MEETING

STATE OF CALIFORNIA

AIR RESOURCES BOARD

CALEPA HEADQUARTERS

BYRON SHER AUDITORIUM

SECOND FLOOR

1001 I STREET

SACRAMENTO, CALIFORNIA

THURSDAY, JUNE 22, 2017

9:17 A.M.

JAMES F. PETERS, CSR
CERTIFIED SHORTHAND REPORTER
LICENSE NUMBER 10063

A P P E A R A N C E S

BOARD MEMBERS:

Ms. Mary Nichols, Chair

Ms. Sandra Berg, Vice Chair

Dr. John Balmes

Mr. Hector De La Torre

Senator Dean Florez

Mr. John Eisenhut

Ms. Judy Mitchell

Mrs. Barbara Riordan

Supervisor Phil Serna

Dr. Alex Sherriffs

Professor Daniel Sperling

Ms. Diane Takvorian

STAFF:

Mr. Richard Corey, Executive Officer

Ms. Edie Chang, Deputy Executive Officer

Mr. Kurt Karperos, Deputy Executive Officer

Ms. Ellen Peter, Chief Counsel

Mr. Edward Wong, Ombudsman

Ms. Emily Wimberger, Chief Economist

Ms. Veronica Eady, Assistant Executive Officer

Mr. Michael Benjamin, Division Chief, Monitoring and Laboratory Division(MLD)

A P P E A R A N C E S C O N T I N U E D

STAFF:

Mr. Greg Binder, Branch Chief, Vehicle Parts & Consumer Products Branch, Enforcement Division(ED)

Ms. Leisa Bush, Manager, Training Section, ED

Mr. Mike Carter, Assistant Division Chief, Mobile Sources Control Division(MSCD)

Ms. Katrina Castellano, Air Resources Engineer, Alternative Fuels Section, Industrial Strategies Division(ISD)

Ms. Heather Choi, Staff, Climate Action and Research Planning Section, Research Division(RD)

Mr. Bart Croes, P.E., Division Chief, RD

Ms. Vicky Davis, Senior Attorney, Legal Office

Mr. James Duffy, Manager, Alternative Fuels Section, ISD

Mr. Aaron Hilliard, Manager, Alternative Strategies Section, MSCD

Ms. Debbie Kerns, Senior Attorney, Legal Office

Mr. Jeff Kessler, Air Resources Engineer, Alternative Fuels Section, ISD

Mr. Jack Kitowski, Division Chief, MSCD

Mr. Aron Livingston, Assistant Chief Counsel, Legal Office

Ms. Cassie Lopina, Air Pollution Specialist, Engineering and Regulation Development Section, MLD

Ms. Abigail May, Attorney, Legal Office

Mr. Michael Miguel, Branch Chief, Quality Management Branch, MLD

Ms. Gabriel Monroe, Attorney, Legal Office

Mr. Nicholas Nairn-Birch, Air Resources Engineer, MSCD

A P P E A R A N C E S C O N T I N U E D

STAFF:

Mr. Matthew O'Donnell, Air Resources Engineer, Training Section, ED

Mr. Scott Rowland, Branch Chief, Incentives and Technology Advancement Branch, MSCD

Mr. Todd Sax, Division Chief, ED

Mr. Mike Scheible, Staff, Transportation Fuels Branch, ISD

Dr. Annalisa Schilla, Section Lead, Climate Action and Research Planning Section, RD

Mr. Mark Stover, Branch Chief, Field Operations Branch, ED

Mr. Floyd Vergara, Division Chief, ISD

Mr. Sam Wade, Branch Chief, Transportation Fuels Branch, ISD

HAAGEN-SMIT AWARD WINNERS:

Mr. Chester France

Mr. Dan Greenbaum

Dr. Joyce Penner

Dr. Veerabhadran Ramanathan

Ms. Anumita Roychowdhury

ALSO PRESENT:

Mr. Todd Anderson, Zero Motorcycles, Inc.

Mr. Ted Cabral, California State Parks, OHMVR Commission

Mr. Michael Coates, Neste Corporation

A P P E A R A N C E S C O N T I N U E D

ALSO PRESENT:

Mr. Todd DeYoung, San Joaquin Valley Air Pollution Control District

Mr. Derek Dorresteyn, Alta Motors

Mr. Mathew Fuzie, California State Parks

Mr. David J. Hackett, Stillwater Associates

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

Mr. Shrayas Jatkar, Coalition for Clean Air

Mr. Tom Knox, Valley Clean Air Now(CAN)

Mr. Jaime R. Lemus, Sacramento Metropolitan Air Quality Management District

Mr. Fred Minassian, South Coast Air Quality Management District

Mr. Simon Mui, Natura Resources Defense Council

Mr. Colin Murphy, NextGen Climate America

Mr. Graham Noyes, Low Carbon Fuels Coalition

Mr. John O'Donnell, GlassPoint

Mr. John Paliwoda, California Motorcycle Dealers Association

Mr. Dave Pickett, District 26 Motorcycle Sports Committee

Mr. Brandon Price, Clean Energy Fuels

Ms. Catherine Reheis-Boyd, Western States Petroleum Association

Mr. Brian Robertson, California State Parks

Mr. Ryan Schuchard, CalStart

A P P E A R A N C E S C O N T I N U E D

ALSO PRESENT:

Ms. Eileen Tutt, California Electric Transportation Coalition

Ms. Coreen Weintraub, Union of Concerned Scientist

Mr. Andy Wunder, Ceres

I N D E X

I N D E X C O N T I N U E D

P R O C E E D I N G S

CHAIR NICHOLS: Good morning. People would please take their seats. The June 22nd, 2017 public meeting of the Air Resources Board will come to order, and we will begin the Board meeting by saying the Pledge of Allegiance.

Please stand.

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

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

BOARD CLERK McREYNOLDS: Dr. Balmes?

BOARD MEMBER BALMES: Here.

BOARD CLERK McREYNOLDS: Mr. De La Torre?

BOARD MEMBER DE LA TORRE: Here.

BOARD CLERK McREYNOLDS: Mr. Eisenhut?

BOARD MEMBER EISENHUT: Here.

BOARD CLERK McREYNOLDS: Senator Florez?

Assembly Member Garcia?

Supervisor Gioia?

Senator Lara?

Ms. Mitchell?

BOARD MEMBER MITCHELL: Here.

BOARD CLERK McREYNOLDS: Mrs. Riordan?

BOARD MEMBER RIORDAN: Here.

BOARD CLERK McREYNOLDS: Supervisor Roberts?
Supervisor Serna?
BOARD MEMBER SERNA: Here.
BOARD CLERK McREYNOLDS: Dr. Sherriffs?
BOARD MEMBER SHERRIFFS: Here.
BOARD CLERK McREYNOLDS: Professor Sperling?
BOARD MEMBER SPERLING: Here.
BOARD CLERK McREYNOLDS: Ms. Takvorian?
BOARD MEMBER TAKVORIAN: Here.
BOARD CLERK McREYNOLDS: Vice Chair Berg?
VICE CHAIR BERG: Here.
BOARD CLERK McREYNOLDS: Chair Nichols?
CHAIR NICHOLS: Here.
BOARD CLERK McREYNOLDS: Madam Chair, we have a quorum.
CHAIR NICHOLS: Great. Thank you.
I'm going to skip over some of the seemingly mandatory public remarks, but just remind people that there's exits in this room at the rear and on either side of the podium. In the event of a fire alarm going off, we are required to leave the room immediately.
And I'm going to skip right to the Haagen-Smit awards, because that's the most fun that we get to have today.
(Thereupon an overhead presentation was

presented as follows.)

(Laughter.)

CHAIR NICHOLS: And it's also a great opportunity to start our day by recognizing some leaders in the field of air pollution and climate change research, technology, and policy. These awards are named in the honor of professor Arie J Haagen-Smit, who was the first Chairman of the Board, and his important contributions to air pollution science, as well as the significance of his public career as well.

Today, we are going to highlight the history of the awards program, as well as the accomplishments of the 2016 award recipients.

Arie Haagen-Smit was a native of the Netherlands, a biochemistry professor at Caltech in Pasadena for 16 years studying natural products like rubber and pineapples before he began his air pollution research in 1948, when the County of Los Angeles came to him and asked him to investigate the chemical nature of what we now know as smog.

It was his research that found that most of the smog that was being experienced in those days, and we have some pretty ugly pictures of all of that, resulted from photochemistry, that the exhaust from motor vehicles and industrial facilities was reacting with sunlight to create

ozone.

This breakthrough provided the scientific foundation for the development of the California's, and then the nation's, air pollution control programs. Leaving his plant studies behind, he continued working in the field of air pollution research control and took -- research and control, and took the smog problem in Los Angeles head on. He became 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.

I had the opportunity to meet Dr. Haagen-Smit fortunately, but he passed away in 1977. However, his legacy lives on both in the naming of the laboratory in El Monte, where we do much of our important enforcement and vehicle research, and also in all of our memories, but particularly in this award, which has been given since 2001.

--o0o--

CHAIR NICHOLS: Over the last 15 years, 45 people have received the award, but it has expanded a bit in scope, in light of the global connection between air quality and climate change. And as a result of our changing mission, growing mission, we have expanded it to include more of an international focus, and categories

that relate to climate change, science, and mitigation.

So with that little bit of background, Mr. Corey, would you please introduce the awards.

EXECUTIVE OFFICER COREY: Yes. Thanks, Chair Nichols.

--o0o--

EXECUTIVE OFFICER COREY: I'm pleased to honor the five recipients of 2016 Haagen-Smit Clean Air Awards. Each of the winners will be introduced by a Board member. After their introduction, the winner will come down to the podium, Bart Croes, Chief of the Research Division, will hand them their award, and the winner will have the opportunity to say a few words. We'll take photos at the end of the presentation.

With that, the first winner is Chet France for his work in the area of emission control technologies. He'll be introduced by Board Member Dan Sperling.

BOARD MEMBER SPERLING: Thank you.

--o0o--

BOARD MEMBER SPERLING: It is my honor to do so.

Mr. Chester France, often called Chet, is being recognized for his leadership in the use of advanced technologies to reduce emissions from cars and trucks in the U.S., which has resulted in significant public health and climate benefits. Chet was the director of the

Assessment and Standards Division in the Office of Transportation Air Quality at the U.S. Environmental Protection Agency until he retired in 2012, five years ago, after more than 38 years of service.

Chet's ability to engage diverse stakeholders has been instrumental in the success of U.S. EPA's efforts to reduce air pollution and greenhouse gas emissions from cars and trucks resulting in millions of tons of pollution reductions and trillions of dollars in benefits.

I actually went back and checked that number to make sure that's true, and it is.

(Laughter.)

BOARD MEMBER SPERLING: He led the effort on the first ever joint U.S. EPA and Department of Transportation program to reduce greenhouse gas emissions and improve fuel economy from cars, and he played a key role in the 2012 historic agreement with the 13 major automakers to pursue the next phase, the current phase, of standard -- fuel economy standards and greenhouse gas standards for cars and light trucks.

He's also been responsible for other firsts, including the requirements for medium- and heavy-duty trucks to meet fuel efficiency and greenhouse gas standards, and establishing clean diesel programs for trucks, buses, and on-road equipment that dramatically

reduced the sulfur content of diesel fuel, which, for the first time, allowed the application of exhaust aftertreatment to diesel vehicles and equipment.

--o0o--

BOARD MEMBER SPERLING: Chet has cultivated and maintained strong working relationships with State environmental departments, including us in California, and various environmental groups and non-governmental organizations. The strength of these relationships has frequently translated into broad support for EPA rule-makings.

--o0o--

BOARD MEMBER SPERLING: These achievements have been recognized by multiple awards, including Presidential Rank Award, twice, 11 -- 11 U.S. EPA Medals, and the U.S. EPA's prestigious Lee M. Thomas Excellence in Management Award.

Accomplishments such as these require more than normal competence. They require a personable, reasonable, and intelligent leader. That is Chet.

His integrity and his willingness to walk the talk have made him one of the most respected and accomplished public servants in the -- at the U.S. EPA.

On behalf of the California Air Resources Board, we commend his superior accomplishments and present to him

a 2016 Haagen-Smit Clean Air Award.

(Applause.)

MR. FRANCE: Professor Sperling, thank you for the very, very kind introduction. I just have a few remarks I would like to make. Thank you very much, Chairman Nichols and members of the Board for this special recognition. I'm very honored and humbled to receive this award. I also want to congratulate my fell award winners, Dan, Joyce, Ram, and Anumita.

I was recently reviewing past Haagen-Smit Clean Air Award winners and found many that I've worked with over the years. I'm deeply honored to be joining this accomplished group of environmental leaders from government, academia, and industry.

I especially want to thank Margo Oge, a past winner, also my boss at EPA, a mentor and a friend, for nominating me.

When I started my career at EPA in 1973, my first assignment was to collect in-use data operating date from heavy-duty trucks in Los Angeles. The data from that program was used to develop the transient test cycles still being used today to certify heavy-duty trucks. I spent a good portion of that year living in California, and remembering -- I remember experiencing many stage one and stage two alerts. There has not been a stage two

alert since 1988, or a stage one alert since 2003 in the South Coast Air Basin.

By any measure, the air in California is dramatically cleaner today, despite robust growth, and a substantial increase in the number of vehicles on the road.

Over the last four decades, I've been involved in the development of many mobile source standard-setting programs, and I've had the good fortunate of collaborating with CARB in all of those efforts. CARB's leadership and involvement have been absolutely critical to achieving clean air successes at the federal level.

The opportunity to make a difference through these accomplishments has been the greatest blessing of my career. Making a difference has been the core principle of my work, and it is a value that I've tried to pass down to my children. I would like to acknowledge people like Mary Nichols, Margo Oge, Tom Cackette, and Mike Walsh, and many others that I've worked with over the years. I consider them true icons in the nation's effort to clean the air we breathe.

I also want to thank Vickie Patton at the Environmental Defense Fund. She has given me, since retirement, the opportunity to continue my life's work within the environmental community. I would be remiss if

I didn't also thank my colleagues at EPA for their hard work and commitment to improving the air quality.

In closing, thank you again for this special recognition. As you all know, we are living in very challenging times. And California's and the nation's environmental successes are under threat. These difficult times require California's time-tested leadership to resist these roll-backs, and a renewed commitment on all our parts to continue the fight.

Thank you very much.

(Applause.)

EXECUTIVE OFFICER COREY: The next recipient is Daniel Greenbaum for his work in the area of environmental policy. He'll be introduced by Board Member John Balmes.

--o0o--

BOARD MEMBER BALMES: Thank you, Mr. Corey.

It's indeed a great pleasure to recognize Dan Greenbaum. I've known Dan for many years, and I have to say in all transparency, I've received three Health Effects Institute grants over my career.

(Laughter.)

BOARD MEMBER BALMES: And I just received an email this morning about I'm getting a no-cost extension for the one that's ending June 30th.

(Laughter.)

BOARD MEMBER BALMES: Just to be clear.

(Laughter.)

BOARD MEMBER SPERLING: Conflict of interest.

(Laughter.)

BOARD MEMBER BALMES: So Dan Greenbaum is being recognized for sustained leadership on air pollution health science, communication, and policy at the State, national, and international levels.

Mr. Greenbaum currently serves as President and Chief Executive Officer of the Health Effects Institute, affectionately known as HEI, based in Boston, Massachusetts. And he's also the Chair of the Board of International Council on Clean Transportation.

Dan has established himself as a coalition builder and effective communicator who works tirelessly to ensure that credible science informs air quality decision-making around the world.

And just an aside about the credible science. Having been the recipient of three HEI grants, you always have to think twice about accepting them, because they really are on your case to do high quality research.

During this tenure as president, HEI helped restore public confidence in air pollution science - hopefully that will persist in the current climate - overseeing a rigorous review of research on air

pollution's health effects that was critical for justifying the EPA's national heavy-duty diesel rule, and which subsequently convinced the Bush Administration to extend those rules to the light-duty sector.

And I especially want to recognize Dan for how he has expanded the scope of HEI beyond U.S. Borders, and has worked to build capacity for air pollution research in the developing world through collaborative efforts that are now being -- now helping to drive air pollution decision-making in Asia.

--o0o--

BOARD MEMBER BALMES: I'd also like to say that my close colleague, Kirk Smith, a previous awardee of a Haagen-Smit award, extends his special congratulations to Dan today.

And Kirk has partnered with Dan with regard to HEI's efforts in Asia. Dan also led HEI's partnership with the Institute for Health Metrics, which supports the global burden of disease efforts, which are really the gold standard for estimating mortality associated with air pollution around the world.

Prior to joining the Health Effects Institute, Dan served as Commissioner of the Massachusetts Department of Environmental Protection under both Democratic and Republican administrations, another testament to his

ability to build bridges in pursuit of environmental goals.

--o0o--

BOARD MEMBER BALMES: In this position, he took the long view of environmental regulation working to reduce pollution in the first place rather than just clean it up later, and he implemented a more streamlined clean-up approach for the State's most polluted sites.

His efforts were recognized with the Innovation in American Government Award. And, again, I've known and worked with HEI before Dan and after Dan, and I think the fact that Dan has had a long period of experience at the State level in terms of environmental protection has helped hip lead the agency and to have the appropriate vision for this important research agency.

Throughout his career, Dan's ability to provide and communicate a credible and compelling scientific evidence has led him to testify before U.S. and international government bodies, sit on and chair numerous communities -- committees and panels, and receive the Thomas W. Zosel Outstanding Individual Achievement Award from the U.S. EPA for his contributions to advancing clean air.

We are honored to present a 2016 Haagen-Smit Clean Air award to Dan Greenbaum.

(Applause.)

MR. GREENBAUM: Thank you very much, John, for that very kind introduction. I think those of you who Thought Dr. Balmes know that while there are cases where people have been known to try and buy a scientist's opinion by giving them funding to do research.

Neither HEI nor anyone else could ever do that for the quality of the work, and the major contributions that Dr. Balmes has made to our understanding of air pollution and health.

I'm really honored. I thank Chairman Nichols and all of the members of the Board for this incredible honor. I -- when I was notified, I went and looked at the list, and expressed some surprise because there are some incredible people who are on there and who received this award over time. And so it's really a privilege to be joining that group

I commented yesterday that it's almost 25 years to the day that I had the good fortune to sign into rules in Massachusetts the first State rule requiring California low-emitting vehicles in another State.

We were part of a group throughout the northeast trying to do that. And I -- and it was really the very beginning of my full understanding of just what a tremendous innovation, laboratory this State has been, and

this Board has been for making clean air progress. And as I've moved from that role to roles around the world, I understand that that's not just a role within the United States. Although, we want to continue that and your leadership will be especially important right now. We spent a lot of time yesterday talking about how to maintain that.

But it is really a beacon around the world for what constitutes high quality, cost effective, health effective control of air pollution in ways that not only don't hurt the economy, but can actually stimulate new technologies and new economic opportunities.

One of the studies that HEI published this January -- last past January was one by the researchers of this California -- Southern California Children's Study at USC who had a study which was funded in -- not in small part by the ARB. And that study found that over 20 years tracking three groups of children growing from age 12 to 17, and checking their lung function every year, and understanding what their air pollution exposure was, that the group that grew up in the last period in the cleanest air, had markedly and measurably better lung function, fewer symptoms, and a variety of other things which sets them up for a much healthier life.

And there's no better test of the quality of what

this Board and what this State has done than having kids who can breathe freely throughout the rest of their life.

Thank you very much.

(Applause.)

--o0o--

EXECUTIVE OFFICER COREY: Dr. Joyce Penner for her work in the area of air pollution research. She'll be introduced by Board Member John Eisenhut.

BOARD MEMBER EISENHUT: Thank you, Richard. It's my privilege. Dr. Joyce Penner is being recognized for her pioneering research on particulate matter's impact in the atmosphere, complex interactions with the global climate system.

Joyce currently serves as the Ralph J. Cicerone Distinguished University Professor of Atmospheric Science at the University of Michigan. Her research is of relevant interest to me, and I think to members of this Board, because it helps us understand the impacts of particulate matter on regional -- regional air quality in areas such as the San Joaquin Valley, which suffers from particulate matter exceedance.

Interestingly enough, Joyce is originally from Fresno, and so has some -- some firsthand experience with the San Joaquin Valley.

Over her career, Dr. Penner has applied strong

analytical skills to the study of particular matter and greenhouse gases building complex models to improve our understanding of these pollutants.

--o0o--

BOARD MEMBER EISENHUT: Her work has revealed the diversity of natural and man-made sources of particulate matter, and their varied effects on regional air quality, clouds, and the climate system.

Her current research -- her current climate challenges are the result of human activities. Joyce's impressive academic accomplishments have also led her to be a key consultant to --

--o0o--

BOARD MEMBER EISENHUT: -- the Intergovernmental Panel on Climb Change, or IPCC, including her role as one of the lead authors of the report for which the group received the 2007 Nobel Peace Prize, a marked accomplishment. Joyce has served on numerous committees related to atmospheric science and climate change, and has led and contributed to important synthesis of academic science for the IPCC, and has been appointed a fellow of the Geophysical Union of prestigious organizations, including the American Geophysical Union and the American Association for the Advancement of Science.

Penner remains a prolific researcher and

scientist into -- at the forefront of atmospheric sciences, research, and we are proud to bestow her with a 2016 Haagen-Smit Clean Air Award.

(Applause.).

DR. PENNER: Thank you, John, for your kind words. It was wonderful to meet you yesterday and have a chat about our mutual friends. I want to thank the Board and the Chairman, Mary Nichols, for this distinguished honor. I, too, went through the names of the previous awardees, and found that my major nominee Michael Prather was a winner last year, so I want to thank him as well.

And I want to thank you for the name that you've given this award. I think Haagen-Smit was such a big name when I was growing up in the world of air pollution research. And so it just adds to the honor to have such an award named after him.

I want to say some remarks to -- also about my early work with the Bay Area air quality monitoring district. I think it gave me the kind of scientific background in air -- in chemistry, although I'm trained as a mathematician. It gave me the kind of background that I needed to extend that science into the world of air pollution on a global scale through the action of particles in reflecting solar radiation and changing clouds.

And I want to also, if needed, correct any impression for those of you who listen to my talk yesterday, correct any impression that I might have said well, particles cool climate, and therefore they might be good.

They're absolutely not good. And as many of the people talking about their health effects have talked about, they -- they are something to be reduced as quickly and as -- as quickly as possible, but they do mask the importance of climate change and greenhouse gases, and that makes our future, under the evolution of an increasing greenhouse gas situation, very difficult to predict or project.

So I want to thank you all again, and thank the other members -- awardees for being here with me and all of their work as well.

Thanks.

(Applause.)

--o0o--

EXECUTIVE OFFICER COREY: Next is Dr. Veerabhadran Ramanathan for his work in the area of climate change research. He'll be introduced by Chair Nichols.

CHAIR NICHOLS: Thank you, Mr. Corey.

Dr. Ramanathan, widely known as "Ram", is being

recognized for his sustained and innovative contributions to climate change research. Dr. Ramanathan is the distinguished Professor of Climate and Atmospheric Sciences at Scripps Institution of Oceanography at the Ocean -- at the University of California, San Diego, where he has taught since 1990.

Ram's historic research on climate and atmospheric science has been widely recognized around the world, and has resulted in a paradigm shift in the way climate scientists approach global warming. His work has illustrated the complex linkages between man-made emissions and climate change, and has demonstrated that available technologies provide effective and practical means to reduce emissions of short-lived climate pollutants, which include methane, black carbon, ozone, and HFCs.

Ram's research and his ability to champion the need to reduce short-lived climate pollutants led California to adopt our short-lived climate pollutant reduction strategy, which was finalized in March of this year, and was instrumental in the success of the Kigali amendment to the Montreal Protocol an international agreement to reduce HFCs

--o0o--

CHAIR NICHOLS: Throughout his career, Ram has

been a persuasive advocate for urgent action to slow climate change, reminding the world of our moral obligation to act. His message has resonated with some of the most powerful figures on the planet, and has helped to urge them to speak out and take action to slow climate change. Ram personally has advised Pope Francis through his role on the Council for the Pontifical Academy of Sciences, as well as his Holiness the Dalai Lama, and, last but not least, California Governor Jerry Brown among others.

The world of climate science and policy benefited immensely from Ram's research and insights, his unselfish dedication to the greater public good, his energy and his resolve to pursue a more livable global environment, especially for the poor and the most vulnerable among us.

Dr. Ramanathan is a unique force in both climate science and climate policy, and we are honored to bestow him with a 2016 Haagen-Smit Clean Air Award.

(Applause.)

DR. RAMANATHAN: Commissioner and Chair, Mary Nichols, thank you very much for that generous introduction. I also want to thank the Board for this amazing honor. I also want to thank the Board for making the plaque big enough it can fit in my entire name.

(Laughter.)

DR. RAMANATHAN: Half the awards I receive, half of my name falls off the plaque --

(Laughter.)

DR. RAMANATHAN: -- so thank you.

I'm especially grateful, and really an amazing honor for me to receive this award from my home State of California, and that too by CARB.

So let me explain why the award is special. My own work has shown, and showing gradually that climate change is morphing into an existential threat. I had not felt this until five years ago.

So it's really a fast-approaching problem. That's one of the great misconceptions. When they think of climate change, we think about 2100, six feet sea level rise. That's all true, but very few realize we are talking about a fast-approaching train, and which is going to hit us within 15 years, so it requires fast actions. Okay. And that is where California and its numerous cities are taking the sort of aggressive drastic actions which we need.

These aggressive and drastic actions they're not going to take us back to the horse and buggy days, they're take us into the future, clean energy, clean everything. In my own home City of San Diego, we have a Republican Mayor, an amazing Mayor, and he has one of the most

aggressive policies to bring our power generation to nearly carbon neutral within 15, 20 years. Just imagine that.

And policies are one thing. They're very important. But to implement them, and provide the governance, so that it's done properly, is next -- if not even more important than even starting the policy. And that's where CARB exceeds and excels. I know, because of my work in the past with the UN and now with Pontifical Academy. I can say with confidence that CARB, one of the unique, if not the unique, institution in knowing how to deal with this urgent problem in terms of governance. So that's why I'm especially thank you full to get this award from CARB.

And I didn't know I was supposed to give a speech. I was just scribbling my speech, so I need to read from my hand scribbling.

(Laughter.)

DR. RAMANATHAN: Yeah. So clearly, we have just publishing a study called Living Laboratories, and California and CARB, emerged on top of that, next followed by Sweden and Stockholm.

So to those who serve in CARB, we ask more of them. So I have a request to all the employees of CARB I think who are behind me and in front of me, is that what

we really need now is massive public support to take the sort of transformational actions we need to take. And CARB, it's amazing employees, you are sitting on incredible knowledge on the science, how to take it to the field, and how to govern it.

So I hope you will share that knowledge with your public. It could be your local communities, your local churches, or synagogues, or mosque. We need to -- they need to hear from us, not through the media, because unfortunately America has become divided, so we hear two different stories for the same truth. So it's time people need to hear from us.

So when you take -- if you take a train, or you take a Uber, whatever you do, talk to the person next to you about climate change.

Thank you.

(Applause.)

--o0o--

EXECUTIVE OFFICER COREY: And the last recipient this year is Ms. Anumita Roychowdhury for her work in the area of international air pollution policy. She'll be introduced by Board Member Diane Takvorian.

BOARD MEMBER TAKVORIAN: Thank you, Mr. Corey. It's a special honor to have the opportunity to introduce our next award winner, Anumita Roychowdhury - so hopefully

I got that right - who is a tireless champion, in my view, having read about you, for environmental justice and for the right to breathe clean air and -- and to have environmental justice especially for those of us around the world who are most vulnerable.

Anumita is the Executive Director for Research and Advocacy at the Centre for Science and Environment, CSE. She also heads up CSE's air quality and clean transportation program. CSE is the most influential environmental NGO India, and Anumita is one of the major reasons why.

Scientifically trained, politically astute, and socially conscious - wow - Anumita drives toward pragmatic effective solutions that benefit all. She has scored far too many victories to list here. So has scored far too many victories to list here. Suffice to say, Anumita has had a hand in every major development on the air quality front in India from the Supreme Court ruling to convert transit buses, taxis, and tuk-tuks to natural gas, to the recent adoption of an air quality index and emergency response procedures.

--o0o--

BOARD MEMBER TAKVORIAN: Anumita's work extends beyond India. She shares hard won insights with emerging economies, such as Sri Lanka, Bangladesh, and Nigeria, and

frequently speaks on behalf of the Global South. She's also an active member of the International Council on Clean Transportation and UNEP's global Partnership for Clean Fuels and Vehicles.

She always has her sight set for a clean, just world. Rejoicing in the success of Delhi achieving a 20 percent decrease in PM2.5 since 2014, and dropping off of the World Health Organization's top 20 most polluted cities in the world list in 2016, she quickly turned her attention to highlight the need for further action to meet air quality and health-based standards throughout India and the world.

She poignantly points out how nationwide planning and strategies that account for regional differences need to be carried out in a time-bound manner in order to enable action to save lives.

When she's not battling against evil, indifference, or outright incompetence, Anumita loves to spend quality time with her grown daughter.

--o0o--

BOARD MEMBER TAKVORIAN: I'm worried that there's not enough time for time with your daughter, given your -- given what you're battling, but I'm glad that you have some of that time.

There's no more indi -- there's no individual

more central to India's burgeoning air pollution control policies, court rulings, and regulations. Anumita stands alone. We are honored to bestow -- bestow her with a 2016 Haagen-Smit Clean Air Award.

Congratulations.

(Applause.)

MS. ROYCHOWDHURY: Thank you, Diane for those wonderful words. I'm really feeling so honored, so privileged to receive Haagen-Smit Award, and especially from Air Resources Board.

And this is particularly an exciting moment for me knowing that how California has played an iconic role setting terms on new action, setting new boundaries, and pushing the frontier, showing the world what is possible. And I think that leadership, which has become part of our learning curve, and there is so much to take back home to bring -- give that punch to the work that we do.

But in many ways, I also see this award for our work in India as a celebration of action in global south, and that means a lot to us. Back home, by Delhi, there are so many cities today in India, Asia, Africa who are struggling to breathe clean air. And we are all looking for our own solutions knowing that our challenges are very unique, and therefore, sharing our experience, our learning, our -- you know, the whole wisdom of what we

have done so far, so that we can collectively do and push action in the global south to ensure that people do not die and fall ill because of dirty air.

In many ways, this award is also a recognition of the importance of the role of civil society as partner in change, and a driver of change. And this is straight at the time for me to recall founder of CSE, Mr. Anil Agarwal, a noted environmentalist, who with his vision, has set us on this journey to clean up the air, but always made us conscious of the southern imperatives.

And therefore, I recall today the Team Warrior back home, one of my colleagues, and Sunita, who are now trying to gather courage, and as much as knowledge as possible to move forward to fight forward.

But our growth in many ways is a journey, which would not have been possible if there were not many others who did hold our hands when we needed that.

Michael Walsh right from the beginning, what he has really ensured that we still and do not get detracted and deviate from science-based activism, infuse the principles of leapfrogging, and to bring us to the global platform and build the confidence and motivation to fight.

And Alan Lloyd, who's been with us brought us the very good principles of to set the technology roadmap and the right motivation. Dan with his powerful evidence of

health, which has really been our warheads to fight our battle. And so many of us, everyone sitting here, the -- you know, all the awardees that I'm sharing around with this new science on black carbon which helped us to build the co-benefit framework to move and push the action forward, and ICCT with an amazing support and outstanding knowledge support that it has given to our action.

Finally, what I would really like to say is that fighting air pollution is my personal obsession, and which has, in many ways, even drawn my own family, my parents to ensure that air pollution today has become the dinner table conversation. And what I really want that this conversation has to become the household conversation across the country, and that's when we will see the change.

As you mentioned, my daughter when I was coming here, she said so this award is for all the efforts that you have made so far. But don't forget, you still have to keep the promise of cleaning up the air for me. Really clean it up.

So that is a lasting reminder that yes, there are many promises to keep, miles to go. So thank you very much for your support, for your encouragement, and for believing in us.

Thank you.

(Applause.)

CHAIR NICHOLS: I couldn't have asked for more inspiring words to conclude this ceremony. I'd like to end with a round of applause for all of the awardees, and then we'll take a brief break, and -- so we can personally congratulate them, and send them on their way, if they're going, and take a picture. And then -- and then we'll resume at about 10:00 o'clock, but thank you all so much.

(Applause.)

(Off record: 10:00 a.m.)

(Thereupon a recess was taken.)

(On record: 10:13 a.m.)

VICE CHAIR BERG: Okay. I'm going to bring the meeting back to order please. As Mary said, this is one of our favorite agenda items, and you can see why. It not only gives us lots of inspiration, but we could spend the rest of the morning in dynamic conversation. We do have an agenda. And so I'm going to ask my fellow Board members to come back to the dais and we'll resume.

Our next item in today's agenda is an update from the Enforcement Division. The Enforcement Division's annual report summarizes the results of the action taken by the Enforcement Division in 2016, and highlights key priorities and actions for the division in the coming year.

Enforcement is one of those areas that can make one cringe, or sometimes is not the agenda item where everybody goes oh, wow, we get to hear from the Enforcement Division.

(Laughter.)

VICE CHAIR BERG: But I can tell you as a regulated party how important enforcement is. And we know that good solid regulation and enforcement is a home run. And without both, they are not successful. And so very much looking forward to this.

Mr. Corey, would you introduce this?

(Thereupon an overhead presentation was presented as follows.)

EXECUTIVE OFFICER COREY: Yes. Thanks Vice Chair Berg. The results included in the annual enforcement report demonstrate how the Enforcement Division works to ensure the regulations adopted by the Board deliver the emission reductions needed to achieve California's clean air and greenhouse gas reduction goals.

Today's presentation provides an overview of the Enforcement Division and its approach to achieving compliance with ARB's regulations. Now, I'd like to introduce Matthew O'Donnell, who will give the staff presentation.

Matthew.

AIR RESOURCES ENGINEER O'DONNELL: Thank you, Mr. Corey.

Good morning, Vice Chair Berg and members of the Board. Today, we're presenting an overview of the 2016 annual enforcement report and discussing our priorities for the future.

--o0o--

AIR RESOURCES ENGINEER O'DONNELL: My presentation will begin with a brief overview of our enforcement programs. I will then discuss key accomplishments in selected program areas. Finally, I'll highlight some upcoming challenges and how we intend to address those challenges.

--o0o--

AIR RESOURCES ENGINEER O'DONNELL: Let's begin with a brief overview of our Enforcement programs.

--o0o--

AIR RESOURCES ENGINEER O'DONNELL: Our goal in enforcement is to protect public health and the environment from the effects of air pollution. To realize the goal, we strive to achieve 100 percent compliance with every regulation the Board adopts.

In doing so, we work to achieve a fair and level playing field across industry through a consistently applied enforcement program.

--o0o--

AIR RESOURCES ENGINEER O'DONNELL: ARB enforcement efforts focus on every regulation the Board adopts. We enforce certification requirements for a wide variety of products sold in California, including consumer products, vehicles, engines, automotive parts and fuels. We enforce regulations applying to vehicles and equipment after they're sold, including the Truck and Bus Rule, and similar rules applying to off-road equipment.

We enforce consumer products regulations. We also enforce certain stationary source regulations, when they are not enforced locally, such as the refrigerant management and landfill methane rules. Finally, we collaborate with local air districts to help them maintain effective programs through training, equipment registration, and direct enforcement support.

--o0o--

AIR RESOURCES ENGINEER O'DONNELL: Part of our job is to identify violations. To accomplish this, we conduct field inspections to determine if responsible parties are in compliance. We test a wide variety of products from fuels and vehicles to consumer products. We evaluate reporting and record keeping information through an audit process. We investigate tips and complaints from the public, and mine databases for potential violations.

And finally, we work with air districts and others to conduct field inspections and audits. For example, many air districts have agreed to enforce ARB's landfill methane regulation. In addition, many air districts and the Port of Los Angeles enforce diesel regulations in the field.

--o0o--

AIR RESOURCES ENGINEER O'DONNELL: Our goal is to resolve violations with each responsible party through a negotiated mutual settlements process. We evaluate potential violations. If we determine that violations do, in fact, exist, we notify the responsible party and discuss the violations.

Cases are resolved when the responsible party has achieved compliance and paid a fair penalty.

--o0o--

AIR RESOURCES ENGINEER O'DONNELL: We all know emissions reductions are only achieved when industry meets regulatory requirements. Fundamentally, effective enforcement starts with the regulation design process. We're working internally to provide greater input and foster improved coordination to help ensure enforceability and high compliance rates during implementation.

Enforcement programs serve to bring recalcitrant violators into compliance and to provide an effective

deterrent. Enforcement programs are not abstract. Our actions impact people directly, both by improving the air quality -- air quality for everyone and by punishing those who are not compliant. Accountability to all is crucial.

--o0o--

AIR RESOURCES ENGINEER O'DONNELL: Monetary penalties are designed to be a deterrent from future violations for both the responsible party and industry as a whole. The consistent application of the enforcement process is critical to achieving a fair and level playing field and to assessing penalties fairly.

We determine appropriate penalties based on the facts and circumstances surrounding each individual case. In doing so, we are required by law to consider the eight factors listed here.

--o0o--

AIR RESOURCES ENGINEER O'DONNELL: Before I move on to the detailed highlights of our efforts in 2016, I'd like to give some higher level statistics regarding our efforts as a whole.

Of course, the case that's received the most publicity in 2016 was Volkswagen. The case is now largely resolved, and we're currently implementing the conditions of the settlement. The big picture is that the settlement is historic in scope, addresses the vehicles, and

mitigates the harm the companies caused. In total, Volkswagen, Audi, and Porsche will be spending approximately $1.4 billion in California.

However, the Volkswagen case is not the only story. Enforcement staff have been working diligently on many other less publicized cases. In 2016, we settled 220 cases originating from 15 programs that totaled $13.3 million in penalties. In addition, we also issued more than 4,700 citations, and collected more than $2.8 million in penalties from closed citations.

--o0o--

AIR RESOURCES ENGINEER O'DONNELL: Since the Volkswagen case is so historic, let's take a look at the details of the case and some background information regarding vehicle certification

--o0o--

AIR RESOURCES ENGINEER O'DONNELL: To understand the nature of the case, it's helpful to know about the process used to certify vehicles for sale in California.

First, as you know, we, as a Board, set stringent standards for vehicle emissions. Before any vehicle can be legally sold in California, it must be certified to show that it meets those emission standards.

Each manufacturer requests certification for each vehicle make and model to be sold by submitting an

application. This application demonstrates that the vehicle is capable of meeting the required emission standards, that the equipment needed to meet those standards is durable, and that the vehicle meets the on-board diagnostic requirements.

Certification staff review each application, and if approved, issue an executive order. The executive order specifies the exact engine family, make, and models approved for sale.

--o0o--

AIR RESOURCES ENGINEER O'DONNELL: We now know that Volkswagen, Audi, and Porsche were not truthful in their certification applications. Illegal defeat devices were installed on roughly 500,000 diesel cars and SUVs sold in the U.S., including 85,000 sold in California between 2009 and 2016.

CARB staff discovered these violations, and this discovery resulted in enforcement actions and litigation which ultimately led to a series of settlements between the companies, various consumer groups, and governmental agencies for civil and, in some cases, criminal violations.

The total value of these settlements nationwide is approximately $25 billion in consumer compensation, vehicle buybacks and repairs, investments, mitigation

costs, and penalties.

--o0o--

AIR RESOURCES ENGINEER O'DONNELL: The settlement requires the companies to offer to buy back any vehicle that cannot be modified to meet emission standards. The companies are offering buybacks for all 2.0 liter affected vehicles. The settlement establishes stringent vehicle modification requirements that reduce emissions by 80 to 90 percent.

Modifications will only be approved after the companies have demonstrated, through rigorous testing and information submittals that they meet these requirements. If modifications are not approved, the companies must buy back the vehicles.

Consumers are compensated, regardless of whether the vehicles are bought back or modified. The amount of that compensation is specified in the consent decree and is dependent on type, age, and the mileage of the vehicle.

--o0o--

AIR RESOURCES ENGINEER O'DONNELL: As I said, this settlement agreement applies to about 85,000 vehicles sold in California. Of those, 85 percent must be modified or bought back, and additional penalties must be paid. In addition to compensating the owners, Volkswagen will also be paying $1.4 billion in compensation, which includes

$422.8 million in mitigation projects, specified in the consent decree, and an additional $25 million for the Enhanced Fleet Modernization Plus-Up Program, $800 million in investments in zero-emission vehicle infrastructure, and enhanced access to zero-emission vehicles, and $153 million in penalties and costs.

This settlement fully mitigates the harm done to public health and the environment from the violations in this case.

--o0o--

AIR RESOURCES ENGINEER O'DONNELL: While the VW case was unprecedented, it was just one of many enforcement actions. I'd like to highlight some of the many other vehicle and consumer products-related cases that Enforcement staff pursued in 2016.

--o0o--

AIR RESOURCES ENGINEER O'DONNELL: Enforcement staff also enforces certification requirements on a wide variety of vehicles, engines, and automotive parts. In most of these cases, the responsible party failed to certify a vehicle or sold racing parts for non-racing applications. Here are several examples.

--o0o--

AIR RESOURCES ENGINEER O'DONNELL: In 2016, we settled 14 cases and assessed more than $3 million in

penalties. Apart from the Volkswagen case, the single largest settlement was with American Honda Motor Company. The company imported and delivered vehicles and parts into California that were not certified.

To settle the case, they agreed to pay $1,037,100 in penalties, including $295,000 directed to the School Bus Supplemental Environmental Project.

--o0o--

AIR RESOURCES ENGINEER O'DONNELL: These three cases are additional examples. Two cases, LeMans and Derive, involved the sale of parts that had not been approved for sale through California's anti-tampering laws and were found on registered vehicles. The Midwest Can case involved portable gasoline cans that didn't meet ARB standards.

--o0o--

AIR RESOURCES ENGINEER O'DONNELL: We also enforce regulations designed to reduce the emissions of volatile organic compounds and toxics from a wide variety of consumer products from hair spray and windshield washer fluid to cleaning products, composite wood products and indoors air cleaners.

--o0o--

AIR RESOURCES ENGINEER O'DONNELL: Consumer products regulations reduce the VOC and toxic content of

these products, like hair spray and cleaners, which are a large source of emissions. In 2016, staff settled 37 cases and assessed more than $1.3 million in penalties. Here are two examples.

Big Lots sold windshield washer fluid in California that exceeded regulatory limits resulting in five tons of excess VOC emissions. We settled the case for $250,000.

Vi-Jon sold hair care products that exceeded regulatory limits resulting in 3.5 tons of excess emissions -- VOC emissions. The company removed products from the shelves and reformulated and/or relabeled products to meet regulatory requirements, and paid a penalty of $199,500.

--o0o--

AIR RESOURCES ENGINEER O'DONNELL: We also enforce ARB's Composite Wood Airborne Toxic Control Measure. The ATCM is intended to reduce indoor exposure to formaldehyde by setting stringent standards for emissions from these products. Anyone who manufactures, imports, distributes, or sells these products in California is subject to the regulation.

--o0o--

AIR RESOURCES ENGINEER O'DONNELL: In 2016, staff closed its first composite wood program case with Lumber

Liquidators. The company agreed to pay $2,500,000 in penalties, and implement a voluntary measures and research program. This program serves as a model for industry, and requires both audits and testing to ensure that suppliers and products are compliant with the regulation.

Beyond Lumber Liquidators, in 2017, we settled two additional cases with other responsible parties and additional investigations are underway.

--o0o--

AIR RESOURCES ENGINEER O'DONNELL: Diesel particulate matter is a toxic air contaminant. As you're well aware, CARB has adopted regulations to control diesel particulate emissions and is focused on achieving compliance with diesel regulations across the full range of regulated vehicles and equipment.

This is true especially in communities near highways, ports, and other high traffic areas that are disproportionately affected by diesel PM emissions.

--o0o--

AIR RESOURCES ENGINEER O'DONNELL: Staff enforces diesel fleet rules through investigations, and through field enforcement. In 2016, we settled 131 diesel fleet investigations assessing more than $4 million in penalties.

We also settled 17 cases at ports for a total of

$165,000 in penalties. We issued 4,738 citations for heavy-duty diesel vehicles in the field, and collected over $2.7 million in penalties.

Finally, we held is seven media events across the State in Fresno, Los Angeles, the Bay Area, the Salinas Valley, and the San Diego and Arizona border crossings. These events, with both English and Spanish speaking media, are designed to raise public awareness of our diesel enforcement efforts.

--o0o--

AIR RESOURCES ENGINEER O'DONNELL: We conduct field enforcement across the State at weigh stations and at roadside inspection stations, in disadvantaged communities and at ports and other locations. In 2016, we inspected 16,576 trucks, and issued 4,282 citations for noncompliance with vehicle idling, opacity, engine labeling, and fleet emissions regulations.

We also focused on other diesel sources. For example, we inspected over 1,300 pieces of off-road equipment, and issued 456 citations for violations of the in-use off-road rule.

We inspected 897 vessels for compliance with the marine fuel requirements. And based on these inspections, we issued 13 notices of violation.

We inspected 197 pieces of cargo handling

equipment and issued three notices of violation covering 62 pieces of equipment.

--o0o--

AIR RESOURCES ENGINEER O'DONNELL: In addition to field enforcement, which focuses on individual vehicles, we also investigate entire fleets through an audit it process. We collect data from several sources, including field inspections; compliance, reporting and record keeping; and complaints received from the public.

Using the Smart Audit process, for trucks, we evaluate registration and other databases to identify noncompliance at the fleet level. If a fleet is identified as deserving further scrutiny, an inspector will conduct an inspection and audit.

Here are two examples of fleet based cases.

--o0o--

AIR RESOURCES ENGINEER O'DONNELL: Young Trucking, LLC is an interstate trucking company that transports refrigerated goods. Staff audits identified 42 violations of the Truck and Bus Rule, 23 violations of the Periodic Smoke Inspection Rule, and 33 violations of the transportation refrigeration rule.

We settled the case for $100,000, of which 25,000 was directed to the California Council for Diesel Education and Training or CCDET SEP.

Nationwide Trans, Incorporated is a trucking company that failed to meet Truck and Bus Rule requirements for 53 vehicles. The case was settled for $393,000, of which 92,250 was directed to the School Bus SEP.

--o0o--

AIR RESOURCES ENGINEER O'DONNELL: Our enforcement effort -- efforts are especially focused in disadvantaged communities.

--o0o--

AIR RESOURCES ENGINEER O'DONNELL: Enforcement staff attend meetings on a regular basis in multiple communities across the state, including Oakland, Hunters Point, Bakersfield, Fresno, South Gate, Watts, Los Angeles, Coachella, and Brawley. We attend these meetings to ensure that we understand and act on community concerns.

We target truck enforcement specifically in disadvantaged communities. In 2016, we conducted 16,576 truck inspections, of which 8,586, or 52 percent, were in disadvantaged communities. We also actively support CalEPA's multi-media enforcement initiatives.

Last year, we focused enforcement in Boyle Heights and Pacoima investigating diesel sources and consumer products.

--o0o--

AIR RESOURCES ENGINEER O'DONNELL: In 2016, we also ban -- began implementing AB 1071, which set new requirements for soliciting Supplemental Environmental Projects to benefit disadvantaged communities, and increased the fraction of settlement penalties that can be diverted from SEPs -- diverted to SEPs rather, from 25 to 50 percent.

Based on these requirements, we conducted an extensive outreach and public participation process, which culminated in the adoption of the new Supplemental Environmental Projects policy. That policy was presented to you last December.

--o0o--

AIR RESOURCES ENGINEER O'DONNELL: To date, we have approved 12 SEPs for potential funding, including projects that would provide medical care for people with asthma in the San Joaquin Valley and Bay Area, air filtration for schools in the Los Angeles region to reduce children's exposure to air pollution, air monitoring networks in east San Francisco and in the Los Angeles region, and tree planting to reduce exposure to air pollutants near roadways in Fresno.

--o0o--

AIR RESOURCES ENGINEER O'DONNELL: In addition,

we currently have 18 applications under review. Our review process is designed to ensure that the proposed projects meet eligibility criteria, and can be properly implemented as designed.

We are planning additional workshops in July to update communities on progress so far, and solicit project proposals.

We are working to convince responsible parties to fund approved projects through the settlement's process. One responsible party recently allocated $625,000 to the South Coast School Filtration Project. Because we process so many smaller cases, we are looking into the possibility of implementing a new SEP to aggregate money and support additional projects.

--o0o--

AIR RESOURCES ENGINEER O'DONNELL: Next, let's talk about our stationary source programs and our support of local air districts.

--o0o--

AIR RESOURCES ENGINEER O'DONNELL: To make enforcement work, both within ARB and at each of California's 35 air districts, we provide enforcement support services. Education is a powerful compliance assistance tool. To help educate air district staff and the regulated public, we offer a wide variety of training

classes. We also directly enforce stationary source regulations, issue registrations for portable equipment and cargo tanks, and manage processes for citations and complaints.

--o0o--

AIR RESOURCES ENGINEER O'DONNELL: Our training program helps ensure effective stationary source enforcement, and that the regulated public understands regulatory requirements for stationary and mobile sources. In 2016, staff provided training classes covering 44 unique topics, such as fundamentals of enforcement, continuous emissions monitoring, new source review, Title 5 permitting, and health risk assessments.

Through this program, we taught 281 classes, which reached over 7,600 students. In addition, the California Air Pollution Control Officers Association, and ARB co-sponsored an enforcement symposium. One hundred and twenty-five people attended this symposium, representing 26 air districts, as well as participants from U.S. EPA, and air quality regulators from Hawaii, Nevada, and Taiwan.

--o0o--

AIR RESOURCES ENGINEER O'DONNELL: Staff also enforces greenhouse gas programs, including mandatory reporting for cap and -- for the Cap-and-Trade Program,

refrigerant management, gas-insulated switchgear, landfill methane, and other regulations. Staff enforces these programs where air districts don't enforce the programs themselves.

In 2016, staff closed eight mandatory reporting cases with settlements totaling $1,382,617. In the Refrigerant Management Program, staff closed five cases with settlements totaling $252,750. And in the Landfill Methane Program, staff closed one case for $70,000.

--o0o--

AIR RESOURCES ENGINEER O'DONNELL: Enforcement staff administers two statewide registration programs, the Portable Equipment Registration Program, also known as PERP, and the cargo tank registration program. In 2016, we issued or renewed 5,700 registrations for cargo tanks, and more than 10,000 registrations for portable equipment.

We have also been working on revisions to the Portable Diesel Engine ATCM and the Portable Equipment Registration Program Regulation. We anticipate presenting the proposed amendments this fall for your consideration.

--o0o--

AIR RESOURCES ENGINEER O'DONNELL: Finally, I'd like to discuss what we see as our near future challenges and how we intend to address those challenges.

--o0o--

AIR RESOURCES ENGINEER O'DONNELL: Effective enforcement starts with well-crafted regulations. We're working to provide greater input during the regulation development process to help ensure maximum enforceability.

In addition, we're working to improve our internal procedures by standardizing our enforcement efforts, and making them more uniform across the wide variety of programs we enforce. To accomplish this, we're implementing new information management systems, and developing new investigation training programs.

Finally, we're developing new tools to improve enforcement efficiency, including emissions measurement technology, also known as PEAQS, to enhance field enforcement.

--o0o--

AIR RESOURCES ENGINEER O'DONNELL: The recent adoption of AB 1685, which substantially increased mobile source penalties from $5,000 to $37,500 per violation prompted us to conduct a thorough review of our penalty policy through a public process. We anticipate presenting the revised policy to the Board in September.

--o0o--

AIR RESOURCES ENGINEER O'DONNELL: As I've said, our goal is 100 percent -- percent compliance. We think it's important to measure compliance and use it as a

metric to judge the success of our programs. Compliance rate information can be used to help us prioritize our efforts and indicate areas where broader solutions are needed.

In 2016, we set an internal goal of assessing compliance rates in key programs.

--o0o--

AIR RESOURCES ENGINEER O'DONNELL: In each program, we evaluated information, and in some cases, conduct inspections designed to assess compliance rates. Our evaluation indicates most programs have achieved very high compliance. In our more mature programs, such as reformulated gasoline and ocean-going vessel fuels, we see nearly universal compliance.

In most programs we evaluated, compliance rates are at 85 percent or higher. These levels are manageable and can be addressed through focused enforcement. Compliance rates may be lower when there are a larger number of regulated parties, such as the case with transportation refrigeration units. With TRUs, we find that fleets have reported about 80 percent compliance to ARB, but field enforcement indicates compliance rates may be as low as 60 percent. This is an area where additional focus is needed.

--o0o--

AIR RESOURCES ENGINEER O'DONNELL: The Truck and Bus Rule is a particular challenge, because more than one million trucks operate in California each year. The compliance rate is currently 70 percent, basically unchanged from last career. Compliance rates are lower for small fleets and higher for larger fleets. Over the past 18 months, we've developed new data-driven audit procedures and refined our investigation procedures in ways we hope will accelerate case processing.

Using these procedures, we recently opened 48 new causes covering 1,800 vehicles. Earlier this year, the passage of SB 1 provided us with a powerful new tool to achieve compliance. Effective in 2020, any truck registered in California must demonstrate compliance with the Truck and Bus Rule before it's registration can be issued or renewed by the Department of Motor Vehicles.

We're also providing technical support to Senator Leyva's office on Senate Bill 638, which would authorize the ARB to develop a heavy-duty inspection and maintenance program. By taking lessons from the light-duty sector, we hope to solve compliance issues we now see in the heavy-duty sector.

Overall, we're encouraged by the pro -- the progress we've made, but we know that there's still much that needs to be done.

--o0o--

AIR RESOURCES ENGINEER O'DONNELL: In summary, 2016 was a successful year. The Volkswagen case is nearly resolved. We closed 220 cases and issued 4,738 citations for $16.2 million in penalties over and above those assessed in the VW case.

We're using technology to become more efficient. We're tracking metrics to better understand where we need to focus our enforcement efforts. Overall, the ARB enforcement program serves as an effective deterrent to noncompliance, and is an important part of ARB's efforts to achieve clean air.

Our 2016 enforcement report is now available at the website shown on this slide. This concludes our presentation. Thank you for providing us with this opportunity to speak with you today. If you have any questions, we'll be happy to answer them at this time.

VICE CHAIR BERG: Thank you very much, Matt. That was a very thorough report, and really appreciate that.

My fellow Board members, you will find the enforcement report that Matt referred to in our file. And as you know, this is an update, so no regulatory action will be taken. And there are no -- no one is signed up for public testimony, so I'll see if we have some

questions or some comments, and start with Dr. Sherriffs.

BOARD MEMBER SHERRIFFS: Thank you for that. And I think obviously we hope that in the future Enforcement will be bored with their work, because they'll have nothing to do, because it's 100 percent in compliance across the Board and a level playing field, and -- but we're not quite there yet.

Thank you.

You know, the heavy-duty truck issue seems to be a very important one, because the pollution from that is so important in terms of the criteria pollutant work that we do, and in terms of the health effects. And it looks like SB 1 and the 2020 registration will do a lot towards getting that 30 percent in compliance. That's three years away though, and that's a lot of pollution in the meantime.

And I'm wondering what -- what focus we may be putting on that, how partnering with air districts how effective 100 N-smog is in achieving those ends.

Thoughts?

ENFORCEMENT DIVISION CHIEF SAX: Sure. So my name is Todd Sax. A couple of things. So first of all, SB 1 is really important. One of the things that bill provides is an ability to tie truck and bus compliance to vehicle registration. That's going to be a powerful tool

for us, but it's not the only thing that we're going to have to do to bring the -- all of the fleets and all of the trucks that operate in California into compliance.

And we're working internally to try to figure out the best way to address the issue. One of the things we've done is, and you'll see this in the report, try to quantify the amount of noncompliance by fleet size. And what we see is that the smaller the fleet, the more noncompliance there is.

And that indicates that we need to improve our outreach, and maybe do things a little bit differently. We're going to need to have more frequent communication with these groups, and these fleets to help make sure they understand the regulatory requirements. And I think at some point, we're going to need to find someway of at least sending them somewhere to go, so that -- to help them potentially be able to get loans or something to comply, because a lot of these small fleets are challenged, but as a Board, we've provided them plenty of time and plenty of resources to come into compliance.

So, you know, we are working through our complaints process. We do have that. But really what it boils down to is how many trucks and fleets we can bring into compliance in a given. And what you see is that we processed about 220 diesel cases -- or 220 cases last

year, but there are probably 75,000 non-compliant heavy trucks alone right now in California. And they're operating everywhere including in disadvantaged communities and it is a concern. We're working on it.

BOARD MEMBER SHERRIFFS: I guess we need to figure out how to do a tune-up program for trucks the way we do for cars.

ENFORCEMENT DIVISION CHIEF SAX: Actually, that -- that is an interesting idea. There are -- you know, in addition to just the basic truck and bus compliance issues, there are also issues with making sure vehicles are kept in a maintained condition. And that type of a program, coupled with trying to achieve truck and bus compliance, could probably help both truckers and ARB.

VICE CHAIR BERG: Thank you.

Any other?

Thank you.

BOARD MEMBER RIORDAN: On a bright side, let me just compliment staff and bring to the attention of my fellow Board members the reformulated gasoline, the ocean-going vessel fuels, and the cargo handling equipment. Those are high percentages. And particularly, I remember dealing with the ocean-going vessel fuels, and I thought that was going to be a very difficult one. And

obviously, staff has done an excellent job. I mean, when you can reach 99 percent in that area, I congratulate you.

And I think also reformulated gasoline is very good, because at one time we had kind of a renegade group delivering some pretty poor gasoline into California. So now, obviously, you know, you've ameliorated that problem. And so salute you for that.

VICE CHAIR BERG: Thank you.

Well, I think in conclusion, great work. Lots of work to be done. And we know that this is a vital part of the success of our rules and regulations, so -- and not always appreciated. Almost kind of like our dentists, we know we need them, but --

(Laughter.)

VICE CHAIR BERG: -- boy we're glad when that appointment is done, you know.

So thank you very, very much. Send back our congratulations to all of your fellow workers and great job.

And as we give staff an opportunity to switch places, we'll go ahead and introduce our next agenda item is an informational update as well on the State's Light-Duty Vehicle Retirement and Replacement Incentive Program, referred to as Enhanced Fleet Modernization Program, or EFMP.

Accelerating the turnover of fleets has long been a part of California's effort to meet our air quality standards, and our State implementation plan. It contains commitments to retire vehicles early in both the South Coast and the San Joaquin Valley, two of our areas that are most challenged in meeting their air quality standards.

Today, we have an opportunity to get an update on the program's performance, and hear about the impacts from the changes made to EFMP by the Board in 2014, and the addition of greenhouse gas reduction fund towards the purchase of advanced technology replacement vehicles.

Mr. Corey, will you please introduce this item?

(Thereupon an overhead presentation was Presented as follows.)

EXECUTIVE OFFICER COREY: Yes. Thanks, Vice Chair Berg.

EFMP is a vehicle retirement and replacement program that was authorized by Assembly Bill 118 in 2007. The program is funded by a $1 surcharge on motor vehicle registration translating into about 30 million each fiscal year.

In consultation with the Bureau of Automotive Repair, ARB adopted the initial guidelines in 2009 to administer two separate elements, one being statewide

retirement only, which is handled by the Bureau of Automotive Repair, and the second being retirement and replacement program administered at the district level, which provides greater incentives to purchase newer, cleaner, and more efficient vehicles.

The program was amended in 2014 to better focus the incentives towards low-income consumers, improve outreach, and enhance the environmental benefits. Concurrent to these changes, additional incentives from the Greenhouse Gas Reduction Fund were added to create the EFMP Plus-Up Pilot Project.

The project allows consumers living in or near disadvantaged communities to stack incentives to encourage the purchase of hybrid-electric and battery-electric vehicles. EFMP and EFMP Plus-Up are a necessary step to encourage the deployment of these advanced technology vehicles across all sectors.

Today's presentation will review the program's performance to date, as well as plans for expanding the program to new air districts.

I'll now ask Nicholas Nairn-Birch to begin the staff presentation.

Nicholas.

(Thereupon and overhead presentation was presented as follows.)

AIR RESOURCES ENGINEER NAIRN-BIRCH: Thank you.

Good morning, Vice Chair Berg and members of the Board. Today, I'll be providing an informational update on the Enhanced Fleet Modernization Program, or EFMP, and EFMP Plus-Up Car Scrap and Replace Programs.

--o0o--

AIR RESOURCES ENGINEER NAIRN-BIRCH: I will start with an overview of EFMP and the Program's background, and then summarize the progress of the program to date. The last part of the presentation will focus on the future plans for the program, including expanding to new air districts.

--o0o--

AIR RESOURCES ENGINEER NAIRN-BIRCH: EFMP is a voluntary vehicle scrap and replacement program originally authorized by Assembly Bill 118 in 2008, and extended through 2023 by Assembly Bill 8 in 2013.

A $1 surcharge on vehicle registration provides the program approximately $35 million annually. Statute directs the program be focused on the areas with the greatest air quality problem and consider cost effectiveness and impacts on disadvantaged and low-income communities.

The program consists of two elements, a retirement-only program to compensate motorists to scrap

their vehicles; and a retire and place program, which provides funding towards a cleaner replacement vehicle. While I will discuss both elements, the bulk of the presentation will focus on the retire and replace program.

A program review of EFMP led to the Board approving revisions to increase program effectiveness in June of 2014.

--o0o--

AIR RESOURCES ENGINEER NAIRN-BIRCH: The revisions, in conjunction with SB 459, limited the retirement-only program to low-income motorists and established a better test to ensure the scrap vehicles are road worthy to maximize air quality benefits.

For the Retire and Replace Program, the revisions also focused the program on lower income motorists, and created a tiered incentive structure, which provides higher incentives to participants with lower household incomes.

In addition, the revisions made outreach to low income and disadvantaged communities and consumer protections a priority for the program. Rather than establishing a firm one-size-fits-all model for all implementing air districts to follow, the revised program set general guidelines, to allow the air districts flexibility to adapt their program to meet local needs and

to leverage existing capabilities. The regulation was finalized in April of 2015, and implemented in the beginning of fiscal year 2015/2016.

At the same time, EFMP Plus-Up was created with funding from cap-and-trade auction proceeds to encourage adoption of advanced technology vehicles in the Retire and Replace Program and benefit disadvantaged communities, or DACs.

I will now provide a brief overview of the current programs, as well as an update on the progress of each program since these changes went into effect.

--o0o--

AIR RESOURCES ENGINEER NAIRN-BIRCH: The Bureau of Automotive Repair, or BAR, administers the EFMP retirement-only program. The program is available statewide, and has an annual budget of roughly $30 million, or about 90 percent of the total EFMP budget.

Motorists with a household income below 225 percent of the federal poverty level, which is roughly $55,000 for a family of four, can receive $1,500 for scrapping their old high-polluting vehicles.

Regardless of pass or fail, the car must physically be able to complete a smog-check test as an indication that it was actually driven.

--o0o--

AIR RESOURCES ENGINEER NAIRN-BIRCH: The retirement-only program has continued to be oversubscribed since the revisions went into effect with approximately 25,000 vehicles scrapped annually. Roughly 54 percent of these scrapped vehicles are at least 20 years old.

In 2016, we conducted a study with BAR to assess the vehicles scrapped since the changes went into effect. The results suggest we have achieved a modest improvement in vehicle quality, that is, the scrapped vehicles were more likely to have actually been driven if they had not been scrapped. We are continuing to work closely with BAR to monitor the program to identify any areas where improvements can be made.

--o0o--

AIR RESOURCES ENGINEER NAIRN-BIRCH: The EFMP Retire and Replace Program goes a step further than retirement only, by providing higher incentives to ensure the scrapped vehicle is replaced with cleaner transportation, either a significantly cleaner car, or funding for an alternative mobility option, such as a transit pass.

The air districts implement the program locally and have the discretion to design their programs to best serve their local communities.

As statue requires the program be focused on

areas of the State with the worst air quality. The program currently operates only in the South Coast and San Joaquin Valley Air Districts. Within these two air districts, all low-income residents are eligible. In addition to advanced technology vehicle -- replacement vehicles, the program also provides incentives for fuel efficient internal combustion engine replacement vehicles.

The annual budget for EFMP retire and replace is $2.8 million, which is split evenly between the two air districts. The program's incentives are tiered to provide a high -- the highest compensation for the lowest income participants, as well as additional compensation for a higher fuel economy, and advanced technology vehicles, such as hybrids, plug-in hybrids, and zero-emission vehicles.

We require the implementing districts to conduct targeted community outreach and encourage partnerships with trusted community organizations and financial institutions to better assist local participants.

--o0o--

AIR RESOURCES ENGINEER NAIRN-BIRCH: As I mentioned earlier, the EFMP Retire and Replace Pilot Program is augmented by EFMP Plus-Up using cap and -- funding from cap-and-trade auctions proceeds.

EFMP Plus-Up increases the incentive a

participant would receive under the EFMP Retire and Replace Program, if he or she chooses an advanced technology vehicle. In order to receive the additional Plus-Up funding, the participant -- participant must also live in or near a disadvantaged community census tract.

EFMP Plus-Up significantly increases the amount of money available to support the Retire and Replace Programs. To date, a total of $72 million has been budgeted for EFMP Plus-Up: Starting with $2 million in fiscal year '14-'15, the budget increase to $10 million, and then $60 million in the subsequent two years.

So what did this -- does this mean to the program participants?

--o0o--

AIR RESOURCES ENGINEER NAIRN-BIRCH: This table shows how the incentives are tiered for participants who are eligible for EFMP Plus-Up. There are three household income tiers that affect the incentive amount. The highest income tier is between 300 and 400 percent of the Federal Poverty Level, or FPL. In other words, no one with a household income greater than 400 percent of the Federal Poverty Level is eligible for the program.

The middle income tier is between 225 and 300 percent, and the lowest income tier is less than 225 percent of the Federal Poverty Level, which again is

approximately $55,000 for a family of four.

As we will discuss later, the majority of participants so far are in this lowest income tier. In addition to income, the incentive amounts also depend on the choice of replacement vehicle, with the highest amount provided for plug-in hybrids, and zero-emission vehicles.

--o0o--

AIR RESOURCES ENGINEER NAIRN-BIRCH: For example, that family of four could scrap their older vehicles and receive at least $6,500 for an advanced technology replacement vehicle. If they determine that the plug-in hybrid electric vehicle will meet their needs, they could receive a $9,500 incentive.

--o0o--

AIR RESOURCES ENGINEER NAIRN-BIRCH: This flowchart provides a high level overview of the EFMP and EFMP Plus-Up Retire and Replace process, from the consumer's initial application to purchasing a replacement vehicle. Once a consumer applies, the two main eligibility criteria are whether or not the consumer, one, possesses a high-emitting vehicle for retirement, and two, meets the income requirements.

If the consumer meets both of these criteria, the next step is determining whether he or she lives in or near a disadvantaged community. Those that don't are

eligible for the lower EFMP base incentive, while those that do are eligible for the higher EFMP Plus-Up incentive.

Prior to purchasing a replacement vehicle and scrapping the existing high emitter, the district provides education on the pros and cons of the various vehicle technologies. These measures help the consumer make an informed decision that results in the best vehicle for them. The districts also help ensure the consumer is making a sustainable financial decision and getting a fairly priced, reliable, and safe vehicle.

--o0o--

AIR RESOURCES ENGINEER NAIRN-BIRCH: The pilot programs in the San Joaquin Valley and South Coast Air District both launched in July of 2015. Both districts have been highly successful replacing a total of 2,076 vehicles by the end of the first quarter of 2017.

Ninety-two percent of the participants are in the lowest -- the program's lowest income tier, earning less than 225 percent of the Federal Poverty Level.

--o0o--

AIR RESOURCES ENGINEER NAIRN-BIRCH:

Encouragingly, 85 percent of the replacement vehicles so far are advanced technology vehicles. Just under half of these are conventional hybrid vehicles, such

as the Prius, while the majority of the advanced technology replacements are either plug-in hybrid or battery electric vehicles. Switching to these vehicles also helps participants spend less of their disposable income on gas, lowering the overall cost of vehicle ownership.

Now, I'll take a moment to describe how each of the pilot programs operates in the San Joaquin Valley and South Coast Air Districts. Each district developed unique programs to best meet the needs of their residents and take advantage of local expertise and capabilities. Both districts are present today and will give you more information about their programs after my presentation.

--o0o--

AIR RESOURCES ENGINEER NAIRN-BIRCH: The Retire and Replace Program in the San Joaquin Valley Air District leverages an existing and highly successful smog repair program called Tune-in, Tune-up. Tune-in, Tune-up hosts bi-weekly events throughout the valley to help low-income residents afford smog repairs for their older, dirtier vehicles. The air district's Retire and Replace Program identifies income-eligible attendees with the dirtiest vehicles, and informs the owners of the opportunity to receive a replacement incentive.

The district's Retiree and Replace Program also

leverages the Tune-in, Tune-up program's existing network of community-based organizations to ensure the incentives are reaching the San Joaquin Valley's low income and disadvantaged communities.

--o0o--

AIR RESOURCES ENGINEER NAIRN-BIRCH: The South Coast Air District created an entirely new program to implement Retire and Replace, which they call Replace Your Ride. In contrast to event-based model, in the San Joaquin Valley, Replace Your Ride uses a 24/7 interactive website call center and case managers to help each applicant through the replacement process.

The District also hosts periodic outreach events throughout the region to ensure the program is accessible to low-income and disadvantaged communities.

--o0o--

AIR RESOURCES ENGINEER NAIRN-BIRCH: That outreach is essential to the program's success. A primary goal of EFMP and EFMP Plus-Up Program is to ensure disadvantaged communities benefit from the program. So far, 96 percent of participants live in or near a disadvantaged community census tract.

Moreover, staff estimates that approximately 70 percent of the State's population who live in or near a disadvantaged community are located in the two air

districts that currently implement the Retire and Replace Program.

It is also very important to note that the program is providing disadvantaged community members with newer and more reliable transportation.

--o0o--

AIR RESOURCES ENGINEER NAIRN-BIRCH: In the nearly two years since the pilot programs in the South Coast and San Joaquin Valley Air Districts began, we have learned a lot. Each district is successfully reaching and supporting low-income households and disadvantaged communities. At the same time, participants show a high demand for advanced technology vehicles. These outcomes indicate the pilot programs are not only achieving their clean air and climate change goals, but also ensuring these benefits, and other important co-benefits of -- are going to the families and the communities that need them the most.

Working closely with the districts, we've also identified several areas where improvements can be made moving forward. Financing assistance is one such area. Even with the -- even with the EFMP incentive, many applicants can't afford or simply have no access to the financing necessary to complete the replacement vehicle purchase.

Also, as mentioned earlier, incentives are available to participants to choose an alternative mobility option, such as a regional transit pass rather than a replacement vehicle.

However, implementing dis -- implementing this option has been a challenge for the South Coast and San Joaquin Valley Air Districts. Since participants are scrapping a working vehicle, they need to be confident the alternative mobility option is a viable substitute.

Most applicants would need this option to function across multiple transport jurisdictions, and modes, which could be difficult to achieve. These districts are working to develop options that work for their residents.

Another lesson learned is the importance of consumer education and protections to ensure that each participant has the information necessary to choose a replacement vehicle that best meets their needs.

For example, while a battery electric vehicle may be the cleanest replacement option, it will not work for someone whose commune exceeds the vehicle's range. Consumer protections, such as a cap on interest rates, and ensuring no replacement vehicles have open safety recalls, also ensure the EFMP participants are getting affordable and more reliable transportation.

--o0o--

AIR RESOURCES ENGINEER NAIRN-BIRCH: These lessons learned will be valuable as we look to expand the Retire and Replace Program to new air districts. At least $10 million was set aside in the EFMP Plus-Up budget for fiscal year '16-'17 to expand the program to additional air districts. After presenting this opportunity to air districts through public workshops, work groups, in coordinated with -- coordination with CAPCOA, we are currently working closely with three air districts who are interested in participating. Those are the Bay Area, Sac Metro, and San Diego.

If programs in these air districts are developed, EFMP Plus-Up will be available to approximately 90 percent of the State's population living in or near a disadvantaged community.

Staff has already reviewed at least one draft implementation plan from each district and is ensuring each district has taken advantage of the lessons learned from the existing programs to design their own efficient and effective pilot programs.

At this point, we estimate launch dates for these programs in late 2017 or early 2018.

--o0o--

AIR RESOURCES ENGINEER NAIRN-BIRCH: One of our

priorities as we expand is to integrate the recommendations from the recently released draft SB 350 Barriers Study that are relevant to EFMP and EFMP Plus-Up.

First is the recommendation for the one-stop shop concept, wherein consumers can learn about and access all of the State's light-duty incentive and related programs. Many of these programs have common eligibility requirements with EFMP, like income verification, and require other similar administrative procedures. A one-stop shop could therefore reduce the need for duplicate efforts across programs and ensure participants know of all their opportunities.

The SB 350 study also highlights the need for financing assistance to access clean transportation options. As I mentioned earlier, some EFMP applicants can not complete the program without financing assistance. As such, staff plans to integrate the Financing Assistance Program once it becomes available.

A potential funding source of both of these recommendations is the second partial consent decree between CARB and Volkswagen. As part of this consent decree, Volkswagen must pay CARB 25 million to support ZEV-related aspects of EFMP Plus-Up or similar replacement programs. We believe that this funding can be used to complement and strengthen our programs.

--o0o--

AIR RESOURCES ENGINEER NAIRN-BIRCH: In summary, the South Coast and San Joaquin Valley Air Districts have successfully designed and launch EFMP and EFMP Plus-Up Retire and Replace Pilot Programs. We will continue to closely monitor their progress as they grow to meet the increased budget in fiscal year '16-'17, and we will ensure all lessons learned will inform the design and implementation of the programs in new air districts.

During this process, it is important that each district maintains their flexibility to design region-specific programs, as such discretion was critical to the success of the existing pilot programs.

Finally, staff plans to coordinate closely with all -- with the other low carbon transportation light-duty equity programs as they come on line in the near future. That concludes our presentation.

Thank you very much.

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

Yes, Mr. Mitchell

BOARD MEMBER MITCHELL: Can you give an estimate of how much money would be available annually for -- we have to divide this -- just the EFMP scrap program on one

hand, and then the Plus-Up Program on the other. There will be two different amounts, I assume.

AIR RESOURCES ENGINEER NAIRN-BIRCH: Yes. There are two different amounts. So the EFMP Retirement Only Program gets, on average, $30 million per year. And from that same pot of money, what we call the EFMP Base Retire and Replace Program gets $2.8 million.

EFMP Plus-Up, as I mentioned, the budget has increased significantly over the last three fiscal years from two million to 10 million last year. And in this current fiscal year, the budget was 60 million. So each of the existing programs, the South Coast and the San Joaquin Valley, will be getting 15 million. Of that amount, 10 million, as I mentioned, will go to new air districts to expand their programs, and then that leaves 20 million that has been set aside, so that at a date in the near future we can assess which of those programs will need that money the most.

BOARD MEMBER MITCHELL: So San Joaquin and South Coast would expect 15 million for the Plus-Up Program? Is One Five, is that what I heard you say?

AIR RESOURCES ENGINEER NAIRN-BIRCH: Yes.

BOARD MEMBER MITCHELL: Okay. Thank you.

CHAIR NICHOLS: Dr. Sperling.

BOARD MEMBER SPERLING: You said in the beginning

it's suppose to be cost effective, but then I didn't hear anything about that in your presentation.

I mean, I'm -- okay. I have to say I'm a little skeptical, because I've followed these kinds of scrappage cash-for-clunker programs for decades now. And there's always been a question of whether they make any sense. The auto industry always supports them, because it accelerates car sales.

But other than that, the evidence that I've been familiar with is sketchy, partly because people -- you don't know -- people that turn them in, you don't know how much those vehicles are actually driven, and a lot of them just pull them out of the, you know, backyard that -- where it's been sitting. And all they have -- I believe all they have to do is demonstrate that they actually operate. So do you have any cost effectiveness -- what is the cost effectiveness of this program, of any part of it?

MOBILE SOURCE CONTROL DIVISION CHIEF KITOWSKI:

So let me take a stab at some of that, because as we went through the presentation, Dr. Sperling, you noticed there's -- there's multiple components to the program. It's not as simple as saying the car scrap program that we have.

The requirement for cost effectiveness that we quoted was part of the legislation that dealt with the

basic EFMP Program that we do in coordination with BAR. And so just to clarify, that portion of that is directly applicable to that part, not necessarily the Scrap and Replace Program. Although, of course, we care about cost effectiveness.

So dealing with the first part, similar to what you're saying, a straight scrap program is more cost effective than a scrap-and-replace program where you're requiring significant additional funds to incentivize the consumer to get -- especially to get into the -- an advanced technology vehicle.

The cost effectiveness we're seeing on the scrap and replace, the EFMP Plus-Up, are probably an order of magnitude higher than this Board typically deals with on most other programs. So I'm agreeing with you that, yes, there -- from a straight cost effectiveness program, these aren't the ones you would put at the top of the list to maximize air quality benefits.

They -- however, the legislation -- legislature has put a lot of importance on these programs. I think they have other very important qualities, cost effectiveness expanding advanced technologies across the social spectrum, and social benefits as well that the legislature finds beneficial.

CHAIR NICHOLS: Could I jump in on that one,

because my question actually sort of dovetails with that, which is in evaluating the Plus-Up Program, in addition to the social equity reasons for doing it, as you've pointed out, the legislature, and many others, have thought that we needed to have a component in any program that we do that -- particularly that incentivizes new technology, that makes sure that the benefits of the technologies are widely spread and not just at trickle down kind of program.

But with the EFMP Plus-Up Program, we are in effect, I think, helping to make a market for used advanced hybrids and EVs. And so the question on that is, is there a way to factor in whatever the benefit of that is versus potential other ways, I suppose, that you could look at of helping to bolster that market?

Because in talking to the OEMs, the lack of a real market there is a very big issue for them.

MOBILE SOURCE CONTROL DIVISION CHIEF KITOWSKI:

Yes. Completely agree. The used EV market is an area that we are coordinating on internally and assessing the best ways. And as we -- as we discuss that, both from a -- you know, sort of a marketing standpoint, an outreach standpoint as well as, you know, best fits, the -- this program has come up in that context as one of the solutions, along with others, like a CVRP for used

vehicles and other solutions. And we are -- we are assessing those.

CHAIR NICHOLS: Um-hmm.

Sorry, I didn't mean to interrupt your question.

BOARD MEMBER SPERLING: Yeah, and that's -- I mean, you know, these are public funds. I think there should be, even if the cost effective numbers don't look good, let's at least take into account what's the goal here, and is this the best way to be spending the money to achieve those goals?

And along that line, I do have a suggestion, and that is I didn't understand exactly what it said, but some of the money could be made available in terms of transit passes. And I understand the challenge there of multiple transit operators and so on. But the transit operators are integrating better, and so I think there is opportunities.

But I would even push it further and say what about bicycles, what about other kinds of mobility services? I mean, if the goal here is to provide better access, I bet we can do it a lot cheaper with a lot less carbon and pollution as well, if we think about it a little more broadly in terms of what we make available to travelers.

MOBILE SOURCE CONTROL DIVISION CHIEF KITOWSKI:

We completely agree with you. We like that mobility option, which we've acknowledged has had trouble getting off the ground. To ultimately include a spectrum of options that can be included, it's not just multiple transit agencies, it's an Uber/Lyft system. It could be bicycles, car sharing.

The ability to be able to integrate across all of those modes would be the ones that would make it attractive to the consumer to give up their vehicle. We are actively working on that.

BOARD MEMBER SPERLING: Thank you.

CHAIR NICHOLS: This direction. Sorry, did you have your hand -- okay. Ms. Takvorian.

BOARD MEMBER TAKVORIAN: Thank you.

So just on the last conversation, I appreciate that you are thinking about alternative mobility. That was going to be my question as to what that is, and whether or not incentives for bikes, for instance. I know that's been brought to the Board previously as a thought as to why not provide incentives for folks to purchase bikes for commuting. And so I'd love to hear your thoughts about that.

Also, in terms of the used EV and hybrid market, my understanding from the briefing was that this program doesn't allow the ability to -- well, I'm mixing two

issues.

The other is for folks who don't have cars. So I understand that this program is really about scrapping these cars, but there's folks that need to get into cars. And if they're very low income, they're going to buy polluting -- very much more polluting vehicles. So how can we expand this program or create another program that would allow them to get into used cleaner cars?

And so for that reason, I wanted to talk about the idea of using the VW settlement monies -- I would hope that we aren't using it for a program that's as restrictive as this one. I mean, this is a good program. I think it's accomplished a lot, but it's got restrictions on it that I think we're all kind of struggling with. So I wanted to kind of talk about that as well.

And then a question about what does it mean to live near a disadvantaged community? I don't know if that's a -- something you can just answer.

MOBILE SOURCE CONTROL DIVISION CHIEF KITOWSKI:

Yeah. I think a simple way of looking at this is if for those of you -- you're familiar with CalEnviroScreen and how it breaks up the State into census tracts. When you're running a program that's marketing towards consumers, they don't know what census tract they're in. I don't know what census tract I'm in.

And so we do it by zip code, which people can really understand. So the zip code has disadvantaged communities in it, but the census tract may be -- that is the disadvantaged community may be smaller. So if you're in a zip code that includes a disadvantaged community, then you're not -- you may not necessarily be in a disadvantaged community, but you're at least near a disadvantaged community.

BOARD MEMBER TAKVORIAN: Well, knowing what I know about zip codes and census tracts, I think we may be overstating our benefit to disadvantaged communities then, because zip codes are huge compared to census tracts.

MSCD INCENTIVES & TECHNOLOGY ADVANCEMENT BRANCH CHIEF ROWLAND: This is Scott Rowland. If I can -- can jump in. The marketing and the eligibility is to those who are in zip codes with the disadvantaged community census tracts.

The 96 percent figure - I believe that's the correct figure - is actually participants in those disadvantaged community census tracts. So the marketing is broader than the census tract, because that what the community understands. But the reporting is specifically people in those census tracts. So the districts -- both districts have been extremely successful in targeting those consumers.

BOARD MEMBER TAKVORIAN: But your slide says in or near. I mean, 96 percent of all participants live in or near disadvantaged communities

MSCD INCENTIVES & TECHNOLOGY ADVANCEMENT BRANCH CHIEF ROWLAND: Okay. Sorry, so what's the -- I apologize. What's the actual census tract number?

Sorry. Okay. So it is 56 percent within the actual census tracts. And my apologies for misspeaking.

BOARD MEMBER TAKVORIAN: I'm sorry, 56 percent?

MSCD INCENTIVES & TECHNOLOGY ADVANCEMENT BRANCH CHIEF ROWLAND: Fifty-six percent in the actual census tracts.

BOARD MEMBER TAKVORIAN: So I understand the marketing issue. I understand that we all use our zip codes, but I do think that census tracts are easily available. I mean, there are programs where you can put in your address and it will tell you what your zip -- what your census tract is.

So maybe we -- to actually maximize the benefit, I'm just thinking about how you're going to be expanding this to other districts, especially air districts. And maybe that's something that we can help them with, so that they can be more targeted, so -- because I know that there are census tracts that are quite disadvantaged right next to census tracts that -- and they're all in the same zip

code, that are not disadvantaged at all. So that's one thing.

And then the other just thing to think about is I really like the San Joaquin's Tune-in, Tune-up connection. And I think there's other ways too that we could make those kind of connections. I was thinking about whether or not we could think about using community organizations, like community health clinics, and other places where folks are. There's a lot of people coming in that could utilize this kind of a program as potentially for outreach.

So just a thought. And I look forward -- I think when we get to the next part of the Board discussion, maybe after the witnesses that we could talk about some of these things.

Thanks.

CHAIR NICHOLS: Thanks.

Ms. Berg.

VICE CHAIR BERG: I just would like to ask a clarifying question. Regardless of within that zip code they still have to meet the income requirement?

MSCD INCENTIVES & TECHNOLOGY ADVANCEMENT BRANCH CHIEF ROWLAND: That is -- that is correct. All participants are 400 percent of Federal Poverty Level or less.

VICE CHAIR BERG: So the fact that these people were able to live within the zip code may be slightly outside of the disadvantaged area, they still are low income.

MSCD INCENTIVES & TECHNOLOGY ADVANCEMENT BRANCH CHIEF ROWLAND: Correct.

VICE CHAIR BERG: Thank you.

CHAIR NICHOLS: Thank you.

Yes, Dr. Sherriffs.

BOARD MEMBER SHERRIFFS: Question. And thank you for the presentation. Slide number 12, you've got the pie in terms of acceptance of advanced technology, which is very high, which is wonderful, because I think that is very much, along with the environmental justice communities, the other really important feature driver for this.

Does that pie look pretty much the same for the San Joaquin Valley as it does for South Coast or are there differences in the regions in terms of acceptance of -- or seeking advanced technology?

AIR RESOURCES ENGINEER NAIRN-BIRCH: They're actually very similar. Yeah, so that pie chart would be representative of both districts.

BOARD MEMBER SHERRIFFS: Great. Thank you.

And did anybody choose the alternative transit?

Is there anybody in there at this point?

AIR RESOURCES ENGINEER NAIRN-BIRCH: There are two in -- through the first quarter of 2017 in the South Coast.

BOARD MEMBER SHERRIFFS: Okay. It would be very interesting to look closely at those. It's a small number, but how is it that that appeals? Because obviously, it's a direction we would love to help move. And so what do we learn from those two that can help drive more? Great -- or drive less, excuse me.

(Laughter.)

CHAIR NICHOLS: Thank you. We have witnesses from two air districts that are implementing this program, and then we'll move to the general sign-up list.

So may I call forward Fred Minassian. And I'm not sure who's here from San Joaquin. Hi. There you go.

Hi.

Okay.

MR. MINASSIAN: Good morning, Chairman Nichols, members of the Board. I'm Fred Minassian, Assistant Deputy Executive Officer at the South Coast AQMD. I'm here to basically state our agency's participation in this pilot program.

It has been a very, very successful program, and we've been very happy to participate in that.

CHAIR NICHOLS: Thank you.

MR. MINASSIAN: We have had close cooperation with your staff and submitted frequent updates and reports regarding the progress of this program. To date, we have replaced over 1,800 vehicles -- retired and replaced over 1,800 vehicles. As you saw the percentages stated by your staff, the great percentage of this replacements have been in disadvantaged communities.

The methodology that we have implemented in this program has been very suitable for our -- the needs of our district. Basically, we have had our own staff working on this program. We have hired three contractors as case managers. The case managers, in addition to evaluation of the applications, helping the applicants, have also had different roles in outreach.

For example, one of the case managers. Basically, they go to disadvantaged communities, interview people, distribute information. We do events that we hand out the keys of new cars for the award recipients and so on. We have another case manager that basically they do remote sensing in disadvantaged communities and identify type of vehicles that may be suitable for this program.

And based on that, we contact the owner of those vehicles and basically give them options, that if they like, they can participate in this program and take

advantage of it.

So there are different ways of outreach we have implemented. Basically, cast a large net within our basin. It has been very successful. And it's about two weeks, we also have implemented our website. It's a called replaceyourride.com, where interested parties can basically go to that website. It lists type of information that they need, the type of vehicles, the dollar amount that they would receive, and all the requirements.

There's also an 800 number that they can call. So all the calls and the inquiry that we receive through the website, we take those and again distribute them among our case managers, and we handle those cases. The program has been very successful. We are looking forward with increased amount of funding and closer cooperation with your air district -- with Air Resources Board, I'm sorry.

Thank you very much.

MR. DeYOUNG: Morning. Excuse me.

Madam Chair, members of the Board. My name is Todd DeYoung. I'm the incident program manager at the San Joaquin Valley Air Pollution Control District. I'm happy to be here this morning on behalf of the valley air district to express our full support for the ongoing and expanded implementation of EFMP and the EFMP Plus-Up

programs.

These innovative programs are an important component of the district's overall efforts to address emissions from mobile sources in the valley, and particularly within the valley's many disadvantaged communities. Based on the most recent CalEnviroScreen model, 20 out of the top 30 most disadvantaged communities in California are located within the San Joaquin Valley.

And as such, it's critical to effectively and efficiently target funding in these disproportionately impacted areas. EFMP and EFMP Plus-Up do just that.

Since 2010, the district has partnered with Valley Clean Air Now to administer the award winning Tune-in and Tune-up Program. This program consists of a series of weekend events held in disadvantaged communities throughout the valley, in which residents can receive a free vehicle emissions screen to determine the likelihood of their vehicle failing a smog check.

Owners of those vehicles that fail this initial screen are then provided with a voucher good for up to $650 in smog-related vehicle repairs at a participating smog shop. While the main focus of these weekend events is obviously for identifying and repairing those high-emitting vehicles, these weekend events have become much more than that.

Through the work of the District and Valley CAN, these events have evolved into a one-stop shop of sorts, where low-income valley residents are encouraged to take advantage of a variety of community resources available at the events. Not only can participants schedule their smog repairs on-site with one of the many smog shops in attendance, residents can also take advantage of health and dental screenings, receive low cost and no cost vaccinations, get information on low-cost auto insurance, vehicle financing options, have their child safety seats checked, inspected, and properly installed, and, of course, grab a hot dog cool drinking.

To date, the district has conducted 110 of these weekend events throughout the valley, and have repaired more than 21,000 vehicles in the San Joaquin Valley. These weekend events are extremely well marketed using a well-refined and targeted outreach strategy, including outreach through local community groups, print, radio, and television advertising, and targeted social media.

In 2015, the district incorporated the EFMP and Plus-Up replacement components into the Tune-in, Tune-up Program with funding from the Air Resources Board.

Now, at weekend events, we screen all the vehicles that come through the gates to determine if those vehicles might be good candidates for replacement under

EFMP. Interested owners of vehicles meeting those requirements are offered additional funding to replace their vehicles rather than repairing them.

Participants are taken through a robust process that includes a substantial educational component, so that participants are thoroughly aware of the program requirements and the options for vehicle technology. And the process incorporates strict consumer protections at each phase.

To date, we have replaced more than 850 high-polluting vehicles through these programs, with a majority of the replacements being hybrid, plug-in hybrid, or full battery electric vehicles.

The program has been very successful at reaching low-income disadvantaged communities. In fact almost all of the participants are in the lowest income category and actually reside within a disadvantaged community in the valley.

Although, we've had great success with this model, the district is currently developing an on-line application portal as a companion to the weekend events that will allow valley residents to directly apply to the program. We anticipate launching this portal later this summer and we feel that it will significantly expand the reach of the program, and will be a great addition to the

weekend events, while maintaining the focus on serving low-income residents in disadvantaged communities.

Lastly, I'd like to thank your staff and recognize the partnership that we have developed in implementing this critical, but somewhat complex program. Specifically, I'd like to thank Jack Kitowski -- excuse me -- Scott Rowland, Aaron Hilliard, Tom Evashenk, Nick Nairn-Birch, and Hurshey Shahi for their pragmatic approach to this program and providing the flexibility that we need to effectively implement this program in the valley, while maintaining the utmost program integrity.

These folks have truly done a bang-up job, and we appreciate all of the work that they've done, and the relation -- relationship that we've established to implement this important program.

Thank you very much

VICE CHAIR BERG: Well, thank you. And we also want to recognize both -- thank you, Fred and thank you, Todd for piloting this program. We're really looking forward to it going out to other districts. But thanks for doing that heavy lift as well, and thank you staff.

Would you like to follow up?

BOARD MEMBER TAKVORIAN: (Nods head.)

VICE CHAIR BERG: We do have a follow-up question.

BOARD MEMBER TAKVORIAN: I just wanted to ask the last speaker, so are you -- how are you doing in terms of the amount of resources that you have? Are you oversubscribed, do you have a waiting list? The outreach sounds great.

MR. DeYOUNG: It's -- right now, since it's dependent on the event model, we have a very good system, where we generate a huge pool of applicants at every event. And then between those weekend events, they're usually scheduled about two weeks apart, we spend all of that time following up with those folks, getting them through the process.

We've done a little bit more targeted outreach through social media right now, so we actually have some folks that are coming to those events with all of the necessary paperwork, and they're ready to go. So essentially, we're definitely keeping up with the demand right now. We have the capacity to expand, so we're not maxed out at -- you know, by any stretch of the imagination. But that's a -- it's a good process.

VICE CHAIR BERG: Okay. Continuing. We have two more speakers.

Jaime. Oh, make that three.

MR. LEMUS: Good morning, Board and ARB staff. And my name is Jaime Lemus. And I'm with the Sacramento

Metropolitan Air Quality Management District. I'm the program manager for the mobile sources sections there.

And we've recently just deployed there the Zero-Emission School Bus Program and the Car Share -- or our community car share program there. And we come here today to support the expansion of the EFMP Program, because we currently in the middle of finalizing the program details with ARB staff.

And so with that, we'd like to thank all of the ARB staff for working closely with us, making the process manageable. These are very complicated programs, where we have to flesh out a lot of the details. But we're working very closely with them and everything is going very good. And so we look forward to deploying the EFMP program here in Sacramento.

Thank you.

VICE CHAIR BERG: Thank you.

MR. KNOX: I'm Tom Knox with Valley CAN. Shrayas let me go first, because I've got a meeting to get to. I just wanted to follow up on Todd's comments, and thank the Board and CARB staff and the District for all the flexibility over the last few years to make this program a reality. It's been incredibly exciting and fun to change people's lives with these cars, to create a market for used advanced technology vehicles in disadvantaged

communities to challenge a lot of assumptions about what was possible.

So it's worked incredibly well. Thanks to the District. Thanks to Air Resources Board, and especially to staff for being incredibly flexible and, you know, very willing to think differently about how programs can work. And so Jack, Scott, Aaron, Nick, Tom, Hurshey have been amazing partners for years now in making this a reality. So thank you all very much.

VICE CHAIR BERG: Thank you.

MR. JATKAR: Good morning. Shrayas Jatkar with Coalition for Clean Air. And I would like to just start with a phrase that we often here from Plus-Up participants, which is, "Too good to be true". And I think that's an indication of how well designed this program is. And I want to join folks in applauding ARB staff who have been involved in designing and administrating this program, and also to the air districts, and to groups like valley CAN, who have done a great job in actually running and implementing the Plus-Up Pilot Project, which I'll focus on in particular.

And, you know, as we've heard and I think as the figures show, this is a very popular and successful program with high uptake of advanced technology vehicles, and especially in disadvantaged -- well, reaching low

income consumers effectively and serving disadvantaged communities, in particular.

And in addition to reducing air pollution and greenhouse gas emissions, I think it's remarkable that this program is really addressing transportation costs in a meaningful way, which, of course, is becoming a growing problem here in California, with taxes and whatnot.

So this is definitely a concern, and one that I think is being addressed in a meaningful way by not only reducing fuel and maintenance costs by providing more reliable transportation, but lowering the cost of advanced technology vehicles, which is really important.

And as we've heard, it's exciting to see this program grow from a pilot. I think it may be still called a pilot, but it's very exciting to see the legislature appropriate significantly more dollars for this program over the last couple of years. And as the program expands, I just want to hit on two points that I think should guide the expansion. And there's many others that were listed earlier that we support.

But just two. One is that it would be great to streamline some of the basic tasks, such as data management to help lower program implementation costs and actually address some of the issues of cost effectiveness that we heard earlier.

And secondly, I think it's important to continue encouraging and do a little bit more hands-on facilitation to address some of the challenges with making the alternative transit -- or alternative mobility options more viable. And that certainly should be possible in the Bay Area where public transit, I think, is provided in great frequency. There's good coordination amongst different transit agencies.

And at the same time, this should be something that we aim for across the Board, where this program is now and expands, we should definitely be making those alternative mobility options available to all.

VICE CHAIR BERG: Well, thank you very much. Again, this is an informational item. And I think we'll take some final comments.

Dr. Balmes.

BOARD MEMBER BALMES: I would have not normally injected myself at this point, but I have to run over to the Capitol to meet with one of the senators.

And I would just say, you know, it's -- this is a great report on progress. And I want to compliment the South Coast, the San Joaquin Valley, and CARB staff for the progress so far. But I -- I have to say that, you know, knowing what new advanced clean cars cost, having bought one not recent -- not too long ago, even the

$9,500, you know, is not going to make it for a new advanced car for a person of low income.

So I really support what Dr. Sperling said about we have to make a broad array of mobility options available, and the last speaker, you know, spoke to that.

I mean, I really think it's key. It's a fundamental, you know, issue. Again, it's great that we're marketing and targeting folks from disadvantaged communities, but I just don't think the program is all the way there. And it's not the fault of the people in the room, but we have to think bigger to make it a real impact.

And I would say that even the marketing -- you know, if you're an undocumented person, and, you know, you hear -- they call you up and they say, well, our remote sensing says that, you know, you have a vehicle that is eligible. Boy, if I was such a person, I'd probably freak out. So I'm just saying that we've got a long way to go.

VICE CHAIR BERG: Great. Any other comments?

Oh. Thank you. Ms. Mitchell.

BOARD MEMBER MITCHELL: Thank you, Madam Vice Chair. I want to comment on how successful this program has been in the South Coast, and also San Joaquin has had very good success with it as well.

But the policy background on this is kind of

interesting, because I, and John Gioia, were undergoing Senate Rules confirmation hearings when these issues came up. And one of the complaints at that time was, well, the CVRP program is giving rebates to rich people. And what are we going to do about low-income people?

And out of those conversations this program was born. And it has been, as I said, very successful. We recognized also, at that time, that we were going to have a secondary market in these clean vehicles. Priuses were coming in in the secondary market. And as every year goes by, we're going to see more of these new technology vehicles, as used vehicles coming onto the scene.

So I think it is going to provide that market for -- the secondary market for the vehicles. It will help spur that. It also introduces more people to the value of a clean car and to the -- to the ease of operating a clean car, to the technicalities of vehicle charging, and will also be an incentive for us to widen the availability of electric charging.

I'm interested in the leasing aspect of these vehicles also. And I know that with this disadvantaged community that there are problems with that, because their credit -- their credit worthiness is not often good enough to get a financing at a bank. So I would be interested in us exploring that, because I see, as we move forward, that

there will be more and more leasing of these kinds of vehicles as well, and the leasing of new vehicles.

Some of the leasing of the new vehicles is very reasonable. And this will also help, you know, stimulate that market.

So we've seen advertised some of these leases as low as 150 a month. The other thing about this technology is that some people maybe not want to get invested in a long-term ownership of the vehicle that they don't know that much about, but would be interested in the three-year lease, and those are out there now at reasonable prices.

So I would like our staff to really look into that, and how we can help with the financing of leasing of vehicles.

The other comment I want to make is that we want to make this easy for the applicants. We don't want it to be too complicated. And sometimes it is complicated because, as we said, we have in the South Coast, case managers, because they need to look at what are the needs for the applicant, and what -- does that vehicle fill those needs?

But the other thing I would say is that the whole program rests on income eligibility. And so I think that combination that you have in place with the zip code, plus the low-income requirements, is sufficient.

I respect the comment that census tracts might be a better way to reach people, but I think we're reaching people with that combination, because low income still is a requirement. And I think it's easier for the applicant with the zip code reference rather than the census tract reference. So I just want to make that comment as well.

And thank you to all of you who work on this program. I know it's not that easy to do, but I'm so glad to see it spreading to three other air districts. And I think when you get to an air district like the Bay Area where transit options are good, that you'll see more people opting in for that.

I know in L.A., you can't always get where you want to go with our transit options. And that may be true in San Joaquin Valley. I don't know the situation there. But I think when you get to places where there are better transit options, you'll see more people opting in for that as well.

Thank you.

VICE CHAIR BERG: Yes. Dr. Sherriffs.

BOARD MEMBER SHERRIFFS: Yeah, I just wanted to thank everybody for their presentations and thank Todd for coming from the San Joaquin Valley. The flexibility is very important. I want to thank the air districts that are interested in jumping into this Bay Area, Sacramento,

San Diego. Because one of the things I'm reminded in this presentation, you know, as I originally was looking at, well, what's South Coast doing, what's the San Joaquin Valley doing? San Joaquin's seemed pretty intensive in terms of the Tune-in, Tune-up programs. And to scale it up, you have to scale up those programs and those weekend events.

Gee, it looked at first glance like South Coast really was, as we would expect, high tech, web based. But both of these, in fact, are very intent -- labor intensive processes, that's why they are working, because they figured out ways to reach their communities. But then also, there is a lot of personal management. And we would expect that, because we're asking people to deal with the new technology. And although hybrids and battery-electric cars have been around for a long time, when people first step into those technologies, it's a little bit daunting and it's unfamiliar, and gee, is this going to work for me. And we want it to work. So that intensity of interaction is very important, because you want people to make the right choice for them.

So again, thanks to the other districts that are ready to jump into this, and participate, and find their own path. Part of their own path may be we may need to look at maybe the incentives are not one size fits all for

all five districts. Maybe -- there may be a different mix in terms of the incentives that work one place compared to another. So that may be something we have to come back and look at too.

Thank you.

VICE CHAIR BERG: Thank you. Okay. Then we're going to go ahead move on. I want to take a temperature. I want to check in with our court reporter. How are you doing.

THE COURT REPORTER: I'm fine.

VICE CHAIR BERG: Fine. So we could go ahead and do the next item. It's about 35 minutes, take a lunch break at 12:30. Do I see agreement on that? And then we'll come back and finish up with the Low Carbon Fuel Standard.

Good to go, everyone?

Okay. Good. Then as staff changes seats, the next item on our agenda is an informational update on the Red Sticker Off-Highway Recreational Vehicle Program.

ARB created the Red Sticker Program in 1998, as a pathway for manufacturers to bring to market a broader offering of high performance off-highway recreational vehicles. Red sticker vehicles do not have an emission controls and rely on usage restrictions to mitigate their air quality impacts.

In July 2013, the Board asked staff to assess the magnitude of the red sticker vehicle emissions and proposed potential revisions to that program. Today, the presentation is intended again to be an update to the Board on the findings of staff's assessment and a proposed path forward for achieving meeting needed emissions from these vehicles.

Mr. Corey, will you please introduce this item.

(Thereupon an overhead presentation was presented as follows.)

EXECUTIVE OFFICER COREY: Yes. Thanks, Vice Chair Berg.

While California has achieved substantial emission reductions from cars, trucks, and other mobile sources, significant additional emission reductions are still needed to meet State and federal air quality standards.

But the success of our emission control programs for on-road vehicles achieving emission reductions from off-road categories has become more important for achieving the targets outlined in the State Implementation Plan. One important source of emissions, as you noted, Red Sticker Off-Highway Recreational Vehicles, which are the only uncontrolled mobile source category in the State.

Today, staff will present an update on their

assessment of the Red Sticker Program with the focus on its air quality impacts and opportunities for additional emission reductions.

And with that, I'll ask Cassie Lopina to give the staff presentation.

Cassie.

VICE CHAIR BERG: And, Cassie, before you start, was there a presentation that the Board was supposed to have? We don't have that in our folders.

Okay. But we're going to go ahead and have Cassie start, and then we'll remedy that situation.

Apologize, Cassie.

Thank you.

AIR POLLUTION SPECIALIST LOPINA: Thank you. And thank you, Mr. Corey. Good morning, members of the Board. Today, I will present an informational update on red sticker off-highway recreational vehicles, or OHVs for short. The OHV category includes off-highway motorcycles, all-terrain vehicles, side-by-sides, and utility vehicles.

--o0o--

AIR POLLUTION SPECIALIST LOPINA: Before 1994, exhaust and evaporative emissions from OHVs were completely uncontrolled in California and elsewhere in the world. Recognizing the need to reduce emissions from these vehicles to meet California's stringent air quality

goals, the Board adopted the first exhaust standards for OHVs in 1994.

In 1997, prior to implementation of CARB's exhaust standards, industry expressed concern over meeting the new emission standards and a potential decline of OHV availability in California. In response, CARB formed a working committee to craft a compromise with manufacturers, dealers, rider groups, and other government agencies. The goal of the working committee was to develop a transitional compliance pathway for manufacturers while ensuring needed exhaust emission reductions from these OHVs.

The result of this compromise was a California specific two tiered OHV registration and usage program, known as the Red Sticker Program, which the Board adopted in 1998. Under this program OHVs that meet 1994 exhaust standards, so-called green sticker vehicles, can be operated throughout California regardless of the season.

Manufacturers are allowed to produce and sell a second class of OHVs known as red sticker vehicles that do not meet any emission standards. To protect air quality in ozone nonattainment areas, red sticker OHVs are subject to riding restrictions that prohibit their use in certain parts of the State during the summer.

In 2006, U.S. EPA adopted the first federal

standards to control both exhaust and evaporative emissions. At that time, U.S. EPA also designed their criteria for competition-exempt OHVs. Competition, or racing vehicles, are exempted from emission control requirements, both federally and in California.

Similar to red sticker OHVs, competition OHVs have uncontrolled emissions, but the federal program restricts their usage solely to competition purposes, and does not allow them to be used for recreational riding. The significance of this action and its relevance to California's Red Sticker Program will be explained in greater detail later in this presentation.

In 2013, CARB adopted stringent evaporative emission standards for OHVs. As proposed, the 2013 rule would have required the same evaporative standards for both green sticker and red sticker OHVs. However, based on public comment, the Board decided to exclude red sticker OHVs from the 2013 evaporative standards with the understanding that staff would return with a comprehensive solution to reduce both exhaust and evaporative emissions from red sticker OHVs.

Over the past four years, staff has conducted an extensive technical assessment to inform the development of this comprehensive solution. We return today with the preliminary findings of our assessment which will inform a

regulatory solution we will bring before you in early 2018.

--o0o--

AIR POLLUTION SPECIALIST LOPINA: To determine the effectiveness of the Red Sticker Program, it is important to understand the types of emissions generated from OHVs, and what the Red Sticker Program originally sought to control. Exhaust, or tailpipe emissions, occur from OHVs during operation. When the Red Sticker Program was adopted in 1998, its intent was to mitigate the impact of exhaust emissions, not through engine controls, but by implementing riding restrictions in ozone nonattainment areas.

Evaporative emissions are produced by OHVs during three distinct usage modes: Running loss emissions occur during engine operation, hot soak emissions are generated immediately after engine operations when the fuel system heats up, and diurnal emission are generated when the vehicle is stored.

When the Red Sticker Program was adopted, evaporative emissions were uncontrolled, and therefore not considered by the program.

--o0o--

AIR POLLUTION SPECIALIST LOPINA: All-terrain vehicles, or ATVs, and off-highway motorcycles, or OHMCs,

are the most popular OHVs in California, collectively accounting for 91 percent of the OHV population.

The Red Sticker Program allows ATVs and off-highway motorcycles with out emission controls to be certified by CARB as emissions non-compliant. Manufacturers are not required to submit emissions data, or provide a vehicle warranty to certify red sticker OHVs, but they are required to identify red sticker OHVs by placing a 3 or C in the 8th digit of their vehicle identification number, or VIN.

The VIN number is used by California Department of Motor Vehicles, or DMV, to determine whether an OHV should receive a green or a red registration sticker.

At this time, about 190,000, or 20 percent of California's estimated one million OHVs are red sticker vehicles. But the relative numbers and contribution to the emissions inventory are expected to increase absent Board action. To ensure the red sticker OHVs do not adversely affect ozone nonattainment areas, this program restricts summertime operation on public lands.

These restrictions are outlined on the red sticker riding calendar. The riding calendar lists specific public riding areas where red sticker operation is prohibited during the summer.

Red sticker OHVs may be used year round on

private land and on public land and ozone nonattainment areas.

--o0o--

AIR POLLUTION SPECIALIST LOPINA: Following the 2013 Board hearing, staff began a comprehensive technical assessment to determine if the Red Sticker Program is still working as intended. In 1998, the program was adopted for four major reasons. The first was to delay the 1998 exhaust standards to ensure OHV availability. Manufacturers were concerned that they would not be able to meet the technology forcing standard. And dealers were concerned that this would lead to a decrease in the number of models offered for sale.

At the time, the Red Sticker Program was adopted, staff believed the program would not -- would only be needed temporarily, and that over time red sticker models would transition to compliant green sticker models.

The second was to ease the transaction -- transition to cleaner engine technologies. As just mentioned, the 1998 exhaust standards were technology forcing and would have required manufacturers to produce and market cleaner engine technologies to meet new standards. This included a greater offering of four-stroke models in place of the more polluting two-stroke models commonly sold at the time.

The third reason was that in exchange for allowing manufacturers to sell OHVs without emission controls, the program intended that equivalent emissions reductions would be achieved through limited usage requirements on OHV owners.

This was achieved by establishing riding restrictions to limit summertime exhaust emissions from OHVs in ozone nonattainment areas. The final reason for adopting the Red Sticker Program was to allow riders to practice for competitive events on public lands. The 1994 exhaust regulation originally defined a competition OHV as a vehicle used solely for racing purposes on a closed course.

Industry believed that competition-exempt vehicles needed access to public lands to practice for racing events, and thus the language was removed.

To assess whether the Red Sticker Program is still performing as originally intended, staff has conducted a comprehensive technical assessment.

--o0o--

AIR POLLUTION SPECIALIST LOPINA: This slide provides an overview of the components of the Red Stick assessment and the next steps. Over the past four years, staff has completed a comprehensive assessment of the Red Sticker Program. The components of this assessment

include -- include a population evaluation, emissions testing, and an owner survey.

Over the next several months, staff plans to develop the emissions inventory, host a final public workshop, and return to the Board with a red sticker regulatory proposal. On the next slide, I will share more about the extensive ongoing stakeholder outreach staff has engaged in while conducting this assessment.

--o0o--

AIR POLLUTION SPECIALIST LOPINA: To date, staff has held three public workshops, and two technical working group meetings to develop and share findings from the red sticker assessment.

Staff has also presented at five public California State Parks Commission hearings on the status of our assessments, which has provided us with the opportunity to speak with riders across the State.

Finally, staff has attended three annual Hangtown MX motocross races as guests of AMA's District 36, which has provided us with insight on professional motocross competitions.

Throughout the remainder of this assessment, staff will continue to work closely with our stakeholders to provide transparency and opportunities for public comment.

--o0o-- hope

AIR POLLUTION SPECIALIST LOPINA: Staff began the assessment by conducting a population evaluation to enhance our ability to analyze OHV registration data. At the beginning of the red sticker assessment, staff found that the decoder commonly used on VIN numbers was not designed for use on OHVs. To remedy this, staff developed a VIN decoder to analyze DMV registration records.

The new OHV VIN decoder provides the make, model, and model year for each OHV, as well as valuable information such as fuel delivery, engine stroke, and displacement. This tool will enhance our ability to evaluate trends over time and will provide higher resolution data on OHV populations in the future. Staff worked extensively with State Parks to develop the decoder. This tool could be used to generate OHV population reports for other State agencies.

Additionally, staff evaluated manufacturer certification data to better understand trends in green and red sticker model certifications over time, including technology used to meet green sticker exhaust standards.

--o0o--

AIR POLLUTION SPECIALIST LOPINA: For the emissions testing component, staff conducted exhaust and evaporative emissions testing on 20 new and in-use OHMCs.

Vehicles tested included two- and four-stroke OHMCs of common displacement ranges. These vehicles were selected to represent the most popular OHMC makes and models based on DMV registration data from recent years.

CARB worked extensively with industry to confirm that the OHMCs selected best represented the current OHMC population. Industry was also provided notification prior to conducting emissions tests and was invited to send representatives to observe our testing.

--o0o--

AIR POLLUTION SPECIALIST LOPINA: Over the past three years, staff has conducted an extensive survey of nearly 3,000 riders in California which was hosted on-line by UC Davis. A representative sample of riders was selected to participate in the survey based on spatial allocation, registration, and OHMC type from the 2013 DMV registration database.

Selected participants received a postcard in the mail to invite them to participate in the survey. The postcard, as shown, advertised a free State Parks SVRA for participants that completed the survey. In total, 2,274 participants accepted their day-use passes provided by State Parks.

The questions on the survey were developed with extensive input from industry and contained a variety of

questions aimed at understanding OHMC owners' usage and activity, riding preferences, and emissions impacts.

--o0o--

AIR POLLUTION SPECIALIST LOPINA: I will now begin sharing findings from our assessment.

This chart shows the number of ATV models certified by the top five ATV manufacturers, since the OHV exhaust standards were implemented in 1998. ATV red sticker models have steadily decreased over time, while green sticker models have increased.

Today, nearly all ATVs made the green sticker exhaust standards and a wide variety of models are available in California. This is the transition that was originally anticipated to occur when the Red Sticker Program was adopted.

Looking more closely at the number of red sticker ATVs certified. You can see that the certified red sticker models decreased sharply from 11 to 1 between models -- model years 2006 and 2007. This transition was likely due to the adoption of stringent U.S. EPA competition exemption criteria for ATVs in 2006.

For an ATV to be considered competition exempt federally, it may not be displayed for sale in any public dealership and must be used solely for competition purposes.

--o0o--

AIR POLLUTION SPECIALIST LOPINA: The transition from red to green sticker models that occurred for ATVs has still not happened for OHMCs. In 1998, there were a limited number of green sticker OHMCs available, and the Red Sticker Program was needed to allow model availability to increase.

Over time, the number of red sticker OHMC models increased rather than being replaced by green sticker models as predicted. Today, green sticker model availability is no longer an issue. Over 30 times as many green sticker models are currently available compared to when the program began.

Green sticker models are now available in a wide range of displacements and performance specifications. However, the number of red sticker models certified is higher than ever before, despite significant advances in technology. The adoption of U.S. EPA competition exemption criteria also impacted OHMC certifications in California.

Federal competition exemption criteria for OHMCs is significantly less stringent than for ATVs and is solely based on OHMC characteristics. After U.S. EPA adopted their final rule in 2006, you can see the dramatic shift from green sticker models to red sticker models in

the following year.

Since this time, the number of red sticker models has almost tripled, while green sticker models have remained relatively consistent.

--o0o--

AIR POLLUTION SPECIALIST LOPINA: The impact of red and green sticker model certifications on California's ATV and OHMC populations can be seen on this slide. For model years 2012 to 2016, almost all ATVs sold were green sticker. In comparison looking at the same model years for OHMCs, only 46 percent sold were green sticker.

--o0o--

AIR POLLUTION SPECIALIST LOPINA: The 1994 exhaust standards were developed to help transition the OHV market from dirtier, traditional two-stroke engines to cleaner four-stroke engines. A two-stroke engine fires once every revolution providing significant power boost. They do not have valves which simplifies their construction, lowers their weight, and makes them less expensive to manufacture.

Although, these engines have their advantages, from an emissions perspective, traditional two-stroke engines are much dirtier than their four-stroke counterparts. Two-stoke engines do not use fuel efficiently, so they provide fewer miles per gallon, oil

is combusted, which is expelled in a two-stroke vehicle's exhaust, and each time a new charge of air/fuel is loaded in the combustion chamber, it leaks out through the exhaust port.

Four-stroke engines first twice every revolution, one compression stroke and one exhaust stroke. These engines last longer, have power that is often considered more manageable, and provide more torque than their four -- than their two-stroke counterparts.

From an emissions perspective, four-strokes are more efficient engines which provide better fuel economy, and lower levels of exhaust emissions.

In 1998, when the Red Sticker Program was adopted, 60 percent of OHMCs and ATVs sold were two-stroke. From 2012 to 2016, approximately 15 percent of all OHMCs and less than one percent of ATVs sold had two-stroke engines.

As previously stated, when the Red Sticker Program was adopted, OHV models were expected to shift from red to green sticker over time. The transition was predicted to occur as four-stroke technology became available. Although 85 percent of OHMC models sold are four-stroke, the majority of the OHMC population is still certified as a red sticker.

--o0o--

AIR POLLUTION SPECIALIST LOPINA: For the emissions testing component of the assessment, staff measured exhaust emissions from red and green sticker OHMCs at our lab in El Monte. This chart summarizes the exhaust emission test results staff collected for 20 new and in-use OHMCs listed in the center of the chart.

For OHMC types where more than one OHMC was tested, there are error bars to show the variability between emissions test results collected for each OHMC tested.

The top portion of the chart shows hydrocarbon emissions test results, while the bottom portion shows NOx emission test results. Please note the changes in scale on the Y axis for each pollutant.

On the left-hand side of the chart, the results from the five green sticker OHMCs tested are highlighted in green. Although these green sticker OHMCs met the hydrocarbon exhaust standard 1.2 grams per kilometer, these OHMCs were tuned leaner, indicated by their higher levels of NOx.

The higher NOx emissions are allowed because currently there is not an exhaust emissions standard to control NOx for OHVs.

In the center of the chart, the values highlighted in pale yellow, are the test results from 12

four-stroke red sticker OHMCs tested. These vehicles were close to meeting the current exhaust standards, yet were still being sold as red sticker OHMCs.

On the right side of the start -- of the chart, highlighted in orange are the test results from the two-stroke OHMCs. These OHMCs emitted the highest levels of hydrocarbon. Hydrocarbon from two, two-stroke red sticker OHMCs were so dirty that they exceeded the analyzer's upper limit. To put this in perspective, you may recall that more than half of OHMCs are now red sticker, and 29 percent of red sticker OHMCs sold today are two-stroke.

Elsewhere in the world, OHMCs are required to meet both hydrocarbon and NOx emission standards. In 2013, Europe established implementation dates for Euro 5 standards, which are set to go into effect beginning model year 2020. Euro 5 standards apply to both on- and off-highway motorcycles. The Euro 5 hydrocarbon standard is 0.1 grams per kilometer, which is approximately 90 percent lower than the current green sticker standard.

The Euro 5 NOx standard is 0.6 grams per kilometer, whereas California currently has no NOx standard for OHVs.

--o0o--

AIR POLLUTION SPECIALIST LOPINA: As shown on the

previous slide, testing two-stroke OHMCs in our El Monte Lab was difficult because of their high emissions. The higher displacement in-use two-stroke OHMCs tested contaminated our emissions lab sample train, and staff was unable to continue testing.

The analyzers used to collect hydrocarbon emissions data from these OHMCs had an upper limit -- upper instrument limit of 30 grams per kilometer, which the two OHMCs tested exceeded.

To provide clarity on what the emissions from two-stroke OHMCs may be, this slide provides published test results from other studies. In 2010, U.S. EPA published their -- published their emissions factors of 33.5 grams per kilometer hydrocarbon for two-stroke OHMCs.

Also in 2010, Southwest Research conducted a study on two in-use two-stroke OHMCs and found their emission to be between 25.7 and 26.2 grams per kilometer of hydrocarbon.

Finally, CARB's current emission factor, which was last updated in 2000 is 21.3 grams per kilometer hydrocarbon.

--o0o--

AIR POLLUTION SPECIALIST LOPINA: In the previous slide, I discussed the significance of exhaust emissions from two-stroke red sticker OHMCs. To provide some

perspective, hydrocarbon emissions from operating one 2016 two-stroke OHMC for one mile is equivalent to driving approximately 53 miles on a 2016 KTM 450XC-W, one of the cleanest green sticker OHMCs certified in 2016, or 311 miles on a 2016 Ducati, one of the cleanest on-road motorcycles certified in 2016, or 3,658 miles in an average 2016 passenger car.

--o0o--

AIR POLLUTION SPECIALIST LOPINA: As you may recall, one of the original intents of the Red Sticker Program was to limit the impact of exhaust emissions from OHVs without emission controls in ozone nonattainment areas.

To better understand operation, the OHMC owners survey contained multiple questions to try and help us understand how the Red Sticker Program influences riders' behaviors.

Overall, the survey found that 75 percent of red sticker owners registered in zone nonattainment areas ride during the summer, 54 percent operate on public land during the summer, 43 percent of red sticker riders travel further to ride, and 25 percent operate on unenforced public land.

Additionally, the survey found that 93 percent of red sticker operation occurs on private land in ozone

nonattainment areas.

This is a concern, because the red sticker riding calendar was never designated to address operation on private land. The next slide will provide more information on the shortcomings of the red sticker riding calendar.

--o0o--

AIR POLLUTION SPECIALIST LOPINA: This map shows the area designations for the 2008 federal 8-hour ozone standard with the darkest shade of orange representing California's two extreme ozone nonattainment areas, South Coast and San Joaquin Valley.

During our population assessment, staff found that the ratio of red-to-green registration is the same throughout the State regardless of ozone nonattainment designation, meaning that the area's attainment status has little impact on a rider's decision to purchase a red or green sticker OHV.

Looking more closely at the seasonal closures of red sticker riding areas, it becomes apparent why attainment designation has little impact on OHV purchasing decisions.

Removing the orange area designations, you can see the boundaries of California's ozone nonattainment areas. The red areas shown are public riding areas that

are closed between three to five months during the summer based on the red sticker riding calendar.

The green areas are public riding areas that are open year-round. The yellow triangles on the map show the locations of private tracks that are located throughout the State. Use of red sticker OHVs on private land, including private tracks and private property, is not restricted by the riding calendar. Therefore, even in ozone nonattainment areas, there are locations available for riding year-round.

--o0o--

AIR POLLUTION SPECIALIST LOPINA: Earlier in the presentation, I explained how the U.S. EPA defined OHV competition exemption criteria in 2006 and that this action impacted ATVs and OHMs certified in California.

Today, almost all red sticker OHMCs are U.S. EPA competition exempt. The federal competition exemption program allows manufacturers to be granted an exemption from the federal emissions standards for models that are used solely for competition.

Outside of California, competition-exempt OHVs cannot be used for recreation. As part of the OHMC owner survey, staff investigated how often red sticker OHMCs are used for competition. The survey indicate -- included multiple questions on the use of red and green sticker

OHMCs.

In California, 90 percent of red sticker OHMCs are primarily used for recreation. Furthermore, 74 percent of red sticker owners never race their OHMCs. In total, only 13 percent of the hours red sticker OHMCs are operated occur while racing or practicing for race events.

By conducting the assessment, staff found that the red sticker results in the recreational use of U.S. EPA competition-exempt OHVs.

The previous slides show how Red Sticker OHMCs are used for year-round recreational purposes resulting in unanticipated exhaust emissions impacts.

Next, I will want to highlight where these OHMCs are stored.

--o0o--

AIR POLLUTION SPECIALIST LOPINA: The map on the right shows the area designations for the 2008 federal 8-hour ozone air quality standards in orange. If we overlay the distribution of registered red sticker OHMCs, you can see that the majority of these vehicles are stored in ozone nonattainment areas.

Most evaporative emissions from OHMCs occur during storage. Over one-third of OHMCs are registered in the nation's most extreme ozone nonattainment area, South Coast.

In summary, evaporative emissions from red sticker OHMCs occur year round, predominantly in ozone non-attainment areas, and are not controlled by the Red Sticker Program.

--o0o--

AIR POLLUTION SPECIALIST LOPINA: To determine if the Red Sticker Program is still necessary, staff had to first determine if the program is still working as intended. As noted earlier, one purpose of the Red Sticker Program was to delay the 1998 exhaust standards to ensure OHV availability. In the assessment, staff found that over three times as many green sticker models are available today as in 1998.

A second purpose was to ease the transition to cleaner engine technology. Staff found that technology is readily available, yet the transition to green sticker has not occurred as originally anticipated.

The third purpose of the Red Sticker Program was to limit summertime exhaust emissions from OHVs in ozone nonattainment areas. The assessment revealed that the Red Sticker Program does not adequately prohibit use resulting in uncontrolled summertime emissions in ozone nonattainment areas.

Finally, the Red Sticker Program allowed riders to practice for competitive events on public lands. Due

to the adoption of federal OHV regulations, staff has found that the Red Sticker Program is now acting as a loophole to allow U.S. EPA competition-exempt OHMCs to be used predominantly for recreation in California.

--o0o--

AIR POLLUTION SPECIALIST LOPINA: Based on the findings I shared in the previous slide, it is clear that the Red Sticker Program no longer works as intended. Red sticker OHVs are the only uncontrolled mobile source category in the State. The program has been ineffective at eliminating exhaust emissions during the summer and does not account for evaporative emissions, which is important because the majority of red sticker OHVs are stored and operated in ozone nonattainment areas year round.

Additionally, full emissions benefits from the adoption of the 2013 evaporative standards may not be achieved. The red sticker program is serving as a loophole for manufacturers to avoid meeting the green sticker evaporative standard effective for model year 2018 OHVs.

It is too early to determine if the number of green sticker models -- to determine the number of green sticker models that will transition to red sticker, but staff will monitor this trend.

Another concern with the Red Sticker Program is that the adoption of U.S. EPA competition exemption criteria has resulted in inconsistencies between the State and federal programs. The Red Sticker Program has also resulted in significant impacts to other State agencies. Public land management agencies have shared their concerns that the program is difficult to enforce due to the small number of Rangers and expansive amounts of public land. The public land closures have resulted in reduced summertime revenue and increased environmental damage caused -- to trails caused by illegal riding. The program has also created registration challenges and widespread confusion over which OHVs are eligible for a red or green sticker.

--o0o--

AIR POLLUTION SPECIALIST LOPINA: Because the pro -- the Red Sticker Program is no longer working as intended, as well as the need to achieve emissional -- additional emissions reductions, staff is proposing the following three-step regulatory process.

In step one, the Red Sticker Program will be sunset. The sunset will be comprised of two separate dates. The first date would end the sale of new red sticker OHMCs. After this date, CARB would no longer provide certifications to OHVs without emission controls.

The second date would end riding restrictions, meaning that public land management agencies would no longer have to enforce the summertime closures specified on the red sticker riding calendar.

To ensure turnover of the red sticker fleet riding restrictions cannot be ended until a large portion of the uncontrolled red sticker fleet has transitioned to green sticker. In the second step, staff will clarify the racing exemption.

Prior to red sticker sale sunset date, a new definition of competition must be adopted to provide regulatory clarity on which OHVs are exempt from emission control regulations in California.

The concern over a lack of clarity surrounding the racing exemption does not only apply to red sticker OHVs. Competition is not defined for any mobile source category controlled by CARB. This lack of clarity has resulted in the misuse of the exemption, both on and off road. One of the most apparent examples of how the racing exemption is being misused is the application of uncertified aftermarket parts also referred to as illegal tampering.

To address this, staff will work with industry to develop a single competition definition for all vehicle categories. The third and final step is to propose new

emission standard for OHVs New emission standards would achieve -- or would allow staff to limit the levels of NOx produced by OHVs as well as help achieve the 80 percent reduction in smog-forming emissions from mobile sources needed in South Coast by 2031.

To reach these emissions reductions goals, staff proposes to develop comprehensive emission standards for both OHVs and on-road motorcycles. On the following slides, I will share the increasing similarities between these categories as well as opportunities to incentivize the production of zero emission technologies.

--o0o--

AIR POLLUTION SPECIALIST LOPINA: This slide shows a comparison between projected reactive organic gas emissions from passenger cars versus those from OHVs and on-road motorcycles. The blue line represents light-duty passenger cars. The green line represents OHVs, and the red line represents on-road motorcycles.

Currently, the light-duty passenger car emissions are approximately three times those from on-road motorcycles, and five times those from OHVs. California's Advanced Clean Car Program is expected to reduce emissions from passenger cars by 60 percent by 2035. With current standards, emissions from on- and off-road motorcycles are projected to be status quo far into the future.

In fact, in 2035, ROG emissions from HOVs an on-road motorcycles combined will be greater than ROG emissions from all light-duty passenger cars in the State. Because most of the reductions in automobile emissions have already been made, improvements in air quality require reductions in emissions from sources such as OHVs and on-road motorcycles.

This chart shows there still is much progress that can be made in reducing these emissions and highlights the significant need for additional emission reductions from these categories.

--o0o--

AIR POLLUTION SPECIALIST LOPINA: Globally, the market is transitioning towards cleaner motorcycle technologies. This chart shows the current on- and off-road motorcycle exhaust emission standards in California, the United States, and Canada, and Europe with implementation dates of each standard listed on the bottom of the chart.

In California, the current OHMC exhaust stand -- emission standards are set at 1.2 grams per kilometer hydrocarbon and do not include NOx. As you can see, this is the only exhaust standard for OHMCs that does not include NOx.

In comparison to European standards, North

American on- and off-road motorcycle standards are far behind. The United Nations has adopted a directive to significantly reduce motorcycle emissions. This directive has resulted in a more stringent test cycle, the WMTC, than the FTP test cycle used in North America to certify motorcycles.

As the test cycle in Europe has become more difficult, the emission standards have simultaneously decreased. Manufacturers across the world are already meeting Europe's current standard of 0.17 grams per kilometer hydrocarbon and 0.09 grams per kilometer NOx.

These standards are significantly lower than our current standards and apply to both on- and off-highway motorcycles.

In 2020, Europe will implement even lower exhaust emissions standards, a 0.1 grams per kilometer hydrocarbon, and 0.06 grams per kilometer NOx. The European standards are often considered global standards, because Europe has worked extensively with other nations across the world to develop their stringent motorcycle standards.

Many of other countries, including China, India, South Korea, Japan, Taiwan, and Brazil have also adopted European standards to help reduce emissions from motor cycles.

--o0o--

AIR POLLUTION SPECIALIST LOPINA: The previous slide outlined how European standards apply to both on- and off-road motorcycles. One of the reasons why these standards apply to both vehicle types is the increased similarity between on- and off-road motorcycles that occur -- has occurred over the past two decades to.

Traditionally, California regulations have been developed separately for on- and off-road motorcycles based on intended operation. The motorcycle regulation applies to all motor cycle tubtype -- subtypes used on road. Motor cycles certified under this regulation are eligible to receive an on-road license plate.

Motorcycles intended strictly for off-road use are controlled under the OHV regulation and are eligible either for a green or red registration sticker. Beginning around 2000, changes to the federal travel management plans has resulted in trail fragmentation. Many trails were closed and on-road access roads needed to be used for trail connectivity. This resulted in a growth in popularity of dual sport models, which are off-road capable motorcycles that can be also -- that can also be used on-road, because they are certified to meet on-road emission standards.

Moving forward, staff will work with

manufacturers to determine if developing a single emission's standard for both on- and off-road motorcycles would be beneficial for helping to reduce the economic impact of future regulations.

--o0o--

AIR POLLUTION SPECIALIST LOPINA: Zero-emission vehicles, or ZEVs, offer significant reduction in greenhouse gas and criteria pollutant emissions. Over the past few years, there has been significant investment by industry in zero-emission technology for both the on-road motorcycle and OHV categories. As you can see, the left-hand side of this slide highlights some of the ZEVs available on-road.

Zero is currently the largest zero-emission motorcycle manufacturer in the world. Based in Santa Cruz, Zero produces many subtypes of motorcycles, including dual sports.

Mahindra is now producing electric scooters, also referred to as the Genze, which are manufactured in Fremont. This company is hoping to help address congestion problems in large cities with the development of zero emission two-wheeled vehicles.

Harley Davidson a LiveWire is a concept ZEV from the largest manufacturer of motorcycles in America.

On the right-hand side of the slide, some of the

advances in zero-emission technology for OHVs are highlighted. The KTM Freeride E is currently only available in Europe. The Ranger EV is an all-electric utility vehicle produced by Polaris, and the Alta RedShift MX is a competition-style OHMC.

To support the transition to zero-emission motorcycles, State Parks is considering providing grant money to develop new electric OHV parks. This concept already exists in Europe and is popular from a land management perspective, as the absence of noise and exhaust emissions allow OHV Parks to be placed in a much denser urban setting.

The goal of creating electric OHV parks is in line with State Parks' mission to provide a statewide system of managed OHV recreational opportunities that balance OHV impacts with programs that conserve and protect natural resources.

Moving forward as staff develops new emission standards, zero-emission technology will need to be a part of the solution. Developing a single standard for both on- and off-road motorcycles would allow for the development of a flexible emissions credit scheme that incentivizes zero-emission technologies across categories, and allows manufacturers to decide if these technologies are better suited for their on- or off-road fleets.

--o0o--

AIR POLLUTION SPECIALIST LOPINA: Looking forward, staff plans to update the emissions inventory and work with stakeholders to develop the regulatory solutions. Staff plans to return to the Board with three separate regulatory proposals. The first will be in early 2018, where we will share the proposal to sunset the Red Sticker Program, and propose sunset dates to end the sale of new red sticker vehicles and eventually end riding restrictions.

The next regulatory proposal will be in 2018, where our Enforcement Division will return to the Board with a proposal to define competition for all mobile source categories.

Finally, staff commits to returning to the Board with a proposal to significantly reduce exhaust emissions from OHVs and exhaust and evaporative emissions from on-road motorcycles no sooner than in 2021.

CHAIR NICHOLS: Thank you.

We have a group of witnesses who've signed up to speak on this item. I just had one question about this competition issue. You didn't mention anything about an exemption or standards for competition vehicles in Europe, which does seem to be leading in other respects. And I do believe that they have competitive racing of motorcycles

in Europe. So what do they do about them?

AIR POLLUTION SPECIALIST LOPINA: Europe also has a competition exemption. And it is something that we've contacted them about, and have begun a dialogue of what their exemption looks like versus what the language in our new definition may look like.

CHAIR NICHOLS: It seems like another area where we may not have to reinvent the wheel, so to speak.

Okay. Let's go to the witnesses then. Let's start with Ted Cabral from California State Parks.

MR. CABRAL: Hello, Board -- Chair Nichols and Board. Thank you for having us here. I appreciate it today to be able to comment on this.

First thing I'd like to do is I'd like to acknowledge the staff that's worked on this. I've had a lot of interaction with them as the chair of the OHMVR Commission, and we've had multiple presentations, and we've also had -- I'm also on the subcommittee that's addressing this issue.

And just the -- their attitude, their willingness to engage with the public, with the manufacturers, and having these stakeholder outreach meetings has been impressive. And from my, you know, public oversight type view, I've really appreciated the whole process how it's worked. So thank you.

With that, I mean obviously, there's some issues here that need to be dressed as it's going forward. It's an opportunity. We have -- the electric vehicle type stuff came up a lot earlier with transportation vehicles -- on-road transportation vehicles, mainly automobiles, because it was mandated and made happen.

Well, on the off-road type areas, we're looking at the possibility of having urban OHV parks and being able to get more youth outdoor and do engagement stuff with these types of motor vehicles with youth programs. But it's difficult now, because we have to go to far away places, and use these other type of vehicles. And if we had electric vehicle type Off Highway Vehicle facilities you would be -- you wouldn't be disturbing the neighborhood. They would be a local area for people to go to. They wouldn't have to travel so far. So it would impact traffic, air quality, many different things. So it would be a very positive direction for us to go.

The other thing we have is, you know, the manufacturers have expressed their concerns, obviously, with the costs associated with doing this. They're -- you know, having us coordinate with the European standards would be a significant benefit, because the manufacturers wouldn't have to be looking at putting their resources into testing and certification stuff here, and they can

just be emulating what they have going on in the rest of the world.

So then it could be just a very simplified certification process, so they can put their money more into research and development and creating these new vehicles and going forward.

Lastly is, as far as electric vehicles go too, there's one other area that is kind of unknown in this is that -- and it hasn't been addressed is the electrification of bicycles. That's the fastest growing segment in bicycle sales right now. And many of those bicycles that are being sold are illegal to use on regular bicycle trails, and they are actually by Vehicle Code classified as a motorcycle.

The OHV program right now is going through a reauthorization process. And one of the things that's on the table right now is to include those types of vehicles in the program, so --

CHAIR NICHOLS: Thank you.

MR. CABRAL: -- Thank you.

CHAIR NICHOLS: Thank you.

We have another representative from State Parks, Mr. Fuzie.

MR. ROBERTSON: Good afternoon, Chair, Board members. I'm Brian Robertson. I'm the OHMVR Division

Chief, California State Parks.

Today, I wanted to share with you just some of my concerns with the Red Sticker Program. I've been with the Division for quite a few years, and over those years I've seen that Red Sticker Program is very confusing for both State Parks and also our federal partners, which is the U.S. Forest Service and BLM.

The public travel to our SVRAs, our State Vehicle Recreation Areas, and also some of our partner areas, which are hundreds of thousands of acres. And when they arrive, they didn't research what the calendar looked like, so a lot of times they're sitting there with a bike that is not being allowed to recreate.

Sometimes this confusion does create some emotional outbursts. And I've actually seen some of these contacts, based on the Red Sticker Program, to go to confrontational. And as an officer of the law and just trying to get good messaging out there, sometimes we have to go into that law enforcement mode, instead of going into the education mode.

And I think that is just because the Red Sticker Program is slightly confusing at this point. I think it had good intentions in the beginning, but at this point, there is some loopholes or some fraudulent activities at DMV. So for us, it is -- it's a very tough program to

manage.

Also, too, our partners and State Parks we do see drastic revenue decreases during the Red Sticker Program. We're not here to generate a lot revenue. I mean, that's not our goal, but revenue is helping compensate those operational costs. So when we see that decrease we definitely feel it.

Lastly, I'd like to just kind of close with the Red Sticker Program, I think in the beginning really helped us manage some issues. And at this point, I think those issues, through new technologies, new fuels, new oils have really gotten us to where the original goal. I'd like to see some evolution and maybe some change.

Thank you.

CHAIR NICHOLS: Thank you.

MR. FUZIE: Hello Mathew Fuzie, Deputy Director at California State Parks, OHV Division.

As you heard, it's been a very collaborative effort with the Air Resources Board staff and our staff. And it's, we believe, resulted in some very positive outcomes. We think there's great potential for this to help us with both our environmental policies, as well as our access issues with zero-emission vehicles in the future.

We are supportive of going in that direction for

both our urban outreach and for the purposes of increasing riding in areas where there is none. And so we support the staff report, and we very much support the direction that they're going.

Thank you.

CHAIR NICHOLS: Thank you very much. Thanks for your collaboration in this effort. It clearly has been a good process.

MR. PALIWODA: Good afternoon, Madam Chair and Board members. I'm John Paliwoda the Executive Director of the California Motorcycle Dealers Association, or CMDA. We are the trade association for California motorcycle and motorsport dealers for 46 years since 1971.

Thank you for this opportunity for me to explain the CMDA's position on the Red Sticker Program and issue. As baseball player Yogi Berra used to say, it's like déjà vu all over again. Now, why did I say that?

Well, it's because I'm the same CMDA dealer advocate who championed this issue before your Board in -- 20 years ago. And not surprisingly, the main issue remains the same, that is if new red sticker motorcycle models were to be prohibited for sale in California, is the financial damage to motorcycle retailers worth the engine emission savings?

The staff report and presentation seems to

justify the conclusion that red sticker, or motorcycles with engines that do not or cannot meet the low off-highway engine emission standard should be prohibited for sale in California sooner rather than later to save their ROG emissions contributions.

In 1997, when the current off-road motorcycle standard went into effect, there were only seven complying models and over 30 non-complying models. If the Red Sticker Program had not been adopted, dealers would have been left with about 19 percent of their product line to sell.

Fast forward until today, and despite having three times as many green sticker models for sale as 20 years ago, red sticker models outsell green sticker ones 54 percent to 46 percent. Why does this phenomenon occur?

Is it because dealers want to sell bikes to a public eager to buy them, because they are not controlled? No is the answer. It's a case of simple customer preference for units that have fewer moving parts, are lighter in weight, less expensive to purchase, and arguably perform and handle better.

This industry is still recovering from the recession. By 2016, new OHVs sales have only recovered 33 percent from pre-recession 2007 levels. No matter what type of business you are in or even the business of the

State could you continue operating on 33 percent of income from 10 years ago.

That is why the CMDA strongly urges you not to decide to eliminate new red sticker sales. That will decimate and already suffering industry that fuels a popular outdoor recreational pursuit that continues -- that contributes billions of dollars to California's economy.

So thank you very much for listening to me, and we will be actively involved in this process going through until its conclusion.

CHAIR NICHOLS: Thank you.

MR. PALIWODA: Any questions?

CHAIR NICHOLS: No.

MR. PALIWODA: Thank you.

CHAIR NICHOLS: Thank you.

MR. ANDERSON: Hi. There. I'm -- my name is Todd Anderson. And thank you to Chair Nichols, the ARB Board, and the ARB staff for the opportunity to comment.

I am the vice president of sales and marketing for Zero Motorcycles. Zero has been designing and building electric motorcycles, zero-emission electric motorcycles in California for over 11 years now.

And it's interesting to note that -- to see the report that you guys prepared and the thoroughness in the

comparison of emissions for different types of motorcycles. And what I'd like to say is that zero emission electric motorcycle technology is not only available today, but it has developed a passionate and ever-expanded following.

This is not some potential future. This isn't something that's coming. It's here today, and it's being manufactured in volume in California, not only by Zero, but by firms like Mahindra, Alta Motors, and Lightning Motorcycles. Zero ships thousands of electric motorcycles to customers in California and across the globe. In fact we're second only to Tesla in terms manufacturing EVs in the State of California.

These motorcycles emotionally resonate with riders, and they provide high performance and good clean fun. The only thing standing in the way of broader adoption is the ready availability of expensive high-polluting, internal combustion motorcycles, and the Red Sticker loophole that allows broad recreational use of competition motorcycles.

I'm here today to speak in support of electric -- or sorry, of motorcycle emissions reductions, and the sunset of the red sticker motorcycle clause, and the expansion of the ZEV program to include electric motorcycles. As the staff has already stated, internal

combustion motorcycles have become a significant source of mobile emissions, especially for criteria pollutants. How can we help solve those problems?

There's a couple of key ways. First of all, all the proposals from the Board -- from the staff here, but in addition to that, we need to accelerate the shift to zero emissions motorcycle technology using the appropriate incentives and regulations.

Zero and other -- and other on-highway and off-highway electric motorcycles -- or sorry, on-highway motorcycles benefit from your Clean Vehicle Rebate Program today, but it doesn't apply to off-road vehicles. Therefore, we -- and we thank you, because it helps consumers, manufacturers, and everybody who breaths air.

However, we believe that it's now time to extend and send this to off-road motorcycles to add zero emission motorcycles to the ZEV Program to allow these vehicles to accrue the EV credits.

Manufacturers who make zero-emission motorcycles should receive accelerated credits beginning immediately to incentivize their R&D production.

Excuse me.

Then after an appropriate time you could add a requirement to have minimum zero-emission production volumes. By starting with meaningful incentives and

phasing in increased regulations, the industry will have time to adopt and expand.

Speaking specifically to off-road use, as the folks here from the Parks Service have noted, an additional benefit of zero-emission motorcycles that they are much, much quieter than internal combustion bikes. Many of the off-road rec restrictions that exist today are noise related. Off-road recreation areas could be reopened to fund electric off-road vehicles which have much less impact on nature or human populations.

CHAIR NICHOLS: Thank for your testimony.

MR. ANDERSON: Thank you.

Any questions?

CHAIR NICHOLS: No questions.

MR. ANDERSON: Thank you very much.

CHAIR NICHOLS: Thanks.

MR. DORRESTEYN: Hello, Madam Chairwoman and Board. I'm Derek Dorresteyn CETO and co-founder of Alta Motors. I'm very happy to be here today. As fourth generation Californian and father, I have great appreciation for the work and progress that this Board and its predecessors have made to change the transportation climate of really the world. The electric vehicle business I believe has virtually been created by the policies of this Board.

As a founder of an electric vehicle company here in California, I feel very strongly that we need to regulate the emissions of both on-road and off-road motorcycles more stringently. The European model is very good, and it is very much aligned across the industry. It would be easy for manufacturers to comply with the one standard.

Electric vehicles in off-road use as a direct replacement for these red sticker vehicles it's a reality that exists now. Our product, the Alta Redshift MX is cutting faster lap times around race tracks than the gas bikes. This is -- this is -- this is today. This isn't a future that is sometime off.

And so we need to incentivize the consumers and manufacturers to get in this business as fast as we can. Clearly, zero-emission vehicles are going to achieve the goals of CARB much quicker than reducing the emissions of ICE vehicles.

So I suggest that policies that incentivize the consumer and incentivize the manufacturer are really what's going to close the cost gap and increase the adoption of these vehicles and in the current State and in the future.

I'm strongly in support of the moonlighting or closing out of the Red Sticker Program, increasing the

emissions standards for the ICE-powered vehicles and incentivizing more electric motorcycles.

Thank you very much.

CHAIR NICHOLS: Thank you.

We have one additional witness who just put a card in. Dave Pickett.

MR. PICKETT: Good afternoon, Board. Dave Pickett, District 36 Motorcycle Sports Committee. I see a few familiar bases from 20 years ago when we were talking about this same issue.

As we promised, technology did deliver, where emissions were dropped dramatically, creation of the red sticker registration type for competition vehicles, and as my friends here just talked about, the electric vehicle. That technology continues to march forward.

Mr. Cabral made some great comments. I mirror those comments. And we look forward to working with staff. They've been very, very open in this particular process, which is extremely refreshing for me because it was not always that way in the past.

So with this technology - it's moving very, very fast - we need to be able to have this type of vehicle remain available to the public.

It's an important part of that. It's important to our socioeconomic fabric in this State, because there's

huge jobs and the socioeconomic impact of the positive is well known now.

Thank you for your time.

CHAIR NICHOLS: Thanks for your comment.

Seeing no additional witnesses, we will finish off item. It was an informational item, so we don't have to formally close the record.

The understanding is that the staff is going to proceed as they suggested and come back to us. Additional questions or comments?

Yes. Go ahead, Mr. Sherriffs -- Dr. Sherriffs.

BOARD MEMBER SHERRIFFS: I don't want to interrupt you.

CHAIR NICHOLS: Go ahead

BOARD MEMBER SHERRIFFS: Okay. I'm just -- I Get emotional listening to this.

CHAIR NICHOLS: Oh, Okay.

(Laughter.)

BOARD MEMBER SHERRIFFS: Then I have to slap my hand, because I know how -- oh, bad decisions if we're being emotional. We need to back off and slow down.

But, you know, the information so overwhelming in terms of the need to move on this. And also, my question, okay, that's a reasonably ambitious timeline. But wait a minute, we really should be much more ambitious about this

than I think you've laid out.

And there have been comments. We have a good model in Europe, and the manufacturers are making machines that meet that. We really need to move forward as quickly as possible on this.

I don't want to be hasty, but when I see something like 2018, I'm going wait a minute. Why aren't we going to do this in late 2017? And if it's 2018, it better be early 2018. And I'm looking at 2021 for emission standards. Wait. There's some great standards out there. There's some great models out there. And the enthusiasts continue to enjoy what they're doing, and the manufacturers continue to sell machines. 2021 is a long way away. And I see those converging lines between the light duty and the motorcycles, which they're static, and the off-road which is static. I mean, wait a minute. No, no. We've got to be moving those lines down sooner not later.

So I'm just wondering, staff, well, wait a minute, no. Get on the accelerator. How can we do that?

CHAIR NICHOLS: You want to comment on the timeline, Mr. Benjamin?

MONITORING AND LAB DIVISION CHIEF BENJAMIN:

Absolutely. So we are moving as quickly as we can. But one of the things that we recognize, and I think

that it has been voiced by the testimony, is that our regulations and the success of our regulations depends on doing sound science. And the timeline that we've laid out is to Come back to you in February with a -- February of 2018 with a proposal on how to sunset the Red Sticker Program.

And we will try to accelerate that if we can, but we think that that is the most feasible one in order to complete the type of technical work that we think is necessary for a really defensible solution. So I think we don't want to abandon the path that we've gone on so far, which is to bring the stakeholders along. And I think that to move too aggressively at this point in time would damage a lot of relationships, and I think would make implementation of the solution more challenging down the road.

And then I think obviously as we move forward, we'll be talking very actively with the manufacturers about opportunities to harmonize with the European standards sooner rather than later. So I think I've heard the message loud and clear from you and from the Board, and we will try to accelerate our rulemaking.

CHAIR NICHOLS: That's a good answer.

I think that on the harmonization issue, I would want to chime in and just say that I know we don't

deliberately look for ways to be different just to be different. But in this case, there seems to be such an advantage to being harmonized if we can, that I would really hope we would think of that as the default, and any other changes as being, you know, really having to be justified.

Okay. Without further ado, we're planning on a lunch break and an executive session to discuss litigation with our counsel at lunch. So we should be back by 2:00 o'clock, and that's just being realistic here. We have one more item to go.

Thanks, everybody.

(Off record: 12:49 p.m.)

(Thereupon a lunch break was taken.)

(Thereupon the meeting recessed into closed session.)

A F T E R N O O N S E S S I O N

(Thereupon the meeting reconvened open session.)

(On record: 2:03 p.m.)

CHAIR NICHOLS: If we could ever everybody to come back to their places.

The Board has come back from our lunch break. We did hold an executive session over lunch, and which our counsel Ellen Peter and her staff briefed us on some pending litigation, and gave us updates, but no action was taken at that meeting.

So we're now ready to return to the regular agenda. And the last item on the agenda is a progress report on the Low Carbon Fuel Standard, which this Board originally adopted in 2009. We amended it in 2011 and then re-adopted it in 2015. Low Carbon Fuel Standard is an important element in our portfolio of measures to meet both the 2020 targets called for under AB 32 and the 2030 targets and goals specified in SB 32. And in case there's anybody out there who hasn't memorized all those numbers, this is the legislation that we're working under to achieve very substantial reductions in greenhouse gas emissions in California.

The goal of the Low Carbon Fuel Standard is to reduce the carbon intensity of transportation fuels used

in California, and in doing so to help diversify the sources of transportation fuels away from petroleum to provide opportunities for economic development and reduce emissions of criteria pollutants and toxic contaminants at the same time.

Mr. Corey, would you please introduce this item?

(Thereupon an overhead presentation was presented as follows.)

EXECUTIVE OFFICER COREY: Yes. Thanks, Chair Nichols.

As you noted, the Low Carbon Fuel Standard is a key part of a comprehensive set of programs in California to reduce GHG emissions from transportation by improving vehicle technology, reducing fuel consumption, and increasing transportation mobility options.

It's been eight years, as you noted, since the Board first adopted the rule. And the core principles and policies of the Low Carbon Fuel Standard regulation remain valid. The basic framework of the current Low Carbon Fuel Standard, including the use of lifecycle analysis, and the fuel neutral Low Carbon Fuel Standard credit market are working well.

The current regulation requires that a 2017 progress report be presented to the Board by July 30th, 2017. This report includes the program's progress in

achieving the targets, the availability of low carbon fuels and program benefits provided by specific crude and refinery provisions. Staff is also beginning to develop a suite of amendments to strengthen the regulation by setting more stringent carbon intensity requirements post-2020 in line with the goals of SB 32 and the scoping plan.

And with that, I'll ask Katrina Castellano to give the staff presentation.

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

Good afternoon, Chair Nichols, Vice Chair Berg, and members of the Board. We are pleased to have this opportunity to provide you a progress report on the Low Carbon Fuel Standard, or LCFS.

--o0o--

AIR RESOURCES ENGINEER CASTELLANO: When ARB re-adopted the LCFS regulation in 2015, the agency committed to a review of the implementation of the program as directed by the Board through Resolution 15-6. This progress report includes discussion of the following areas:

The progress re -- the progress of the LCFS on achieving the program's targets, including a comparison to scenarios produced by staff and external parties; the

availability and use of low carbon fuels; and lastly, the status of crude oil and refinery provisions.

Before getting into these progress report topics, I will start by providing a brief background on the LCFS.

--o0o--

AIR RESOURCES ENGINEER CASTELLANO: In 2009, the Board approved the LCFS regulation to reduce the carbon intensity of transportation fuel use in California by at least 10 percent by 2020 from a 2010 baseline. In 2011, the Board approved amendments to the regulation to clarify, streamline, and enhance certain provisions. In 2015, the Board re-adopted the LCFS to comply with a court order arising from a challenge to the original adoption.

Earlier this year, arising out of the same challenge related to the adoption of the original LCFS, a State appellate court concluded that ARB must conduct a narrow Supplemental Environmental Analysis. ARB staff are currently working to address the court's concerns.

The LCFS is one of the key AB 32 measures designed to reduce greenhouse gas emissions in California, but it also has other benefits. It transforms and diversifies the fuel pool in California to reduce petroleum dependency and achieve air quality benefits, which are State priorities that proceeded AB 32.

--o0o--

AIR RESOURCES ENGINEER CASTELLANO: Here is just a sample of the types of firms that benefit from the LCFS. All of entities shown here have recently expressed their support for the program through an open letter to the Governor the Legislature.

--o0o--

AIR RESOURCES ENGINEER CASTELLANO: This figure shows the location of over 110 entities producing or dispensing low carbon fuels in California. As you can see, the low carbon fuel industry is spread throughout the State.

--o0o--

AIR RESOURCES ENGINEER CASTELLANO: Clean fuel policies have been demonstrated to work. And California is not alone in putting in place programs directly targeting the decarbonization of transportation fuel.

The federal Renewable Fuel Standard continues to improve the economics of all biofuels sold in the U.S. Increasingly, we're seeing policies emerging in other jurisdictions that are carbon intensity based and built on frameworks similar to California's LCFS.

Both Oregon and British Columbia have implemented programs similar to our program. In December 2016, Canada announced their plan to develop a nationwide clean fuels standard. Canada's policy is likely to use a lifecycle

greenhouse gas performance based approach similar to ours, and is targeted to be finalized by 2019.

Outside of North America, the European Union is considering strengthening its program to promote renewable sources of transportation fuels through the Renewable Energy Directive, and Brazil is also taking initial steps to develop a new clean fuels program.

--o0o--

AIR RESOURCES ENGINEER CASTELLANO: Now, I want to briefly touch on how the LCFS works. The LCFS has a couple of key requirements. It sets annual carbon intensity standards, which decrease over time for gasoline, diesel, and the fuels that replace them.

Carbon intensity, or CI, is expressed in grams of carbon dioxide equivalent per megajoule of energy provided by that fuel. The carbon intensity takes into account the greenhouse gas emissions associated with all of the steps of producing, transporting, and consuming of fuel, also known as the complete lifecycle of that fuel.

The providers of petroleum are the regulated parties and providers of low CI fuel generate credits. These credits can be bought and sold by regulated parties for compliance purposes either now or in the future.

--o0o--

AIR RESOURCES ENGINEER CASTELLANO: The LCFS

accounting system is pretty straightforward. Fuels and fuel blend stocks introduced into the California fuel system that have a CI below the applicable annual standard generate credits. Similarly, fuels and fuel blend stocks with CI above the standard generate deficits. Compliance is achieved when a regulated party's deficits or offset by its credits.

The compliance curves were designed to be back-loaded to allow time for the development of low-CI fuels and advanced vehicles. The court order mentioned previously froze the targets at one percent -- at a one percent decline from 2013 to 2015, so the program was easier for the regulated parties to comply with during this period.

The green line represents the actual CI reduction to date. A reduction of over 2.6 percent has been achieved overall in the average carbon intensity of the California transportation fuel pool through 2016. As also indicated in this figure, the program becomes more stringent over the next few years. In upcoming slides, we'll discuss how this compliance schedule will drive additional use of low carbon fuels.

--o0o--

AIR RESOURCES ENGINEER CASTELLANO: The blue bars in this figure show the total credits and deficits

reported by regulated parties in each quarter through 2016. For reference, one credit equals one metric ton of carbon dioxide equivalent. Regulated parties in the aggregate have overcomplied with the LCFS standard in every quarter since implementation.

As shown by the green curve, cumulatively there has been a net total of nearly 10 million excess credits generated through the end of 2016. These credits do not expire. As additional low carbon fuel capacity develops to meet the more stringent targets over the next few years, this bank of excess credits will help toward achieving the future targets.

--o0o--

AIR RESOURCES ENGINEER CASTELLANO: The slide has figures showing volumes of alternative fuels and associated credit generation for these fuels. The LCFS is driving rapid increases in the use of low carbon fuel in California. Before the LCFS, natural gas and ethanol were the only alternative fuels with any market share. Since 2011, biodiesel use has grown over 10 times from 12 million to 163 million gallons. Renewable diesel has increased from less than two million to 250 million gallons per year. Renewable natural gas use in vehicles has increased from two million to 87 million diesel gallon equivalent.

In fact, in 2016, biomethane that is natural gas from sources such as landfills or digesters, made up over 60 percent of all gaseous fuels used in California vehicles. The sources of credits generated in the LCFS continued to evolve. Credits in 2016 were generated primarily from low CI ethanol, renewable diesel, and biodiesel. Credits were also generated to a lesser, but growing extent, from electricity and biomethane.

--o0o--

AIR RESOURCES ENGINEER CASTELLANO: This graph shows the LCFS Credit market on a monthly basis from 2013 to May of 2017. The blue bars indicate the volume of credits transacted. Credit trading activity has been steadily increasing over time showing a growing confidence in the robustness of the system.

The red dashes indicate the monthly average credit price based on the LCFS reporting data. While credit prices dropped significantly following the court decision in 2013 to freeze the targets at one percent, the prices have significantly rebounded following the re-adoption of the regulation in 2015, and have remained relatively stable since the passage of SB 32 providing a clear signal to invest in low carbon fuels.

--o0o--

AIR RESOURCES ENGINEER CASTELLANO: Given the

increased value of LCFS credits, ARB Enforcement staff have ramped up their efforts to police the requirements of the regulation. Since program re-adoption, the LCFS Enforcement team has conducted 16 audits of regulated parties' records, including on-site inspections of 14 facilities; initiated three credit adjustments, which arose out of the inspections; issued four notices of violation, including one that settled for almost $400,000; and filed one enforcement case in superior court for compliance violations and misreporting.

--o0o--

AIR RESOURCES ENGINEER CASTELLANO: The LCFS is working to create necessary price signals to promote vehicle electrification. Several utilities have recently started to use LCFS credit value to fund EV incentive programs within their service territories. EV incentives being offered by utilities are expected to grow over time with increased vehicle electrification. LCFS credits also support charging infrastructure and innovation in the charging space through credits to charging companies.

--o0o--

AIR RESOURCES ENGINEER CASTELLANO: When ARB re-adopted the LCFS regulation in 2015, staff provided the public information about current low carbon fuel use in the State, and future potential expected growth due to

program targets. As part of that effort, staff developed a compliance scenario, which showed one possible path for regulated parties to comply.

Members of the petroleum industry disagreed with portions of staff's assessment and produced their own scenarios.

For the sake of maximum transparency and continual improvement of our knowledge of low carbon fuel supplies, ARB committed in the rule to compare the scenarios produced by staff and external parties as part of this 2017 progress report.

Over the next few slides, we will show the program's actual progress in 2016 against not only our own compliance scenario but scenarios produced by Chevron and BCG for the Western States Petroleum Association, all of which were developed during the re-adoption rulemaking.

--o0o--

AIR RESOURCES ENGINEER CASTELLANO: The stacked bars in this figure represent the 2016 volumes of biodiesel shown in blue and renewable diesel use shown in red. The first three stacked bars represent projections made by BCG, Chevron, and ARB respectively. The last stacked bar represents actual volumes used in California during 2016.

As this figure shows, ARB staff was most

optimistic in projecting biomass based diesel volumes that actual biodiesel and renewable diesel exceeded projections made by all three parties. The next six slides follow the same format comparing projections from BCG, Chevron, and ARB staff against actual 2016 performance.

--o0o--

AIR RESOURCES ENGINEER CASTELLANO: For conventional and renewable natural gas, staff's estimates of the overall use in vehicles were more accurate than that of Chevron or BCG. While all parties overestimated the volumes of conventional natural gas, the growth of renewable natural gas, shown in red, exceeded all parties' projections.

--o0o--

AIR RESOURCES ENGINEER CASTELLANO: From this figure, we can see that the overall ethanol use was higher than projected by all parties. This was due to the gasoline demand being higher than expected.

Both low CI sugar cane, shown in red, and cellulosic ethanol shown in green fell short of all parties expectations. During 2016, sugar cane ethanol was significantly more expensive than corn ethanol, and therefore regulated parties likely decided that other opportunities to earn and bank credits were more cost effective.

--o0o--

AIR RESOURCES ENGINEER CASTELLANO: In regards to electricity use buy light-duty vehicles, we can see from this figure that EV penetration and associated electricity consumption exceeded all parties' expectations. In the next three slides, we compare projections for credit generation against actual values.

--o0o--

AIR RESOURCES ENGINEER CASTELLANO: The stacked bars in this figure show credits generated by fuels used in light-duty vehicles in blue and credits generated by fuels used in heavy-duty vehicles in red. As this graph shows, the total magnitude of credits generated were close to staff's projections, while BCG and Chevron were much more conservative in their estimates.

--o0o--

AIR RESOURCES ENGINEER CASTELLANO: This slide shows deficit generation for both the fossil portion of gasoline labeled as CARBOB and shown in blue, and diesel shown in red. The increased use of gasoline in 2016 exceeded all parties' projections resulting in approximately 10 percent more deficits than expected.

--o0o--

AIR RESOURCES ENGINEER CASTELLANO: As a result of the deficit growth caused by the growth in gasoline

consumption, banked credits at the end of 2016 were somewhat below ARB's projections. But well above projections from BCG and Chevron.

As stated earlier in the presentation, the compliance targets for the LCFS become increasingly stringent over the next few years.

Excuse me.

In the next slide, we will show staff's current evaluation of the availability of low carbon fuels to achieve these stronger standards.

--o0o--

AIR RESOURCES ENGINEER CASTELLANO: In this figure, we compare total capacity for five alternative fuels against the volumes of these fuels that may be necessary to achieve a 10 percent CI reduction. Two columns are shown for each fuel.

The left stacked column shows a total available production capacity for the fuel, and is broken down into separate categories. The light green is the supply currently being sent into California that is generating LCFS credits.

The darker green color is the existing capacity from facilities that have registered fuel pathways with the LCFS program. The gray color shows the remaining production capacity that exists in North America and

Pacific Rim countries that could potentially supply fuel to California, and the dashed gray shows the remaining global production capacity that currently exists.

The blue column on the right shows representative volumes of alternative fuels from staff's illustrative compliance scenario generated from the 2015 re-adoption. These volumes represent only one of many possible ways -- pathways for -- to achieve the 10 percent reduction target.

Considering not only the existing production capacity, but also the rise in global demand for these alternative fuels, a 10 percent LCFS compliance target appears to be ambitious, but achievable. As stated in previous staff reports, staff expects that construction of traditional production capacity to supply California will be necessary as targets become increasingly stringent.

In particular, we expect that additional facilities to produce hydrotreated renewable diesel, cellulosic ethanol, and renewable natural gas may be necessary to achieve the LCFS targets.

Other scenarios could be generated that rely less on biofuels and more on reductions and emissions from electric vehicles or innovation and conventional petroleum supply chains.

--o0o--

AIR RESOURCES ENGINEER CASTELLANO: Speaking of opportunities to reduce carbon intensity in conventional petroleum supply chains, the next portion of our progress report provides a status update on refinery and crude credit and deficit provisions. Many of these provisions were added or enhanced in the 2015 re-adoption of the rule to offer the petroleum industry options to directly reduce the carbon intensity of conventional fuels, and in some cases, to reduce criteria pollutants and toxics emissions.

--o0o--

AIR RESOURCES ENGINEER CASTELLANO: Let's first start with credits for producing crudes using innovative methods. In September 2016, Seneca Resource corporation was the first oil field operator approved to generate credits. According to Seneca's application, the solar electricity will produce an average of about 20 percent of Seneca's electricity load.

Several additional solar electricity, and solar steam projects have been discussed with LCFS staff, and we are expecting additional applications to be submitted this year. In addition to achieving significant greenhouse gas reductions, these projects will also reduce criteria pollutant emissions in the San Joaquin Valley.

If only 20 percent of the steam and electricity used in California oil fields were produced using solar or

wind power, emissions would be reduced by approximately three million metric tons annually. This is equivalent -- this is the equivalent 15 percent of expected LCFS program deficits in the year 2020.

--o0o--

AIR RESOURCES ENGINEER CASTELLANO: The Low Complexity/Low Energy Use refining provision provides credits to small refineries. Currently, Kern Oil company meets the criteria of this provision and will be awarded credits for operations in 2016.

--o0o--

AIR RESOURCES ENGINEER CASTELLANO: To incent greenhouse gas reductions at the refineries, the regulation established the Renewable Hydrogen Refinery Credit Pilot Program. Currently, there are no approved projects under this program, but there is strong interest from some refiners.

Both renewable natural gas and renewable electricity can be used to produce renewable hydrogen. Therefore, this provision may be an important demand outlet for both power-to-gas and methane from dairy digester projects in California.

--o0o--

AIR RESOURCES ENGINEER CASTELLANO: The Refinery Investment Credit Pilot Provision was established to

incent the reduction in greenhouse gas emissions at refineries. No projects have yet been approved under this program, in part because of difficulties encountered by both refineries and ARB staff in implementing the current regulation language.

--o0o--

AIR RESOURCES ENGINEER CASTELLANO: Carbon capture and storage could reduce the CI of alternative fuels, such as ethanol or biogas, or generate credits for capture projects at refineries and crude oil production facilities.

Examples of refinery and crude production projects include carbon capture from steam methane reformer, combined heat and power plants, and steam generators. Credit for net sequestered CO2 would be allocated to the capture facility as long as the fuel or crude oil produced with carbon capture is supplied to California.

ARB staff is continuing to develop a CCS quantification methodology and permanence protocol for Board consideration before credits are issued.

--o0o--

AIR RESOURCES ENGINEER CASTELLANO: The LCFS also has a provision to monitor for potential increases in the carbon intensity of crude oil used to supply fuel to

California refineries. Examples of high CI crude include those produced using -- with excessive flaring or produce using steam injection, or mining and upgrading of tar sands.

A mild incentive is in place in the LCFS to guard against increases in crude CI. This provision assigns additional deficits for gasoline and diesel if the average CI of crude supplied to California refineries increases above the 2010 baseline value by more than a threshold of 0.1 grams per megajoule. If additional deficits are assessed, they will need to be offset by additional credit generation, and therefore this provision provides a backstop against erosion of program benefits, through the increased use of higher CI crudes.

The figure on this slide represents the difference between the annual crude average CI and the 2010 baseline crude average CI with negative values indicating that the annual average is less than the baseline.

The annual crude average CI has remained below the threshold in all years, so additional deficits have not yet been assessed. However, recent years show a slight upward trend with a 2016 average being slightly above the 2010 baseline.

--o0o--

AIR RESOURCES ENGINEER CASTELLANO: For our final topic of the day, we will briefly discuss the LCFS amendments that staff are currently developing.

It has been eight years since the Board's original adoption and the core principles and policies of the LCFS regulation remain valid. The basic framework of the LCFS is working.

Among the package of amendments being prepared by staff is a proposal to strengthen the regulation by setting more stringent carbon-intensity requirements through 2030. Staff is also developing proposals to allow alternative jet fuel to generate credits under the LCFS to streamline and improve CI determination, and to include mandatory third-party verification in the program.

--o0o--

AIR RESOURCES ENGINEER CASTELLANO: In 2016 and '17, we held 14 workshops and fuel-specific working meetings. We plan to release a formal regulatory proposal in late 2017 for a 45-day comment period with Board hearings in 2018.

The rule would then go into effect at the beginning of 2019. We'd like to note that this timeline is tentative.

--o0o--

AIR RESOURCES ENGINEER CASTELLANO: In summary,

the LCFS is working as designed and intended. Regulated parties in the aggregate have overcomplied with LCFS standard in every quarter since implementation, achieving a greater than two and a half percent reduction in CI and banking almost ten million excess credits by the end of 2016.

Low carbon diesel substitutes now make up over 12 percent of the energy used in heavy-duty vehicles in California in 2016.

Through this evaluation, staff demonstrated that our near-term understanding of the low carbon fuel market is strong, and that both alternative fuel production and credit-generating opportunities in conventional fuels are available.

However, the program becomes more ambitious over the next few years. Assuming fuel providers serving California commit to building a low carbon future, the LCFS targets are achievable, and the program is well positioned to be a critical part of the portfolio of California's greenhouse gas reduction measures through 2030.

This concludes our presentation. We welcome any questions from the Board at this time.

CHAIR NICHOLS: Excuse me. I think we should hear from the witnesses, and then we'll probably have some

questions as we go forward.

So let's begin with our list starting with Graham Noyes.

MR. NOYES: Thanks very much. Appreciate the opportunity -- thank you very much. I appreciate the opportunity to address the Board on the Low Carbon Fuel Standard, and speak in strong support of the measure really in two different capacities, first as executive director of the Low Carbon Fuels Coalition. And the Low Carbon Fuels Coalition, to a major degree, really was directly related to the success of the Low Carbon Fuel Standard and the importance of the Low Carbon Fuel Standard to low carbon fuel producers and the larger fuel industry out there.

The mission of the Low Carbon Fuels Coalition is to support and expand sound low carbon fuel policies. And we really see the Low Carbon Fuel Standard as the gold standard out there in terms of innovative programs that are working. I speak nationally on the program. Consistently hear from various states and provinces, and now even places outside North America about the level of interest in the Low Carbon Fuel Standard, and enthusiasm for the uniquely powerful aspects of the program.

I think that starts from a very sound policy design in terms of the focus on carbon intensity, and then

has really been fortified by the great work of this board and the staff of the Air Resources Board day-to-day moving this program forward. And I can't say enough about the willingness of staff to engage with stakeholders, to hold, frankly, endless workshops around LCFS issues --

(Laughter.)

MR. NOYES: -- to engage with small groups in a very constructive way, to hear proposals. And I've worked on many of these proposals representing companies on things as varied as looking at ways to use some of our excess biomass in the forests to drive more credits, to looking at very low CI biomass power, to the aviation fuels now that we are very appreciate are being seriously considered for inclusion going forward.

And all of these things have many complicated technical aspects to them. There's a great deal of respect for the program's goals and integrity and a willingness to solve problems.

So I really want to recognize all of that. There's also a great deal of work that goes on just with the mechanics and certainly with the pathway establishment, that the -- this is, I think, an appropriate juncture for the industry to really thank the agency for all the great work that goes into this. And it really does fuel the industry in terms of creating

opportunities, making these new fuels more viable commercially, and even driving investment.

A few opportunities to reach some of these greater credit requirements that we see going forward. One is looking for more opportunities in California. And I think for -- on the California supply side, we've got a great demand program, but there are a lot of California businesses that would like to be supplying more.

May I?

CHAIR NICHOLS: Finish your sentence.

MR. NOYES: Okay. And also looking to some legacy of the programs, such as flex fuel vehicles to continue delivering the reductions that they can going forward, even as there's a shift toward electrification.

Thank you.

CHAIR NICHOLS: Thank you.

Your comment about all the workshops just reminds me that sometimes I think we should start holding mixers for this program, as if we've created our own, you know, social group here.

Okay.

MR. PRICE: Chair Nichols, members of the Board, thank you for allowing me the opportunity to testify in support of the Low Carbon Fuel Standard program. My name is Brandon Price. I'm the compliance manager for the

Renewables Division of Clean Energy Fuels.

Clean Energy owns and operates the nation's largest network of natural gas fueling stations with over 100 fueling stations here in California and through which we are the largest distributor of renewable natural gas here in California and participating under the Low Carbon Fuel Standard.

Clean Energy has been an early advocate and supporter of the Low Carbon Fuel Standard since its inception, and we have worked closely with staff over the years in helping develop the framework for regulating natural gas fuels under the program.

In short, the Low Carbon Fuel Standard program is working, and we've seen that through the significant growth in renewable fuels delivered and consumed here in California. A big part of that has been the growth of renewable natural gas as we've seen in the staff presentation.

For Clean Energy in 2014, we delivered 14 million gallons of renewable natural gas here in California and that grew to 60 million gallons last year in 2016. And we're anticipating to do close to 75 million gallons this year in 2017.

And the LCFS has been at the forefront of that growth. Without the LCFS program, we wouldn't be where we

are today in natural gas fueling industry in California. Also, as staff mentioned in 2016, RNG represented 60 percent of all gaseous fuels in the market. And with the recent decision and commitment by L.A. County Metro to convert their fleet from conventional to renewable natural gas, we expect that percentage to increase even more to the point where all of California's infrastructure will be overwhelmingly consuming renewable natural.

And overall, that's a huge win for the State, for the Air Resources Board, but I want to emphasize that our job isn't done. The LCFS has, you know, spurred -- the LCFS and other legislative matters have spurred increase technology -- technological advances for looking at other sources of cleaner renewable natural gas coming from dairy digester projects, wastewater treatment plants, and other anaerobic digester projects.

These -- production of RNA from these sites have proven to be a really ultra low carbon intense fuel. And if we partner that fuel with the new Cummins low-NOx heavy-duty engine, RNG is positioned to become the cleanest commercially available on-road fuel for the heavy-duty trucking sector.

And so Clean Energy will continue to support the LCFS program. We will continue to commit to reducing the carbon intensity of our RNG, and continue to achieve the

dowels here established by the Air Resources Board.

Thank you.

CHAIR NICHOLS: Great. Thank you.

MS. REHEIS-BOYD: Good afternoon. Chair Nichols, members of the Board, Cathy Reheis-Boyd, President of the Western States Petroleum Association. I wish I were here to talk about the extension of the Cap-and-Trade Program, because we're spending a lot of creative time on that in a pretty constructive way. Unfortunately, that's not the agenda topic.

And probably no big surprise, this isn't a reg I'm really thrilled about. At least we're consistent on that point for a long time.

We still do believe it burdens California with a pretty significant cost. We really struggle seeing a clear path to sustainability as we go forward. We still think there's duplicity to the regulation, and that it undermines some of the cap and trade provisions.

There's obviously other economists who feel the same way. But with fuel emissions already under the Cap-and-Trade Program, I also wonder why we always have to pay twice for the same hydrocarbon. So maybe we can figure that out.

You've heard a lot about significant supplies that have been increasing on the biofuels side, that

they've rapidly emerged. But I just want to remind folks, let's just not forget on the gasoline side that it takes a lot of work to produce 38 million gallons of gas -- or to -- it takes a lot of work to supply 38 million people, who drive 26 million cars billions of miles a year. That's two million gallons of gasoline and diesel every hour of every day.

And we still have to do that every day as people are waking up, turning on their lights, heating/cooling their homes, and driving from A to B. So reliable affordable fuels is very important to that conversation in the climate change discussion. This mid-year review is very, very important as we try to marry that up.

At its current pace, we still worry that it will be an insolvent program in the future. The low carbon substitutes they just really haven't emerged at the rate that I think was anticipated. The Stringency of the regulation, as it increases, the market experiences volatility as a result of that, and a decreasing availability of credits.

Some of those predictions obviously are the credits go negative before 2020. And the scoping and SB 32 make that an even more difficult conversation. So we've done some of our own analysis. I think you heard the staff submit that. We've done a score card, a

trending analysis, and obviously there's still conversations going back.

We also haven't really seen what we think is the innovation that's in California from the program as much on the gasoline side. Most of the compliance is coming from the use of mid-western ethanol, so it's not as much inducing in-State emission reductions as it is a benefit to mid-western ethanol producers.

And also, we believe it's still underperforming on projections. And so maybe it's the lens of half -- the glass is half full/half empty, but we see a bleaker future than the staff has put forth.

That being said, it's a good time to do the deeper dive. You've got a lot of workshops. You heard the schedule. July 14th, the first one coming up. We're obviously going to continue this conversation and look at our projections and yours. And so we will be very engaged as we go forward, not only this year but into 2018.

If you had two programs -- you got two programs. If you pick one, you can imagine which one we prefer. So thank you for your time.

CHAIR NICHOLS: Thanks.

Ms. Weintraub.

MS. WEINTRAUB: Okay. Good afternoon, Chair Nichols, Members of the Board. Thank you for allowing me

to testify in support of the Low Carbon Fuel Standard. My name is Coreen Weintraub, and I am the Western States Outreach Coordinator for the Union of Concerned Scientists.

The Low Carbon Fuel Standard is a core strategy for increasing the consumption of low carbon clean fuels in California's transportation sector. And the evidence presented here today shows that the program is working.

Some people argue that the Cap-and-Trade Program and LCFS just don't mix, like oil and water, you might say. However, UCS sees the two policies more like peanut butter and jelly. Good on their own, so much better together.

(Laughter.)

MS. WEINTRAUB: The two programs fulfill different niches in California's climate-fighting repertoire. The LCFS is fostering research, development, and deployment of new and better clean fuel options. Meanwhile, the Cap-and-Trade Program is helping to integrate the cost of climate change into business decisions throughout the economy, while also supporting investments in deployment of clean technologies through the program's revenues.

These programs complement one another, because compliance with the LCFS eases compliance with cap and

trade. For example, recent research shows that extending the LCFS to 2030 would cut cap-and-trade allowance prices reducing compliance costs for all sources covered by cap and trade.

A carbon price alone is not enough to decarbonize our transportation system. Current allowance prices which translate to pennies per gallon in increased fuel costs cannot adequately motivate investments in innovative cleaner fuels.

That's why it's important to have Standards in place to limit heat trapping emissions from fuels directly. California's LCFS facilitates research, development, and deployment of transformational low carbon technologies. In short, California's LCFS creates a market for cleaner, lower carbon fuels and ensures that this market grows steadily over time regardless of the price of gasoline.

And by fostering investments in advanced fuels, and fuel production processes today, the LCFS and Cap-and-Trade Program are enabling investors and businesses to learn what works, what doesn't, and to get a head start creating the economies of scale for tomorrow.

UCS strongly supports extending the Low Carbon Fuel Standard through 2030 in order to build upon the Low Carbon Fuel Standard success and bring greater volumes of

low carbon clean fuels to California.

Thank you.

CHAIR NICHOLS: Thank you.

MR. MURPHY: Madam Chair, members of the Board, I'm Colin Murphy. I'm a climate policy advocate for NextGen Climate America. Thank you for the opportunity to speak. I want to State our support for the Low Carbon Fuel Standard. I'd like to echo what Graham said a few minutes ago. We think that this is the gold standard for carbon -- for fuel carbon policies. And I think the success of these policies, the interest in -- since Oregon has adopted them, and Canada has looked at LCFS as a model really speak to the success of policies that are science based, performance standards like the Low Carbon Fuel Standard.

It's a very complicated issue. There's a reason why there have been so many workshops. I certainly, as a fuel wonk, enjoy them, and don't mind more -- though, I do like the Chair's suggestion for a mixer afterward. And I hope that maybe we give an instruction to staff to work on some proposals for how that might be implemented.

(Laughter.)

MR. MURPHY: But more seriously, I think the flexibility that the LCFS offers to fuel producers is really important. When you look at a lot of the initial

documents and projections that were made about the program in 2008/2009, they projected a fuel mix, which included a lot of cellulosic ethanol and not quite so much diesel.

And despite the fact that that particular projection didn't come to pass, we've seen overcompliance with the requirements, we've seen carbon intensity come down, we have not see any spikes in fuel prices. So because the policy is so flexible, because it is based on performance standards and allows a variety of compliance options, it's been able to accommodate a wide variety of potential pathways to compliance. And that is a fundamental strength of the program that we want to make sure we maintain as we move forward in this.

I also -- you know, since we're talking about projections, I noticed that when WSPA came up and spoke a moment ago, they still think that there is some reason for concern, and that they -- she doesn't think the -- the future is quite as rosy as they believe.

I think staff did a very good job of showing that, you know, all projections are going to be uncertain. But so far the projects that tend to predict doom have generally not lived up to accuracy when compared against objective metrics right now.

I'd also project that the Boston consultant group study predicted that by 2020, four to six refineries were

going to close in California, whereas in reality they're generally reporting very high, often record, margins for refining on the west coast. So if that failure is going to occur in the next two years, it had better hurry up.

I don't see any likelihood of that. There's no evidence that says that's likely to happen. And given the pilot projects in using renewable oils being run through conventional petroleum refineries, we think that there is a lot of ways that the industry can meet its low carbon goals using the existing refinery fleet that, you know, there can be a win for everybody in these cases.

The last thing I'd like to point out is CalETC, who's speaking momentarily, produced a study - ICF did it - that showed there was very good synergy between the LCFS and between cap and trade. And by taking pressure off of the transportation sector, LCFS actually reduced cap-and-trade prices.

So this isn't double dipping. There's no -- there's no additional cost. In fact, they work together and reduce costs.

Thank you.

CHAIR NICHOLS: Thank you.

Hi.

MR. O'DONNELL: Chair Nichols, Vice Chair Berg, members of the Board, good afternoon. I'm John O'Donnell

with GlassPoint Solar. We build large-scale solar energy facilities, which serve the petroleum fuel sector. We are a California company. We developed a fundamentally new technology for making steam from sunshine. We're currently building one of the largest solar projects in the world. It's a 1000 megawatt project that starts up next quarter in the Middle East.

And we see the innovative crude program, under the Low Carbon Fuel Standard, as creating the market conditions for large-scale projects to begin to be built here. These projects will -- Katrina has already given half of what I wanted to say. These projects will delivery emissions reductions in criteria pollutants, as well as in greenhouse gases in the San Joaquin Valley by replacing combustion with sunshine. They will deliver those reductions for decades. Solar facilities operate for decades once built with essentially no operating costs. They will deliver in-state economic growth from the construction and operation of those facilities.

Solar facilities operate for decades. Investors in solar facilities need confidence in the market conditions for those facilities for decades. I think we've said before that one of the most important things for investment in facilities like this is certainty about the future of the program, certainty and clarity about the

forward rules.

I want to compliment staff on doing a great job in evaluating and creating simple, clear, pragmatic rules for how these solar energy projects are evaluated and scored, and want to express our support for the innovative crude program and being included as part of the ongoing future of the Low Carbon Fuel Standard.

Thank you.

CHAIR NICHOLS: Thank you.

MR. SCHUCHARD: Good afternoon. Ryan Schuchard with CalStart. Chair Nichols, Members of the Board, thank you for the opportunity to be heard. Last month, CalStart provided a letter on behalf of about 160 industry supporters who are -- who have spoke out and continue to speak out in strong, both support and accommodation of ARB for the LCFS.

Katrina also stole a little bit of my thunder, because I think the logos I saw earlier were from -- were from our letter.

So in the spirit of a review here, I just wanted to mention a few things regarding the strength and diversity of the signatories of that letter. We saw in that group biofuel producers and providers representing the whole gamut of liquid and gas technologies. Manufacturers of battery-electric, fuel-cell hybrid, and

natural gas vehicles, light, medium, and heavy duty, and infrastructure.

We saw transit agencies, shuttle bus operators, and freight fleets. We have providers of finance. We have conventional petroleum distributors and conventional diesel bus manufacturers. We also have multi-national companies serving California, like Archer Daniels Midland, Honeywell, and Siemens. And we even have some of the State's largest employers all together, including the six largest energy utilities, and the largest vehicle manufacturer in California.

And finally, a total of 20 different industry groups are signatories, representing interests like dairy farming, biotechnology, and sanitation. So just looking at the signatories, it's clear that industry supporters are distributed throughout the State in serving both rural and urban areas, including many disadvantage communities.

And we all thank and congratulate the staff for many of the reasons that you've already heard. This standard is what it is, in large part, because of the many opportunities that industry has had to work with ARB.

Thank you very much.

CHAIR NICHOLS: Thank you.

(Thereupon an overhead presentation was Presented as follows.)

MR. HACKETT: Good afternoon, Chair Nichols, Board. My name is Dave Hackett. I'm the president of Stillwater Associates. We're a transportation energy consulting company headquartered in Irvine. And we've been in business since 1998.

We've been following the Low Carbon Fuel Standard since it was announced by Governor Schwarzenegger. I think that was 10 years ago. We publish a newsletter on the Low Carbon Fuel Standard. And because of the recent hike in gasoline taxes, we decided to update our forecast of LCFS credit prices.

So this comment to the Board is a result of article that we wrote that our -- that my colleague Leigh Noda wrote for our June newsletter.

--o0o--

MR HACKETT: The LCFS program generate credits an deficits, and renewable fuel producers generate the credits, and a refiner generates the deficits.

--o0o--

MR. HACKETT: There have been more LCFS credits generated than deficits resulting in a build in the credit bank. And these are all staff data, our analysis of the quarterly reports.

--o0o--

MR. HACKETT: Credit prices have been declining

since the start of the year, indicating and oversupplied market.

--o0o--

MR. HACKETT: Staff's initial statement of reasons scenario, which is the sort of a red dashed line, forecast a change in the market. And that's because, the projections is that the credit bank will begin to draw in 2019.

--o0o--

MR. HACKETT: And that's because LCFS deficits per gallon will be increasing, requiring more credits per gallon of CARB -- of CARBOB to meet the requirement, and diesel as well.

--o0o--

MR. HACKETT: So the forecast is that the defits will grow -- the deficits will grow faster than credits. And on that forecast, 2018 may show a slight increase, but credit draws will happen afterwards.

--o0o--

MR. HACKETT: If the ISOR balance curve is adjusted for actual credit levels, than credit inventories will reach low -- very well levels in 2020. Again, these are staff numbers.

--o0o--

MR. HACKETT: So what we think will happen is

that the tightness in the credit market we will raise credit prices. We forecast a modest rice in 2018, but expect credit values to reach the cap by 2019.

--o0o--

MR. HACKETT: The taxes and fees on gasoline and diesel will go up, and the LCFS portion on gasoline raises $0.21 a gallon, the cap-and-trade portion will go up by about 3.

Any questions?

CHAIR NICHOLS: This is the first I've seen of this document, so it's a little difficult to respond with a lot of numbers here, but we will certainly take a look at it. And if there are questions, I think we can probably find you and get back to you.

MR. HACKETT: Yes, ma'am.

CHAIR NICHOLS: Thank you.

We're not going to be taking any action today, so there's enough time to review it, I think.

Okay. Mr. Jatkar.

Is Shrayas Jatkar for the Coalition here?

If not, Mr. Coates, I guess you're next.

MR. COATES: Good afternoon, Chair Nichols and Board. Thank you for allowing me to speak today. My name is Michael Coates and I'm here today representing Neste Corporation, the world's largest producer of renewable

diesel, and one of the largest suppliers of compliance fuel under the Low Carbon Fuel Standard.

Neste would like to affirm its support for the LCFS, which is critical to delivering clean low carbon fuels to California motorists, particularly in the freight movement sector. More than 90 percent of all heavy-duty trucks in California use diesel fuel. Without the LCFS, we doubt the State would be able to realize many of its emissions and carbon reduction goals in this sector.

Neste believes the LCFS is one of the primary onramps for almost all Californians to participate in the low carbon economy. All motorists use fuel, and the LCFS is a logical touchpoint for them to help California achieve carbon reduction goals, maintain it's global leadership in the fight against human-caused climate change.

Lastly, we'd like to remind the Board that the LCFS is working as intended. I think some of this may have already been covered. But cumulatively through 2016, the LCFS helped the State avoid about 26 million metric tons of carbon emissions. Your staff's own modeling shows continued and additional emissions reductions are needed to meet the greenhouse gas goal reductions targets of 2030. And the LCFS is an important arrow in California's quiver of climate-fighting tools.

Thank you for your continued support of the LCFS.

CHAIR NICHOLS: Thank you.

Hi.

MR. MUI: Good afternoon. I'm Simon Mui with Natural Resources Defense Council. And thank you for the opportunity to speak today.

Just first, kudos to staff and management that have continued to work on this program over the past seven to 10 years. I remember so many times folks counted out the program. At several points, it was felt like the program might derail. But, in fact, this little engine that could has grown up to be a working big steam engine that is now chugging along and making progress.

I think that the staff presentation shows why there have been -- there are so many stakeholders supporting the Low Carbon Fuel Standard. It's grown into one of the main engines for our climate change program here in California to achieve the 2020 targets, and going forward the 203 targets.

As we heard earlier, it's already contributed to 23 million metric tons of carbon reduction. That's the equivalent to displacing five million cars and trucks on the road over a year.

In addition, as a fuel diversification strategy, it's also contributed to vastly expanding the low carbon

fuels market in California. The market has grown. Alternative fuel use has grown by 60 percent -- 60 percent in just five years. That's a lot.

And we understand the concerns from some in the industry, but the industry has overall complied. The good news is we've 100 percent compliance by the regulated parties. In fact, we've seen overcompliance by an average of 60 percent over the past five years averaged out. And regulated parties have a healthy reasonable credit bank going forward.

So I think one of the commenters earlier, from -- Colin Murphy mentioned the performance-based technology neutral approach as being really key, core to how this standard really works well. And that's because this LCFS train is able to carry all types of passengers, whether you're an alternative fuel that is ethanol, that is biodiesel, that is renewable diesel, whatever your proclivity for whichever fuel, the LCFS does not discriminate.

And because of that, it is able to bring along many different technologies. And there's no doubt that staff, the industry, everyone will get some of the forecasts wrong going forward. Nobody can predict the future. But what the design and robustness of this program does is that it allows those players that are

improving to be incentivized.

And I think because of that, we've got a very robust program here. Fuels that were not predicted five years ago are now in the mix.

And with that, I just want to conclude that as we go forward in about 20 -- looking at 2030, this is a very important part of our overall strategy, where, as we go forward to -- into the age of low carbon energy sources, this train needs to keep on performing and chugging along to assist us.

So let's keep it running.

Thank you.

CHAIR NICHOLS: Thank you.

You can tell that my rigor in enforcing time limits also is slowing down --

(Laughter.)

CHAIR NICHOLS: -- as we near the end of the program, but thank you.

MS. TUTT: And Wunder is on his way over, so hopefully he can come --

CHAIR NICHOLS: Okay. All right.

MS. TUTT: -- after me. My name is Eileen Tutt. I'm with California Electric Transportation Coalition and I'm here today in support of LCFS mixers.

(Laughter.)

CHAIR NICHOLS: I think I've got an idea going here. We should --

MS. TUTT: I think so. I have -- I've submitted sort of two sets of comments. And the first set talks about our study where we looked at how cap and trade and the LCFS work together, and the fact that the LCFS program, in combination with cap and trade, actually reduces the cost of allowances in the Cap-and-Trade Program by about half. So it's a very significant complementary policy. The two work well together and we actually need both of them. So we are happy to be working on both, supporting the continuation of the Cap-and-Trade Program and the LCFS.

I also wanted to bring your attention to a memo that I asked ICF to prepare specifically for this Board meeting, because we did two assessments actually of LCFS scenarios. And I wanted to know how did our assessment stack up to how the LCFS is actually working?

And the memo lays out kind of what the findings were, and how they relate to what actually happened in the LCFS program. And I think the most important thing to note here is that the ICF scenarios were based on sound principles. They were developed in conjunction with the alternative fuels industry folks, so not just CalETC, but all of us. And they were developed with a very deep

understanding of the petroleum industry.

So the -- one of the biggest things that we found -- and we said this when we presented our findings to your staff, we said that we thought that our scenarios were very conservative, and that actually the LCFS would exceed our expectations, and, in fact, it has.

The -- according to ICF, the projections that they made would suggest that the -- that the LCFS has overperformed, outperformed what we anticipated. So we believe that the LCFS is very strong and very viable, and we'd like to see it continuing.

In contrast, I would say the BCG assessment that was -- that the staff outlined in their -- in their presentation today, we believe that it demonstrates a fundamental lack of understanding of the transportation fuels market, and the structure and mechanics of the LCFS, and that's what our consultant found as well.

We shared our findings and our recommendations with BCG. And as far as I know, they have not ever corrected their assessment.

So, in closing, I'd just like to say that we look forward to working with staff to strengthen the LCFS beyond 2020. And I thank you for your time.

CHAIR NICHOLS: Thank you.

Bonnie.

MS. HOLMES-GEN: I'm not sure if Andy is here or not?

CHAIR NICHOLS: Is Andy here?

Oh, then let's give him his chance.

Hi.

MR. WUNDER: Hi. Chairman Nichols, members of the Board, you'll have to excuse me. It's not day to be running.

(Laughter.)

CHAIR NICHOLS: It's hot out there. If you'd rather sit for a minute, it's okay.

(Laughter.)

MR. WUNDER: Sorry. Hi. My name is Andy Wunder. And I'm a manager for Ceres California Program. Ceres is a non-profit organization advocating for sustainability leadership. We mobilize a network of 41 leading U.S. companies representing over $400 billion in combined annual revenue to advocate for the adoption of meaningful energy and climate policy.

This groups is called Ceres BICEP Network. It includes California-headquartered companies, such as Dignity Health, Levi's, and eBay.

I'm here on behalf BICEP to show business support for the Low Carbon Fuel Standard. California businesses recognize that climate change presents significant

long-term risks to companies, as well as the broader economy.

And I want to emphasize that the Low Carbon Fuel Standard is working. It is achieving its goals and proving to be a critical climate change mitigation tool. Since 2011, the Low Carbon Fuel Standard has helped the State avoid 26 million tons of carbon emissions, and 8.5 billion gallons of petroleum, while helping to lead to an increase in alternative fuel use by 57 percent.

The Low Carbon Fuel Standard is also a powerful driver of California's green economy. Since 2011, 1.6 billion has been invested in clean fuel production in California. And this investment in clean low carbon fuels generates jobs. More than 300 companies in the clean transportation technology industry employ more than 20,000 workers throughout the State.

In sum, the Low Carbon Fuel Standard is a critical tool in the State's arsenal to achieve its greenhouse gas targets. The Low Carbon Fuel Standard is also an essential complement to the Cap-and-Trade Program. ICF's recent analysis demonstrated that the Low Carbon Fuel Standard is necessary to drive fuel diversification, reduce cap and trade allowance prices, and reduce emissions.

We must stay the course with the Low Carbon Fuel

Standard through 2020, and strengthen the program to reach our 2030 SB 32 reduction goals. Thank you for your time.

CHAIR NICHOLS: Thank you.

MS. HOLMES-GEN: Chair Nichols and Board members, Bonnie Holmes-Gen with the American Lung Association in California.

And I'm here to remind you of the strong public health support for the Low Carbon Fuel Standard as a critical -- critical measure to meet our 2030 and 2050 climate goals. And that we know that it is providing strong public health benefits. And I submitted a letter from over a dozen public health organizations to remind you of that strong support, and we have been supporting this regulation over the years, of course, since its adoption.

Some of the health groups on the letter, not to mention them all, but in addition to the Lung Association, the American Academy of Pediatrics, the California Thoracic Society, the California Academy of Family Physicians, Alliance of Nurses for Healthy Environments, and Public Health Institute.

And we're reiterating our support for the Low Carbon Fuel Standard as a public health tool that has proven successful, as you've seen in the staff presentation, and is producing clean fuels and moving us

forward towards zero emissions.

And we're very excited that in addition to diversifying fuels, that we are seeing a lot of progress towards zero emissions. And that's a key goal that we have to achieve to get to our 2030 climate goals. And the increase in electricity use that was shown in the staff presentation, the ZEV rebates offered by utilities, these are great examples of how the program is moving us forward, engaging and rewarding consumers who are making clean fuel choices.

We're very proud of California's leadership, and the fact that Oregon and Canada and other entities are developing and following our California example.

And I also wanted to make the point about the peanut butter and jelly - and that was a great analogy - that cap and trade and Low Carbon Fuel Standard are working well together. And, in fact, we've done some research at the Lung Association on the health benefits of the these two programs working together and producing -- moving us forward to zero emissions, reducing petroleum consumption, and improving health benefits.

So we look forward to working with you, with Board members, and staff over the next year on a stronger 2030 carbon intensity goal for the Low Carbon Fuel Standard, and, of course, working toward a successful

extension of the Cap-and-Trade Program.

Thank you.

CHAIR NICHOLS: Thank you.

Anybody else who wanted to speak on this item?

Seeing none.

This is a report, but it's a time for Board members who have questions or comments or wish to respond.

I'm looking at you, Dr. Sperling.

(Laughter.)

BOARD MEMBER SPERLING: You know I always have a comment about LCFS.

I do note that there's -- I think it maybe it's been around long enough. It's really motivating more creativity. We're having -- talking about mixers --

(Laughter.)

BOARD MEMBER SPERLING: -- and which incidentally is the best use of ethanol.

(Laughter.)

BOARD MEMBER SPERLING: And we've got all these metaphors out there about the little engine that could, and peanut butter and jelly. I mean, we're -- the creative juices are going here, and on the staff side too.

You know, I do want to compliment the staff. You know, this is a case -- I mean, it's a long-standing commitment by staff for a challenging program. And I see

Mike Scheible here who was with us from the very beginning of this program, and played a huge role in it, and, you know, know is in the very capable hands of Sam Wade.

And I say that it's important, because this is just a review now, but we're poised to be adopting new standards possibly -- I guess we're going to review them the end of this year possibly for 2030.

So I do -- you know, in that context, I want to say that a little humility is needed here. And actually, I was impressed Simon Mui pointed this out very well, that if you design a program that is performance based, and market based, and robust, as result of that, it creates the incentives in ways that are hard to predict.

You know, when Mike and I were back in 2007, you know, dreaming up this program, we had no idea it would turn out the way it has, but the basic principles are really strong. And I think that's a lesson, you know, for other programs here. And, of course, those lessons are always observed, but just to reiterate, it is this idea of as we move in the climate area, this idea of performance based, and market based, as much as possible, really creates robust programs, sends the right signals.

And what we're seeing is a lot of investment starting to happen and a lot of support coming from the natural gas industry. You know, who knew, you know,

because of bio -- because of the biogas and the electricity industry, as well as advanced biofuel, and the solar industry building, you know, solar power for the oil production fields, oil fields.

So we're seeing a lot of innovation, not in ways we anticipated, but we thought there would be all this cellulosic fuel out there. It hasn't happened, but I think this program is really important, because it continues to send those signals to -- you though, so if there's any hope of it happening, it's going to send those signals for investment, for innovation in these advanced biofuels. And we're going to need them. You know, we're going to need them in aviation heavy duty.

So -- and I -- a little bit of humility also, in terms of looking at the report that staff did is, you know, a clear-eyed view of this is we're really still at the very beginning. So, yeah, we can say lots of good things about what's happened the last few years, but, you know, really, we're just at the beginning, and there's some steep increases that are being called for in the next few years.

And after that, then it will be challenging, and it will be difficult in this. But I think the staff -- I've been working with the staff, and they're doing, I think, an outstanding job of anticipating challenges,

dealing with them in a way that makes sense economically. So it's very impressive.

So I just want to add one other -- one other comment is that I do support very much some of he provisions -- new provisions that are being built into it. The provisions for carbon capture and sequestration, I think are really important. Again, it's sending that signal. With aviation, that's really important. I'm not sure how much the renewable hydrogen at refineries will be.

But I think sending those signals again is good, because we don't know. I mean, we don't know what's going to make sense. All those creative minds -- there's create minds in the room here, but there's even more creative minds out there in industry.

So great job, and we've got some important work ahead in terms of planning for the 2020 to 2030.

CHAIR NICHOLS: Thank you.

Any other questions, comments?

Okay.

Well, we've certainly created a constituency for this program, I will say that.

(Laughter.)

CHAIR NICHOLS: And I actually kind of meant that semi-seriously. I suppose, in my mind, it's turning to

summer, and therefore, you know, thinking a little bit frivolously, but we do need to -- we do need to celebrate things that we can celebrate. And I think this one actually is by and large one that we should celebrate. I understand our friends at WSPA are still deeply concerned and unhappy about the program, and I hope we can find ways to work with them to get it to be something that they're more willing to live with.

But I also very much appreciate the fact, and I do want to note it, that we are able to work on different policies in different places at different times and to continue to make progress. So I thank you for that.

And I think that's it as far as our agenda, unless we have any public comment?

BOARD CLERK McREYNOLDS: (Shakes head.)

CHAIR NICHOLS: Which we do not.

Okay. Then seeing none, we will stand adjourned.

Thank you, everybody.

No, no, before we adjourn, we also have an agenda item for Board member comments.

So, Mr. Eisenhut, I forgot.

BOARD MEMBER EISENHUT: Thank you, Chair Nichols.

On Now?

CHAIR NICHOLS: Yes.

BOARD MEMBER EISENHUT: Okay. This really

relates to last month's meeting, which unfortunately I was unable to attend and to the San Joaquin Valley SIP, which was discussed at the last meeting. And I wanted to make a comment relating to a small portion of that. Since I had asked before regarding mobile ag equipment, and I had requested a briefing on the status of the mobile ag survey, and received that briefing, I don't know, two months ago, I just want to -- because it's not on the website, I wanted to relate that I was very impressed with the -- I'd been somewhat critical. I was very impressed with the survey and the results of the survey.

It tells a compelling story of reduction of work conducted by both the district and the industry with in excess of a 75 percent reduction over 10 years. And I -- my closing-the-loop comment is that a portion of the data that is in that -- that forms the basis of that survey is 10 years old. And some of the information is extrapolated from that data.

So I just want to, as we move forward, and I know staff is working on this item and it will return, to -- to have that as -- I challenge that data as being appropriate as we move forward.

I don't have a definition as to what that look like. I know we'll know it, and you'll know it when we see it, but that's the challenge.

So that's my -- thank you, Chair Nichols.

CHAIR NICHOLS: Okay. Thank you.

Any other Board Members with unrelated, but important comments?

If not, then this is adjournment. Okay. Thanks, everybody.

(Thereupon the Air Resources Board meeting adjourned at 3:16 p.m)

C E R T I F I C A T E OF R E P O R T E R

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 8th day of July, 2017.

JAMES F. PETERS, CSR
Certified Shorthand Reporter
License No. 10063