who are in local government - and having permitted
landfills and composting facilities in Contra Costa, I
acknowledge there can be some challenges.

I do think the CSAC and League letters
acknowledge that. I think they may somewhat overstate it.
I think sometimes it takes some political will at the
local level. Sometimes the opposition, the NIMBY issue
gets in the way. But sometimes it's even the political
will of those local elected officials to just do it.

So I think, Richard, what I heard you say is
you're going to get back to us on the issues that have
been raised. And I do think it's useful to think about
what's the path forward to try to create a better
environment for permitting. You know, clearly, and as
some people have pointed out, if the market improves, the
market will drive this as well. And folks are going to
work hard to get there facilities permitted because
they're going to see an economic interest in doing so.
Right?

So I acknowledge there's some challenges. Again,
having experienced some of these myself, I think you can
move these through the process, and I think we need to
figure out how to help work with local government to make
that happen and to create the market incentives to get
more of these applications to happen as well.

So, again, under the main goal that we still need to think about how we set aggressive standards. Because some of the comments we heard today are not unlike comments we heard -- some of -- we all have heard from other sectors of industry, right, who've talked about how changing the status quo is hard. And yet in those areas, through the hard work of, you know, the stakeholders, the staff, the Board, we've gotten through that.

So those are my comments.

VICE CHAIR BERG: Thank you very much.

Ms. Takvorian.

BOARD MEMBER TAKVORIAN: Thank you.

Just building off of that, I -- one of the things I wanted to say is I think it wasn't so long ago that some of us couldn't imagine not driving our fossil-fuel-powered muscle car. I'm not necessarily in that category, but --

(Laughter.)

BOARD MEMBER TAKVORIAN: -- I remember hearing that. So I think when we think about the changes that have come through, and largely because of CARB's great scientific work, I think that we could see that these changes can happen. And when we set the aggressive goals, we just work towards those.

And I really appreciate all of the perspectives
that were provided here today. And I hope that we all remain really open to all of them, including those that may seem a little out there. As -- and I hesitate to say this, but as a person who's been a vegetarian for 40 years, I'm glad to hear it coming up at public hearings, because we've waiting a long time for that, and the evidence is clear. And so we may not all get to have everything that we want and also achieve all of the goals that we have. And I say that with lots of love and respect.

(Laughter.)

BOARD MEMBER TAKVORIAN: But I just think that we got to look at it, and there's cultural changes that might happen, including in my own culture.

I really support the strong goals and strategies. I hope that staff will work towards understanding that it's not simple, mandatory regulations that are built on strong science. That's critical that we move forward in that way. The targets are necessary and I agree that they're long overdue and we have to include incentives as well.

I would also ask that we articulate more clearly the environmental justice benefits and the environmental justice priorities. So as we look at how these plans and regulations will come forward, we'd like to look at where
EJ communities benefit and how that might be incorporated in the consideration of what the prioritization of the regulations and implementation is.

BOARD MEMBER GIOIA: Your comment made me think of that Rolling Stones line: "We don't always get what we want but we get what we need."

VICE CHAIR BERG: Professor Sperling.

BOARD MEMBER SPERLING: Nothing so philosophical or --

(Laughter.)

BOARD MEMBER SPERLING: -- or even brilliant.

(Laughter.)

BOARD MEMBER SPERLING: I just have one not so simple suggestion or request. I'd like to see an economic screening analysis, cost effectiveness, a supply curve, however you want to look at it. We're looking at a large range of options here. And I don't feel like we have a good feel for which of them are really attractive and compelling and which less so.

And if we're going to be adopting a lot of policies and regulations, I think we ought to have a good sense of where's the low hanging fruit, both in a cost sense as well as a volume sense.

That's all.

EXECUTIVE OFFICER COREY: I want to give a --
provide a short response to that. A very clear, simple request.

And I think it goes, and I'm going to be -- well, one of the responses, the follow-up was going to be talking to our chief economists and our economics group as well as the stakeholders. And the reason I'm characterizing it this way, it goes back to the point that I made about the distinction between a plan and an actual detailed regulatory proposal. So by the very nature of a plan you certainly at a relatively high level need economics-related information.

But I'm going to frame that question up as: How far can one go in the context of a plan with respect to your question relative to a specific regulatory measure, which certainly has those very detailed type of economic analysis?

So I take to heart your request, and we'll talk with the team about what's doable and what isn't, as well as the stakeholders.

BOARD MEMBER SPERLING: And when you look at it, you'll clump different ones together in different ways that make sense. And there'll be the question of where are the co-benefits and to what extent do you quantify those and put them in. So it's not a -- clearly not a straightforward simple. I did make that clear, it's not
simple.

(Laughter.)

BOARD MEMBER SPERLING: But I think we need some kind of way of framing, you know, the options as we go forward.

VICE CHAIR BERG: Thank you very much, Professor Sperling Ms. Mitchell.

BOARD MEMBER MITCHELL: Thank you.

Thank you, staff for putting this together. It is an aggressive plan. But in concept I support what you're doing.

We've heard from so many stakeholders and we've heard just a wide diversity of opinion here. I mean, some gung ho for it and many you thinking this is a disaster.

There are barriers. One of the most important barriers that we're looking at that I think we need to work on, and we need to work on this in collaboration with the PUC and the utilities, is the injection of biogas and biomethane into the pipelines. This is a key piece of the whole plan. That has to be solved before we can really, you know, get to the heart of this.

The other thing that occurs to me is that if we're going to do waste to energy, which is in this plan, it's not going to be done by one dairy or one sanitation
district. I see this as a combination, a collaboration between private industry, government, the utilities. I would think that there'd be companies out there that build digesters that can make money off of their digester capacity. There are companies out there that want to sell biogas, and they should be able to make money off of that enterprise. I see P3s somewhere in the pipeline of what we're doing.

It does put a burden on local government, as our local government has recognized. But I think that, you know, local government working with the stakeholders and with the sanitation districts, the wastewater treatment plants, I think we can work through this.

Some of our districts are already prepared to do it.

I also see possibilities for siting some of these difficult facilities, like digesters and composting facilities.

They may be able -- it may be possible to site them on existing landfills or near existing landfills. You already have the trucks going to those places. And as we divert organic waste, perhaps those could be cited in those locations where the impacts are already -- have already been looked at, and further mitigation could be possible.
So I think there are possibilities if we use our imagination and try to get there. But I laud you for the very thorough plan that you put forward. I urge you to work with the stakeholders and dig a little deeper, as we said, to iron out some of the wrinkles and get to a place where most of us can accept it and work together and get to our goal.

Thank you.

VICE CHAIR BERG: Thank you very much, Ms. Mitchell.

Dr. Balmes.

BOARD MEMBER BALMES: I originally said no comment just because I thought my fellow Board members would probably say mostly what I wanted to say, and I was trying to speed up the process. But I will slow it down for a second, because Supervisor Gioia, who just left us, misquoted the Rolling Stones.

(Laughter.)

BOARD MEMBER BALMES: It's important here. "You can't always get what you want; but if you try sometime, you'll find you get what you need." We have to try harder to meet these goals.

(Laughter.)

VICE CHAIR BERG: Thank you very much for clarifying the record for us, Dr. Balmes.
VICE CHAIR BERG: I do think the comments have been extremely thoughtful. I thank my fellow Board members. This is an exciting time for exactly, as Dr. Sawyer outlined, this is 10 years in the making. It is complicated. Staff here very much deserve to be commended for the very hard work.

And all of the stakeholders, this is not a simple process and it covers a lot of different processes, industries. And I would encourage you to do what you do best.

I would also encourage that -- or let the stakeholders know that voluntary options are -- I would not support. That said, a suite of options getting us to where we need to go, which includes the ability to take advantage of incentives, the ability to look for new incentives, along with regulation and all, I would agree with my fellow Board members. And so we are going to release staff to do what you do best and bring this to a close.

With that, we do have three public comments. And so if we could just turn our attention quickly to our last item, which is Open Public Comment.

And Moises Rendon, if we could start off with you. And then Adam, which might be coming down with that.
So the two of you, and then followed by Ruben.

Is this kind of a group presentation, by the way?

Oh, good.

Well, then we're going to let you go one after the other. Okay. And we do need three minutes from each so.

MR. ADAM RENDON: Thank you. So thank you for your patience and thank you for everything you do to improve the air quality here in California. We appreciate it.

So Adam, Moises, Douglas. We're the Solution for Pollution team, and this is the solution for pollution.

I don't know. You guys have the PowerPoint, right?

VICE CHAIR BERG: Yes, we do.

MR. ADAM RENDON: Okay. I'd like to speed it up. I'd like to begin at page 4.

(Thereupon an overhead presentation was Presented as follows.)

MR. ADAM RENDON: Bottom slide.

Okay. Well, today we mostly heard solutions as being reducing emissions and all that, and they are very important steps in cleaning up the pollution. But what about the pollution that's already there? What are we going to do about that? We can't let Mother Nature do
everything. We created the problem. We should be the one to fix it.

So how was ours different. Why is this the solution for pollution?

Our project is different for many reasons. It reverses the damage already done. Living in Los Angeles, we always notice the sky being much clearer after heavy rain. I began to research this and found the reason for this, is because raindrops pick up pollutant particles and are big enough to reach the ground before they completely evaporate.

Creating artificial rain for an entire city until the pollution is gone is not a feasible plan, so we came up with this. Since we cannot have rain over the city, we must use this rain in another form. After the raindrops is taken -- after the raindrop falls it's taken away by storm drains.

From the storm drains -- I'm going to move ahead.

--o0o--

MR. ADAM RENDON: Okay. So from the storm drains it goes to the main line. Instead of taking it to the ocean, we can purify it. How do we do that? We use a fan -- we use a fan to create a vacuum. That vacuum is going to suction in the air from the city. As the heaviest particles are at the bottom, the rest will come
As it's suctioned into the storm drains, it's going to go into the main line and eventually reach itself to that purification chamber there.

I don't have time to show everything, but there is where we're going to have our rain. It's going to be curtains of water, or maybe some chemicals reduced there to purify the air.

So as the pollution hits the curtains of water, the pollution will fall and be drained. That drain is going to go to a purification chamber where the water can be purified. You know, water purification is very advanced these days. So once it -- the problem is collecting the pollution in the air. How do you get it in one place? Once you get it in one place, disposal. A lot of options for that.

So using this, we collect it, we have it in one place, we get rid of it, and we clean up our own mess.

Thank you.

MR. MOISES RENDON: My name is Moses. I'll be more simple.

Every city in the world has drain lines. When you're driving you see the drains around the sidewalks. Everybody seeing it. So we see thousands. Probably every -- the city has a thousands. And all those drains
are connected to a main line. Now, if we connect ourselves a vacuum on -- a fan on the main line, we can convert all those thousand drains in vacuum system.

The contamination is a giant problem. We need a giant solution.

We cannot just cure with a bandage a loose skin. So my idea is to absorb all the contamination through the drain -- the drain lines.

And then we can absorb every kind of contamination, anything, and which is go -- like my son says, go through a process of cleaning and we going to be purifying the water -- I mean, the air through a curtain for water.

Now, the good thing about this is the drains are far away. So the air that we are cleaning is not mixing with a contaminated because probably we're going to be miles away. Because the main line goes to the river or goes to the sea. So if we connect ourselves like probably a mile away, we can be absorbing the air from here all the way and purifying the air far away.

So this is the point. I don't know if you guys understand it.

VICE CHAIR BERG: No, this is just really fun. It's very innovative, and the time you have spent thinking it out.
Mr. Corey, could we have some follow-up with somebody on staff just to -- sounds like, you know, it's a multiple -- I mean, talking it out for a half hour or so could be really interesting. And so could I possibly turn that over to you and your staff.

EXECUTIVE OFFICER COREY: Absolutely. We'll be happy to sit down with them, you bet.

VICE CHAIR BERG: Oh, please, do you have some comment?

BOARD MEMBER SERNA: Oh, I was just going to say, you know, most people think outside of the box these days. You guys are actually thinking inside the box.

(Laughter.)

MR. MOISES RENDON: You know, the beauty of this, every city in the world has drain lines, because the purpose is to -- for -- so we won't float. So the drains are in the lower side and the cloud of contamination sits on the lowest part. So you see advantage from a system like this. And we can cool the air by lowering the temperature on the water. We can clean the air and lower the temperature of the air too.

BOARD MEMBER SERNA: We all appreciate very much the fact you gave this obviously a lot of thought. And thank you for your patience too.

MR. MOISES RENDON: Maybe up with you guys if you
help us.

VICE CHAIR BERG: We certainly would be interested in sitting down, learning more. And from a business perspective, it really is about how do take an idea and see how it goes. If we could provide you with some information, if you want to come and see me at my office. I'm in Los Angeles. We could also -- I'd be happy to talk to you a little bit about how to take an idea and where else to go. So maybe we could give you a couple of different meetings to have. Okay?

MR. MOISES RENDON: Okay.

VICE CHAIR BERG: Okay. Thank you very much for your patience.

MR. MOISES RENDON: We are close.

VICE CHAIR BERG: That's right. They can give you my information. I'm happy to meet with you in Los Angeles.

MR. MOISES RENDON: Thank you very much.

VICE CHAIR BERG: Thank you.

Okay. I think we had one other person. Ruben, are you still with us?

Seeing no Ruben, I think I can bring this to a close. Thank you very much, everyone, and we'll see you next month.

/////
(Thereupon the Air Resources Board adjourned at 4:55 p.m.)
CERTIFICATE OF REPORTER

I, JAMES F. PETERS, a Certified Shorthand Reporter of the State of California, do hereby certify:

That I am a disinterested person herein; that the foregoing California Air Resources Board meeting was reported in shorthand by me, James F. Peters, a Certified Shorthand Reporter of the State of California, and was thereafter transcribed, under my direction, by computer-assisted transcription;

I further certify that I am not of counsel or attorney for any of the parties to said meeting nor in any way interested in the outcome of said meeting.

IN WITNESS WHEREOF, I have hereunto set my hand this 3rd day of June, 2016.

JAMES F. PETERS, CSR
Certified Shorthand Reporter
License No. 10063

J&K COURT REPORTING, LLC  916.476.3171