MEETING

STATE OF CALIFORNIA

AIR RESOURCES BOARD

RIVERSIDE COUNTY ADMINISTRATIVE CENTER

BOARD OF SUPERVISORS CHAMBERS

FIRST FLOOR

4080 LEMON STREET

RIVERSIDE, CALIFORNIA

FRIDAY, MARCH 24, 2017

8:43 A.M.

JAMES F. PETERS, CSR
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A P P E A R A N C E S

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Ms. Emily Wimberger, Chief Economist

Ms. Analisa Bevan, Assistant Division Chief, ECARS

Mr. Pippin Brehler, Senior Attorney, Legal Office

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

STAFF:

Mr. Joshua Cunningham, Branch Chief, ECARS

Ms. Annette Hebert, Division Chief, ECARS

Ms. Alexandra Kamel, Attorney, Legal Office

Mr. Jeffrey Lidicker, Air Resources Engineer, ECARS

Mr. Pippin Mader, Air Resources Engineer, Monitoring and Laboratory Division

Mr. Mike McCarthy, Chief Technology Office, ECARS

Ms. Anna Wong, Staff Air Pollution Specialist, Emissions Compliance, Automotive Regulations and Sciences Division(ECARS)

ALSO PRESENT:

Ms. Kitty Adams, Adopt a Charger

Ms. Fariya Ali, Pacific Gas & Electric

Mr. Marco Anderson, Southern California Association of Governments

Mr. Thomas Ashley, Greenlots

Ms. Betty Barberena, SALEF

Ms. Sutida Bergquist, Professional Engineers in California Government

Mr. John Boesel, CalStart

Mr. John Bozzella, Association of Global Automakers

Dr. Rasto Brezny, Manufacturers of Emission Controls Association

Mr. Tom Cackette, Environmental Defense Fund

Mr. Fernando Cazeras, Trust for Public

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

ALSO PRESENT:

Ms. Patricia Chen, LA Metro

Mr. Carlos Cortes, BTC Power, Inc.

Mr. John Dangberg, City of Sacramento, Mayor Darrell Steinberg

Mr. Steven Douglas, Alliance of Automobile Manufacturers

Ms. Allis Druffel, California Interfaith Power & Light

Mr. Harvey Eder, Public Solar Power Coalition

Mr. William Elrick, California Fuel Cell Partnership

Ms. Leah Feldon, Oregon Department of Environmental Quality

Mr. Steve Flynn, New York Department of Environmental Conservation

Mr. Chet France, Environmental Defense Fund

Ms. Genevieve Gale, Central Valley Air Quality Coalition

Mr. Larry Greene, Sacramento Metropolitan Air Quality Management District

Mr. Tom Gross, Southern California Edison

Ms. Irene Gutierrez, Natural Resources Defense Counsel

Ms. Cassie Halls, Shared-Use Mobility Center

Ms. Christina Heartquist, Consumer Federation of America

Ms. Megan Herzog, Conservation Law Fund

Mr. Henry Hogo, South Coast Air Quality Management District

Ms. Laurie Holmes, Motor and Equipment Manufacturers' Association

APPEARANCES CONTINUED

ALSO PRESENT:

Ms. Bonnie Holmes-Gen, American Lung Association

Mr. Merlyn Hough, Lane Regional Air Protection Agency

Dr. Karen Jacpor, American Lung Association

Mr. Brendan Jones, Electrify America

Ms. Michelle Kinman, Environmental California Research & Policy Center

Ms. Christine Kirby, Massachusetts Department of Environmental Health

Mr. Rob Klee, Connecticut Department of Energy and Environmental Protection

Rev. Earl Koteen, Sunflower Alliance

Dr. Chris Langdon, Drucker School, Claremont Graduate University

Mr. Joel Levin, Plug In America

Mr. Mike Lewis, Pearson Fuels

Ms. Amy Lilly, Mercedez-Benz

Mr. Michael Lord, Toyota

Mr. Nicholas Lutsey, International Council of Clean Transportation

Mr. Bill Magavern, Coalition for Clean Air

Ms. Lisa McGhee, San Diego Airport Parking Company

Ms. Jennifer Moeller, Moms Clean Air Force

Mr. Ken Morgan, Tesla

Mr. Simon Mui, Natural Resources Defense Counsel

Ms. Hilary Norton, FAST LA

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

ALSO PRESENT:

Mr. Graham Noyes, Low Carbon Fuels Coalition

Ms. Gloria Ohland, More LA

Ms. Kathryn Phillips, Sierra Club of California

Ms. Michelle Pierce

Ms. Julia Rege, Global Automakers

Dr. David Reichmuth, Clean Vehicles Program

Ms. Alisa Reinhardt, California New Car Dealers Association

Ms. Susana Reyes, City of LA, Office of Mayor Garcetti

Ms. Ashley Rosia-Tremonti, City of San Diego

Mr. Craig Scott, Toyota

Mr. David Schembri, EVgo

Ms. Anne Smart, Charge Point

Ms. Susana Reyes, City of Los Angeles, Office of Mayor Garcetti

Mr. John Shears, Center for Energy Efficiency and Renewable Technologies

Mr. Cory Shumaker, California Hydrogen Business Council

Ms. Anne Smart, Charge Point

Mr. Matt Solomon, Northeast States for Coordinated Air Use Management

Mr. Joe Sullivan, IBEW/NECA

Mr. Mike Swords, Los Angeles Cleantech Incubator

Mr. Ricky Teebay, County of Los Angeles

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

Mr. Desmond Wheatley, Envision Solar

Mr. John White, Center for Energy Efficiency and Renewable Technologies, Hydrogen Business Council

Mr. Beau Whiteman, Tesla

Mr. Jerard Wright, BizFed

Mr. Andy Wunder, CERES

Mr. Kevin Zheng, SemaConnect

I N D E X

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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. If you could take your seats, please.

I know there are people still making their way through the security line, but I don't want to keep the rest of the group waiting either.

Good morning and welcome. And we'll go through our opening drill on Day 2 of the March Public Meeting of the Air Resources Board.

So let's please rise for the Pledge of Allegiance.

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

CHAIR NICHOLS: There's a nice photo in one of the publications from yesterday's meeting that shows Sandy and me and Barbara up in front, and makes it look as though we've taken over the county of Riverside.

(Laughter.)

CHAIR NICHOLS: So in case anybody is wondering --

(Laughter.)

CHAIR NICHOLS: -- we're only temporary visitors. But we're very grateful to Riverside County for lending us their board hearing room once again. It's a good place to meet.

So if we can have the clerk 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: Ms. Riordan?
BOARD MEMBER RIORDAN: Here.
BOARD CLERK McREYNOLDS: Supervisor Roberts?
Supervisor Serna?
BOARD MEMBER SERNA: Here.
BOARD CLERK McREYNOLDS: Dr. Sherriffs?
BOARD MEMBER SHERRIFFS: Over here.
(Laughter.)
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: That's great.

(Laughter.)

CHAIR NICHOLS: There really is no way we can move Dr. Sherriffs in?

Wait, there's --

BOARD MEMBER DE LA TORRE: I'll switch.

BOARD MEMBER BALMES: He's over here in the left bank.

CHAIR NICHOLS: I know.

BOARD MEMBER SHERIFFS: Look at all the microphones I get.

(Laughter.)

CHAIR NICHOLS: All right. Well, we'll just -- we'll remember to bring you in.

Good morning, everybody.

A couple of usual opening announcements. If you're planning on testifying on any of the items on today's agenda, we appreciate it if you would fill out your Request-to-Speak form in advance on one of the cards outside or get it from the clerk. And she puts the list together so it makes it much easier for us to know what's going on.

We're planning on imposing our usual 3-minute limit on speakers. Although, yesterday we got to the point where we actually had to go down to a 2-minute limit at the very end of the day, and it didn't work out too badly. But by that time everybody was feeling more like compressing their comments, so it worked out pretty well.

For safety reasons, I'll have to ask you to note the exits at the rear of the room. In the event of an alarm, we're to exit the building through those exits -- exit doors and go out of the building until there's an all-clear signal.

And I believe that as far as opening comments, that would be it.

We're really happy to kick off the day with something unusual and very special; and that is a recognition of ARB staff. We don't often take time during our public meetings for any of the relatively routine events that we hold where we single out people for special merit during the course of the year. But this is a recognition of something that was truly remarkable in the history of ARB, and that was the breaking of the case on the international scandal that we now know as the

Volkswagen defeat device.

Under the Clean Air Act, as everyone knows who's here, California gets to set and enforce its own vehicle standards. And it's thanks to this provision of the Clean Air Act that Volkswagen's actions were actually uncovered.

The in-use compliance program that ARB operates ensures that cars sold in California are still providing emissions controls years after they leave the showroom. We're fortunate that dozens of scientists, technicians, engineers, and lawyers who are at the top of their fields come to work here and are engaged in this and some of our other programs.

We are also doubly blessed that our engineers exhibited an unparalleled level of commitment and dedication along with the intellectual imagination and problem-solving skills to detect the defeat device that had remained hidden from the eyes of other agencies around the world, although it was hidden in plain sight for almost a decade. I'm sure Volkswagen may have thought that their engineers were able to keep this illegal software hidden forever. But they didn't consider that one day they would have to come face to face with the collective ingenuity of our California engineers.

This case truly shows I think some of the best at ARB, the dedicated professional staff from various professions, using sound science and strong technical know-how, to ensure that our programs and policies actually deliver on the promise of cleaner air. It's not just about writing regulations. It's about implementing them and enforcing them.

ARB's success is not only shared with all of the Californians who benefit from our programs, but it also I think helps to achieve recognition for the professions that they come from, particularly the engineering professions, many of whom work in other parts of State government and don't always get the opportunity to be recognized.

So today, we are very honored that the Professional Engineers in California Government organization is recognizing our staff engineers from the Volkswagen case with their highest honor. And to present these awards to the engineers involved in uncovering the Volkswagen defeat devise we are joined by President Elect Sutida Bergquist of the Professional Engineers in California Government. Following a brief introduction, each of the awardees will rise to be recognized as their names are called. And I ask that you please hold your applause till the end of the roll call.

So I would now like to invite Ms. Bergquist to the podium.

MS. BERGQUIST: Good morning. My name is Sutida Bergquist. I am the president elect of the Professional Engineers in California Government. I want to thank the Air Resources Board and Chair Mary Nichols for allowing me to speak briefly on behalf of our organization which represents 13,000 State engineers.

Each year we honor the important work of the employees we represent with our Professional Achievement Award.

For 2016, PECG has decided be bestow this award to more than 80 ARB engineers and related staff on the board's Volkswagen Diesel Cheating Detection Team.

We have never given the award to so many people at one time, but the impact of the team's services is without precedent.

Two years ago the ARB asked a question: Why did Volkswagen's so-called clean diesel engine pass smog tests, but when driven the cars with the engine threw out pollution that exceeded legal limits?

That question and the relentless pursuit of the answer by VW Diesel Cheating Detection Team forced one of the world's largest automakers to admit it's used sophisticated software to trick emissions tests. Last year, Volkswagens recalled 482,000 vehicles sold in America. Another 8.5 million cars in Europe were affected. At least six Volkswagen executives has been charged with crimes. The company has admitted to several crimes and has paid billions of dollars in fines.

France and Italy are investigating emissions from diesel Volkswagens sold in their country.

And just last week German authorities searched Volkswagen and Audi offices and ceased company records, as the legal probes into the case widen again.

And it all started because of ARB's persistent investigation.

Who knows how much damage was avoided because you guarded the public good. Who knows how long the scheme might have continued to secretly foul the environment and harm public health if you weren't watching. Who knows how many -- how many more of those vehicles would be on the road right now churning up to 40 times the pollution that the law allows had you not intervened.

Your work on this case has displayed to the world our California government at its best.

I am honored to present the 2016 Professional Achievement Award today. And I am aware that some of them are some of the folks that work on this in Sacramento. So I want to give the shout out to them as well, that because of you it showcases the work that State engineers and related professions perform every day, most of the time with a little public recognition and sometimes with plenty of private pushback.

We will recognize employees individually at lunch in El Monte. In the moment, we will ask everyone on the team to stand and come forward for a photo with the Board.

Congratulations from PECG, and thank you service not only to our great state but to the world.

Thank you.

(Applause.)

MS. BERGQUIST: Can you stand up to please be recognized.

(Standing applause.)

(Photo taken.)

CHAIR NICHOLS: That was a fun way to start the day.

That photo is going to be one for the ages, really.

All right. Everybody can get settled.

The next item on today's agenda is a report from the staff on California's Midterm Review of the Advanced Clean Cars regulations.

Just a bit of history here. In January 2012, the Board approved regulations to significantly reduce both criteria pollution and greenhouse gas emissions from passenger vehicles and light-duty trucks for the 2015 and later-model years.

As part of this package, the Board also ramped up the requirements for zero-emission vehicles in California starting in the 2018 model year.

At the conclusion of the January 2012 hearing, the Board directed staff to examine a number of outstanding issues pertaining to those regulations and report back to us as part of a midterm review.

The first issue: The appropriateness of the 2022 through 2025 model year national -- national greenhouse gas standards included a commitment for ARB to participate with the U.S. EPA and the National Highway Traffic Safety Administration in a federal midterm evaluation.

The second issue centered around the feasibility and timing for implementing California's one milligram per mile particulate matter standard for 2025 model year light-duty vehicles.

And a third area of issues included a review of the appropriateness of the zero-emission vehicle requirements for 2018 and subsequent model years.

The results of staff's assessment were published in a comprehensive midterm report released on January 18th, and they will be summarized in today's presentation.

Mr. Corey, would you please introduce this item.

EXECUTIVE OFFICER COREY: Yes. Thanks, Chair

Nichols.

California's was first to adopt light-duty greenhouse gas emission standards. They began in model year 2009. Since federal adoption of comparable standards starting in 2012, we participated in a national program provided California does not lose ground towards attaining its own emission requirements and goals. To that end, California added regulatory flexibility that has allowed California vehicles to certify to national greenhouse gas standards as an alternative to our own standards since model year 2020 -- rather 2012.

It's worth mentioning that California neither relinquished nor accepted any limit to authority to control greenhouse gas emissions from motor vehicles by agreeing to this regulatory flexibility.

Before we start the staff presentation on California's midterm review, I'd like to mention the conclusions of the federal midterm evaluation. On November 30th, 2016, U.S. EPA proposed to determine that the 2022 through 2025 model year passenger vehicle greenhouse gas standards remain appropriate and no changes to the regulations are warranted.

After considering all comments received in response to the proposed determination, U.S. EPA confirmed its findings in a final determination which was signed by the administration on January 12th, 2017.

This determination is consistent with ARB staff's own findings in our consideration of public comments that supports maintaining the greenhouse gas standards and retaining the team to comply regulatory flexibility for 2017 through 2025 model years as an alternative to our own standards.

Staff will also present the results of our studies to address the Board's questions on the feasibility of the one milligram per mile particulate matter standard for light-duty vehicles and the appropriateness of a current zero-emission vehicle requirements.

Pippin Mader of the Monitoring and Laboratory Division will now start the staff's presentation, followed by Anna Wong of the Emissions Compliance Automotive Regulations and Science Division.

And with that, Pippin.

(Thereupon an overhead presentation was
Presented as follows.)

AIR RESOURCES ENGINEER MADER: Thank you, Mr. Corey. Good morning, Chair Nichols and members of the Board.

Today I'll provide summary of our conclusions from the midterm review of California's Advanced Clean Car program.

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AIR RESOURCES ENGINEER MADER: First, let me start off with a refresher on the Advanced Clean Car program. In 2012, the Board adopted a comprehensive set of regulations for light-duty vehicles as an integrated package laying out emissions standards through the 2025 model year. As shown in the pie chart, there are three distinct elements that make up the program. The first two are part of a Low Emissions Vehicle or LEV program. The LEV criteria program provides standards for pollutants such as hydrocarbons, oxides of nitrogen, and particulate matter. While the LEV greenhouse gas, or GHG, program provides standards for pollutants such as carbon dioxide and methane. As adopted, these two elements will yield a projected 75 percent reduction in criteria pollutants, a 90 percent reduction in the PM standard, and a 34 percent reduction in greenhouse gas emissions by 2025.

The third key element of the program is our zero-emissions vehicle, or ZEV, program. The ZEV mandate is a technology-forcing program that requires vehicle manufacturers to produce an increasing number of ZEVs including battery, fuel cell, and plug-in hybrid electric vehicles in a 2018 through 2025 model years.

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AIR RESOURCES ENGINEER MADER: Even with the significant climate change and air quality challenges. On top of the timeline, we have identified the nearer-term climate goals. Equally important, on the bottom we have identified near-term air quality standards for particulate matter, or PM, and ozone. The adopted LEV III program represents our third generation of light-duty vehicle standards. These fleet-wide emissions reductions are needed in the light-duty transportation sector to help attainment for both the 2023 and 2031 air quality requirements as well as a 2020 and 2030 greenhouse gas targets.

The ZEV requirement continues promoting the development of advanced technology that is needed to put us on the path to electrifying the fleet in order to meet longer-term goals.

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AIR RESOURCES ENGINEER MADER: With that background, let's move into midterm review. When adopted in 2012, the Board noted a number of specific areas that they wanted staff to investigate and report back on as we got closer to implementation. Taking these one by one:

With respect to greenhouse gas, the Board committed staff to working with our federal agency partners to reevaluate the appropriateness of the 2022 through 2025 model year greenhouse gas standards. This is the midterm review we have been hearing so much about these days.

For criteria pollutant standards, there were a couple of areas regarding the one milligram per mile PM standard. Specifically, industry voiced concern at the time regarding the accuracy of measurement equipment at those very low levels and several Board members asked us to track technology development to confirm that the standards were both technically feasible and appropriate to begin phasing in for the 2025 model year.

And for the ZEV Program, the Board asked staff to track the progress of technology and industry to evaluate if the approp -- adopted requirements out to 2025 remained appropriate for both California and the nine Section 177 states that have also adopted our requirements.

Given the newness of the plug-in hybrid electric vehicle, or PHEV, technology in 2012, the Board also asked staff to study the development and usage of PHEVs to reevaluate whether they were treated appropriately within the regulation.

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AIR RESOURCES ENGINEER MADER: Before we go farther, I'd like to take a moment to help clarify some of the interactions between our midterm review and a parallel review that our federal partners, U.S. EPA and the

National Highway Traffic Safety Administration, or NHTSA.

Two of the elements in the advanced clean car review, the criteria pollutant standards and the ZEV Program, are California specific requirements and therefore only part of ARB's midterm review.

However, both California and the federal program review overlapped in the assessment of the greenhouse gas standards. I'll elaborate in the next few slides how U.S. EPA, NHTSA, and CARB collaboratively conducted an assessment of the greenhouse gas standards as part of a national program.

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AIR RESOURCES ENGINEER MADER: Starting in 2012, we adopted the Advanced Clean Cars program and later that year the federal greenhouse gas standards were adopted. As part of an agreement to promote a single national program for greenhouse gas standards, California amended its regulation in late 2012 to include a provision known as "deemed to comply," allowing manufacturers to comply with the national standards in lieu of the California-specific standards. This agreement was premised on strong national standards.

Over the last four years, extensive work has been done by CARB, EPA, and NHTSA including internal and external research, surveys and analysis of vehicle owners, and laboratory testing to inform the review of the national standards.

In July of last year, the first key milestone in the federal review occurred with the release of the Technical Assessment Report, or TAR, jointly authored by CARB and its federal partners. Later that year, CARB hosted a technical symposium that covered emerging technologies not included in the TAR but being pursued by vehicle manufacturers for near-term implementation.

Finally, this year we released our midterm review report in preparation for today's hearing. A final determination was also issued by the EPA earlier this year that concluded EPA's national greenhouse gas standards for 2022 through 2025 model years were appropriate and would remain as currently adopted.

However, just last week the new federal administration announced that they will be reconsidering that final determination over the course of the next year. We do not believe that reconsideration is warranted given the completeness of the review that has already occurred.

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AIR RESOURCES ENGINEER MADER: Okay. Let's quickly review our greenhouse gas standards.

ARB established the first vehicle greenhouse gas standards in the nation beginning with the 2009 model year. Subsequently, U.S. EPA also set standards for 2012 through 2016 that closely aligned with California's standards and paved the way for the first national program.

Then in the 2012 time frame, CARB and EPA separately set comparable greenhouse gas standards out to 2025 and again provided for a continuation of the national program. However, given the latter years of the standard were still 10 years away, CARB and the federal agencies agreed to conduct a midterm evaluation focused only on the reassessment of the appropriateness of the 2022 through 2025 standards.

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AIR RESOURCES ENGINEER MADER: So what have we learned? First let's take a look at how manufacturers are complying with the current standards.

The yellow diamonds on the graph represent the greenhouse gas standards for the nationwide fleet for the last four years and, for reference, also show what the standards would be if they were specific to the California fleet. Since the California fleet of new vehicles sold each year includes a higher fraction of cars than the nationwide fleet, the standards for California is lower than for the federal fleet. And of course, you can see that the standards get progressively lower each year.

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AIR RESOURCES ENGINEER MADER: If we now look at the bars on the chart, we can see what emission levels the actual fleet was certified to in each of the last four years. Vehicle manufacturers have been overcomplying with the federal standards for each of the last four years. For comparison, you can see that the California fleet, which includes a higher fraction of zero-emission vehicles, is generally overcomplying by an even larger margin. Also noteworthy is that this overcompliance generates credits for the vehicle manufacturers, which they can then bank and use in future years to help meet standards.

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AIR RESOURCES ENGINEER MADER: So why are the vehicles able to overcomply? Because manufacturers and suppliers have been quite busy. Technology to reduce greenhouse gas emissions has been evolving rapidly and manufacturers have been able to roll out the new technology at a significant pace. Much of the gains observed so far are from improved engines and transmissions, like smaller turbocharged engines and redesigned multi-gear automatic transmissions.

However, there are several other key technologies that have been helping, including vehicle light-weighting, improved aerodynamics, and lower rolling resistance tires. Together, these reduce the amount of energy needed to move the vehicle.

And other technologies are just now entering the market in large shares like stop-start systems that temporarily turn the engine off when a vehicle is at idle.

All told, over 20 percent of new vehicles sold in 2016 model year already meet the 2020 model year standards - a full four to five years ahead of the curve.

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AIR RESOURCES ENGINEER MADER: So what more is it going to take to get out to 2025? Predominantly, incremental improvements to conventional technologies.

The pie chart here shows the composition of the projected vehicle fleet that would be needed in 2025 to meet the standards. From the extensive testing and modeling analysis for the midterm evaluation, gasoline engines are predominant, with nearly 95 percent of the fleet primarily utilizing advanced technology engines. Of note, only a small portion of the fleet would need to be electrified.

Regarding costs, the most recent analysis for EPA's proposed determination shows that the cost to comply is $300 lower than originally projected in 2012.

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AIR RESOURCES ENGINEER MADER: So what does this all mean in California?

Back in 2012, we projected the average fleet out to 2025 model year, shown as the black line on the graph, culminating in a value of 167 grams per mile in 2025. Since that time, we have four additional years of data on the exact mix of cars and trucks being sold. We have also seen gasoline prices fall dramatically and shift in consumer purchases away from car models and into small SUVs. Taking all this into account, we have updated our projections of the future fleet, including analyzing a few different sensitivity cases regarding future fuel prices and the types of vehicles being sold. The green-shaded area represents what these new analyses project for California and, as you can, even with the slight shift in sales mix that is occurring, California is still on track for the same or better greenhouse gas reductions by 2025.

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AIR RESOURCES ENGINEER MADER: During the midterm review, the vehicle manufacturers raised concerns with the analysis and conclusions. Primarily the manufacturers have indicated they believe that the analysis overestimates the efficiency of some of the technologies and thus underestimates the total amount of technology that will be needed. The rationale continues that adding more advanced technology, specifically strong electrification like full hybrids, will mean higher costs to comply than projected. And, they argue, consumer acceptance and demand for fuel efficient vehicles, especially strong electrification, is inadequate to enable them to meet the standards.

Staff, however, disagrees. The data underpinning our analysis is exhaustive and well grounded in testing of actual engines sand transmissions and supports that the standards can be met without the higher levels of technology industry is suggesting. Alternative scenarios show that there are several cost-competitive gasoline technologies available to meet the standards. These analyses do not even include some promising technologies that manufacturers have already announced for the near future. Lastly, electrified vehicle sales in California are already at levels near what the projected as needed by 2025 and prospective buyers have expressed interest in zero-emissions vehicles at even higher levels than that.

Which leads us to our recommendation for the greenhouse gas standards.

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AIR RESOURCES ENGINEER MADER: Based on the extensive analysis done with our federal partners over the last four years, the data supports the conclusion that the

2022 through 2025 model year federal standards are appropriate as currently adopted. Accordingly, staff recommends continued participation in a national program through 2025, provided no further changes weaken the expected benefits in California.

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AIR RESOURCES ENGINEER MADER: Today's presentation concludes California's midterm review of the 2022 through 2025 greenhouse gas standards. The U.S. EPA's review has also been concluded, after an extensive public process, and drew complementary conclusions consistent with the data. U.S. EPA is reopening that process. Staff believes the evidence and the law do not support this action.

Should that federal process nonetheless continue, CARB will continue to vigorously advocate for continuing greenhouse gas reductions as the evidence indicates is appropriate.

Should the federal standards not follow the best available evidence, staff will have to revisit our recommendation regarding the one national program in light of any changes.

Also of note is that Canada is performing an independent review of greenhouse gas standards that are closely aligned with the currently adopted federal standards. We are engaging in technical dialogue directly with Canada as their decision will have a significant bearing going forward.

Additionally, staff will continue to monitor global activities in this area.

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AIR RESOURCES ENGINEER MADER: Before we leave our discussion of the greenhouse gas standards, I would like to point out that the shift from cars to small SUV sales does have a large impact nationally. Specifically, the national fleet was originally projected to be at 163 grams per mile by 2025 model year. But the updated analysis suggests it will be closer to 175 grams per mile due to the larger fraction of truck sales.

While staff's recommendation is to keep the greenhouse gas standards as currently adopted, a sensitivity analysis found it would add significant cost to recapture the original projected reductions on a national level.

This concludes the greenhouse gas portion of the midterm review.

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AIR RESOURCES ENGINEER MADER: Now I'll move on to particulate matter, or PM, portion of the review.

Under the previous standards the PM limit was 10 milligrams per mile even though most gasoline vehicles actually emitted below 1 milligram per mile. However, some new technologies, most notably direct fuel injection systems, were starting to show up with significantly higher PM emissions.

To avoid backtracking, the LEV III standards established both an interim PM standard at 3 milligrams per mile and a final standard at 1 milligram per mile.

As shown by the bars on the graph, both standards phase in over multiple years with vehicles beginning just now to certify to the 3 milligram per mile standard, while the 1 milligram per mile standard starts to take effect with the 2025 model year.

In 2012, the Board directed staff to re-examine the measurement methods to confirm they were able to measure at the 1 milligram level.

And the Board also asked staff to re-examine the stringency and phase-in timing of the 1 milligram per mile standard.

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AIR RESOURCES ENGINEER MADER: In responding to the measurement question, staff conducted extensive emissions testing and research of laboratory methods and alternative measurement methods. The results of that investigation, which included several peer-reviewed publications, were presented to the Board in October 2015. And while the investigation included a look at many alternative methods such as particulate number counts and cutting-edge real-time measurements, our conclusions were that the current gravimetric method for measuring PM emissions is sufficiently accurate and continues to be appropriate for the future.

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AIR RESOURCES ENGINEER MADER: Next was evaluating the feasibility and implementation of the 2025 PM standards. Part of the original concern was that the engine technologies needed for stringent greenhouse gas emissions standards would have difficulty with PM emissions control. Accordingly our testing focused on recently redesigned vehicles with advanced greenhouse gas control technologies similar to what is expected as greenhouse gas standards decline.

The vehicles tested are shown across the bottom of the chart and include vehicles with newer fuel injection, hybrid, and plug-in hybrid electric vehicles.

While most of these vehicles are not yet certifying to a 3 milligram per mile standard, you can see from the chart that many are already emitting at a level that is at half the standard.

However, when looking at the future 1 milligram per mile standard, only a subset of the vehicles currently comply. Most vehicles will likely go through another engine redesign cycle to implement the further refinements needed to comply with the 2025 standard. So let's talk about the type of refinements that are needed.

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AIR RESOURCES ENGINEER MADER: Good PM control requires tight control of air and fuel during all operational modes of the engine. The most important aspect is control within the combustion chamber itself. Our testing and research found that manufacturers and suppliers are rapidly learning in this area. But the process takes time to optimize and it must be done in conjunction with greenhouse-gas-related engine updates to ensure complete control for all emissions.

While we expect manufacturers will likely meet the PM standards with optimized designs and in-cylinder control, there are also after-treatment technologies that can be used to control PM emissions.

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AIR RESOURCES ENGINEER MADER: Gasoline particulate filters, or GPFs, can be used to filter and continuously oxidize particles that are emitted from the engine. The photo on the side shows a prototype GPF tested by CARB on two higher emitting vehicles. The results in the bar chart show PM emissions of over 5 milligrams per mile before installation, and levels below 1 milligram per mile with the system installed.

GPFs can effectively control PM, but they also represent added hardware and expense. GPFs are not yet in wide-scale production, but they are expected to be widely used in Europe. From staff's analysis, GPF technology may be best used for added flexibility to vehicle manufacturers when they design for compliance.

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AIR RESOURCES ENGINEER MADER: In our investigation, we observed that the effectiveness of PM control can vary during different types of driving. The blue bars show the results from our testing for the vehicles that already emit less than 1.5 milligrams per mile on the standard emissions test cycle.

The yellow bars show results from the same vehicles when driven on a more aggressive test cycle. As you can see, most of these vehicles have similar emissions results across the two cycles and are still below 1.5 milligrams per mile, indicating robust PM control.

However, there are some test results that show significantly higher PM emissions under more aggressive driving conditions.

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AIR RESOURCES ENGINEER MADER: In conclusion, staff has determined that the 1 milligram per mile PM standard is feasible and therefore recommends no change to the standard or the phase in said you'll.

However, CARB plans further study and may consider future regulatory proposals to ensure good PM control in all real-world driving conditions.

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AIR RESOURCES ENGINEER MADER: For the third piece of our review I would like to turn the presentation over to my co-worker, Ms. Anna Wong, to summarize the findings of our review of the zero-emissions vehicle requirements.

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STAFF AIR POLLUTION SPECIALIST WONG: Good morning, Chair Nichols and members of the Board.

For the next section of the presentation, I will focus on the zero-emission vehicle, or ZEV, regulation. Prior to the Board adopting the Advanced Clean Cars amendments in 2012, the ZEV regulation essentially flat-lined the requirements past the 2018 model year. In 2012, the Board adopted annual increasing requirements through 2025 model year that were projected at that time to result in 15 percent of 2025 model year new car sales in California to be ZEVs and plug-in hybrids. After this historic increase in ZEV requirements, the Board asked staff to ensure those requirements would still be appropriate leading up to the 2018 model year implementation, both in California and the other states that have adopted California's regulations, often referred to as the Section 177 ZEV states.

Lastly, when the Advanced Clean Cars program was adopted, a new type of vehicle was emerging with the release of the Chevrolet Volt plug-in hybrid. Since plug-in hybrids were projected to play a significant role in most manufacturer's compliance through 2025, the Board wanted staff to review this new technology.

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STAFF AIR POLLUTION SPECIALIST WONG: In 2011, as the staff report for the Advanced Clean Cars rulemaking was being released, just two models were available and accounted for less than 10,000 new sales. Through the end of calendar year 2016, nearly 300,000 ZEVs and plug-in hybrids have been registered in California and in the Section 177 ZEV states with nearly 30 different models on the market.

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STAFF AIR POLLUTION SPECIALIST WONG: What has this meant for regulatory compliance? Shown in the blue shaded area on the screen is the total number of ZEV credits required for the 2012 through 2017 time frame, with the California requirements on the left and the Section 177 ZEV states on the right.

The growth in new sales of plug-in hybrids and ZEVs has resulted in an overproduction of regulatory credits, making most manufacturers overcompliant with the current ZEV requirements, shown by the dark blue line.

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STAFF AIR POLLUTION SPECIALIST WONG: Now, let's combine the California and Section 177 ZEV state requirements and look toward the latter years of the program.

While the auto manufacturers have been building a healthy credit bank by delivering ZEVs and plug-in hybrids, it's important to remember future requirements will be even more stringent. The future credit requirement is not just larger, but the previously approved amendments also reduce the number of credits earned for each vehicle produced. As an example, this star here represents the credits earned for the total number of ZEVs and plug-in hybrids sold in model year 2015. If manufactures sold the identical number and type of vehicles in model year 2018, they would only earn about one-third of the credits, the second star. So the same volume of vehicles results in overcompliance in earlier years and undercompliance in later years.

Let's take a minute to look at how these 2018 through 2025 requirements translate into the number of vehicles we can expect from the regulation.

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STAFF AIR POLLUTION SPECIALIST WONG: As previously mentioned, In 2012 the project compliance scenario for the new increased ZEV regulation was to result in roughly 4 million ZEVs and plug-in hybrids cumulatively by 2025 model year. Over the course of this review, updated compliance scenarios reflect vehicle technology advancements evident in the market, and compliance with the regulation will now result in roughly 2 million vehicles cumulatively over the 2018 through 2025 time frame. For reference, this is about 8 percent of new vehicle sales in 2025 model year. Staff also integrated various regulatory flexibilities adopted by the Board, as well as banked ZEV credits as shown on previous slides.

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STAFF AIR POLLUTION SPECIALIST WONG: The transformation of the light-duty fleet has begun, and a growing number of manufacturers appear committed to long-term electrification. Manufacturers are competing with each other for PEV consumers by continually refining the products they offer to suit consumer preferences.

Outside of California, ZEV markets are expanding in the U.S. as well as globally, indicating that the industry is gaining momentum.

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STAFF AIR POLLUTION SPECIALIST WONG: This shift has been enabled by technology costs continuing to come down. Both fuel cell systems and battery costs have fallen dramatically from to 2006 to 2015, with fuel cell systems dropping nearly 60 percent and batteries over 70 percent. Costs for both technologies are expected to continue to drop as volumes increase and the technology improves. Staff anticipates that battery electric or fuel cell technology will not reach cost parity with conventional gasoline technology until sometime after 2025.

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STAFF AIR POLLUTION SPECIALIST WONG: Falling technology costs will facilitate an increasing vehicle range in future models, which will help to sustain and expand the ZEV market. Automakers acknowledge that vehicle range can be a significant barrier to consumer acceptance of these new vehicle technologies. As shown, even among current plug-in electric vehicle drivers, dissatisfaction with all-electric range declines as vehicle range increases. Fortunately, trends in new ZEV offerings are aligning with those consumer preferences.

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STAFF AIR POLLUTION SPECIALIST WONG: This chart shows the number of vehicle models offered in various vehicle size and all-electric range combinations. In model year 2011, the orange icon represents one plug-in hybrid offered in the small car category with an all-electric range of 30 to 40 miles. And the two blue icons represent all-battery electric models, both with a range of less than 100 miles.

In model year 2012 additional vehicles were introduced, and the larger icon represents more battery-electric vehicle models offered in the small car category. While the market began in smaller vehicle platforms where costs are lower, over time auto manufacturers have continued to release new models. So that today's market has expanded into more vehicle segments with longer ranges.

Within the next five model years we expect over 70 models that will provide consumers with more choices aligned with their purchase references. Larger battery packs on vehicles also could help offset cold weather losses and help expand choices in different markets outside California.

These bars highlight the market share of new vehicles sold within each of the vehicle classes. As you can see, the small SUV and midsize car segments are the two most popular classes, which are also where many of the future new models are expected to be offered, many with extended vehicle ranges beyond today's offerings. This broadening of the ZEV technology across the most popular platforms shows promise not only for California but also for the Section 177 ZEV states.

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STAFF AIR POLLUTION SPECIALIST WONG: Nine states have adopted California's ZEV regulation. Sales of ZEVs and plug-in hybrids in the Section 177 states still do lag behind California's market. And the Board, anticipating this jump in the requirement, adopted appropriate flexibilities to help ease the regulatory burden.

In 2012, the Board extended the "travel" provision for battery electric vehicles through 2017 model year, a change which has in turn created healthy credit banks for manufacturers heading into more stringent 2018 and subsequent model year requirements.

The Board also adopted an optional compliance path as an important flexibility provision, which, if taken, requires manufacturers to deliver battery electric vehicles prior to 2018 model year in the Section 177 states. This optional compliance path also reduces automaker requirements in the Section 177 states for battery electric vehicles and plug-in hybrids through 2020; and allowed manufacturers to pool their credits amongst the Section 177 states for BEVs and plug-in hybrids to further reduce state-specific burdens.

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STAFF AIR POLLUTION SPECIALIST WONG: In 2012, the Board adopt policies that require intermediate volume manufacturers, or IVMs, to begin electrifying their fleets starting in 2018. These policies redefined many of the midsized manufacturers as large volume manufacturers and allowed the remaining IVMs to meet their 2018 through 2025 model year requirements exclusively with plug-in hybrids. In addition to some flexibilities that were afforded to the IVMs in 2012, the Board adopted additional flexibilities in 2014, ensuring these manufacturers would remain defined as this smaller category IVMs through 2025 model year and granted more time to comply with their ZEV requirements.

Since the 2012 and 2014 rulemakings, manufacturers confirmed various plans for full compliance with the regulation as adopted and are pursuing both plug-in hybrid and ZEV models, some recognizing it will be almost impossible to meet their obligation exclusively with plug-in hybrids. At the 2016 L.A. Auto Show, CEO of

Fuji Heavy Industries, which produces Subaru vehicles, indicated these intentions towards electrification.

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STAFF AIR POLLUTION SPECIALIST WONG: While staff is recommending to maintain the current ZEV requirements to provide regulatory stability, because important provisions are sunsetting at the same -- in the same time frame. In the greenhouse gas program, two provisions intended to support ZEVs are also scheduled to expire by 2025. Additionally, carpool lane access for ZEVs, funding for hydrogen infrastructure, and federal tax credits for plug-in vehicles will likely all expire before cost parity of ZEVs with conventional gasoline technology is expected. Staff will continue to monitor market trends so we can bring the Board appropriate recommendations to continued to support ZEVs through regulatory and nonregulatory actions.

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STAFF AIR POLLUTION SPECIALIST WONG: In 2012, the Board strengthened the ZEV regulation, nearly tripling the requirement for pure ZEVs in 2025 model year, and shifting to a simpler annual increase in requirements. Since then, the regulation is accelerating development of ZEV technology toward commercialization, demonstrated by the clear growth in the ZEV market, and over 70 unique ZEV and plug-in hybrid models expected in the next five model years.

Despite these successes, it is widely recognized that the ZEV and plug-in hybrid market is still in the early stages of its development. Given the remaining and still significant barriers regulatory stability of the 2018 through 2025 model year standards can help ensure a continued path of increasing but achievable ZEV volumes. Therefore, staff is recommending to maintain the current ZEV requirements, as adopted in 2012, in California, the Section 177 states, and for intermediate volume manufacturers.

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STAFF AIR POLLUTION SPECIALIST WONG: When the strengthened ZEV regulation was adopted in 2012, it included a new focus on plug-in hybrids. In fact, we expect over two-thirds of the vehicles resulting from compliance with the regulation to be plug-in hybrids.

Little was known at the time about how these types of vehicles were being driven, and their actual environmental benefits, because there were so few available to consumers in 2012. When these amendments were approved, the Board directed staff to study in-use data for plug-in hybrids, such as how they're driven and charged, in addition to criteria pollutant and GHG emissions.

In the time since the Board direction, eight manufacturers have provided in-use data on 11 different plug-in models and over 90,000 unique vehicles. That in-use trip-level data represents over 20 million miles of use by those vehicles.

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STAFF AIR POLLUTION SPECIALIST WONG: We calculated electric vehicle miles traveled, or eVMT. eVMT represents the vehicle's miles driven on electric power. The green bars show the annualized eVMT for each of the models, while the yellow hatched bars represent the portion of a plug-in hybrid's miles that are powered by its internal combustion engine. Focusing in on annualized eVMT, plug-in hybrids have less eVMT than battery electric vehicles. Now, when I overlay this red line, which shows how many credits each vehicle receives in the ZEV regulation, based on the vehicle's electric range, you can see that relationally the eVMT of the vehicles and the relative amount of credit lines up pretty well.

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STAFF AIR POLLUTION SPECIALIST WONG: In order to analyze the criteria pollutants, emissions testing was done at a Haagen-Smit laboratory. The focus was on examining start emissions from so-called blended plug-in hybrids - hybrids that are pure electric at low vehicle speeds but blend a mix of gasoline engine and electric power at higher speeds and accelerations. The first bars on the graph indicate the start emissions from three different plug-in hybrids during the normal emissions test cycle, and all of them readily met our existing standards.

Next, staff drove one of the vehicles on-road to determine the types of driving maneuvers that caused the engines to first start and then recreated those events back in the laboratory. Under these other types of driving conditions, start emissions were found to be about 2 to 5 times higher. For future plug-in hybrids, further refinements and vehicle design changes are needed to minimize emissions in real-world driving conditions.

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STAFF AIR POLLUTION SPECIALIST WONG: Emissions will depend on how these vehicles are charged. By design, plug-in hybrids are intended to be flexible, which means it is up to their drivers to charge or not. While most consumers are satisfied with their plug-in hybrids, an analysis of trip data shows many drivers do charge routinely. These two comments from current plug-in hybrid drivers highlight how charging behavior can vary based on purchase motivation, vehicles battery capacity, infrastructure availability, and energy prices. How these factors change in the future will matter for how we determine the new GHG clean air benefits of plug-in hybrids.

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STAFF AIR POLLUTION SPECIALIST WONG:

Specifically, we examined various scenarios across a broad range of eVMT assumptions and found GHG emissions to be highly variable, increasing the light-duty vehicle fleet's GHG contribution up to 60 percent with high plug-in hybrid penetrations in the fleet. Although not shown here, NOx emissions follow a similar trend. This is due to the highly user-dependent nature of plug-in hybrids. If, say, charging infrastructure is not available for a plug-in hybrid user to maximize their eVMT, the GHG benefit of their vehicle will decrease.

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STAFF AIR POLLUTION SPECIALIST WONG: Therefore, based on the analysis I described, staff has concluded that the regulation as adopted in 2012 appropriately credits plug-in hybrids and allows for manufacturers to comply with this technology through 2025 model year, as staff expects over two-thirds of vehicles to be plug-in hybrids cumulative according to its latest compliance scenarios.

Plug-in hybrids will still play a significant role in transforming the light-duty sector, but at this time, no additional regulatory credit is needed.

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STAFF AIR POLLUTION SPECIALIST WONG: Let's take a minute to review the comments we received since releasing our midterm review report. One issue brought up by dealers in the northeast and Oregon was a concern over a provision removed during the 2012 amendments that gives additional credits for vehicles that are "placed in service."

In 2018 and beyond, battery electric vehicles will earn credits upon delivery for sale, meaning when dealers take delivery of the vehicles on to their lots. Dealers are concerned that their lots will be inundated with ZEVs and plug-in hybrids, and manufacturers will not help support the sale of these vehicles. Thus plan staff to monitor this issue and consider regulatory changes as appropriate.

The Board also received comments from the auto industry which were in line with those received during the midterm review process, asking for more plug-in hybrids allowed to meet their requirement, reduction in the requirements for the Section 177 states, and greater support for complementary policies.

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STAFF AIR POLLUTION SPECIALIST WONG: During the course of the review several stakeholders and Board members asked staff to consider various options to the ZEV requirements before the 2025 time frame. Here are three options that could be investigated for the 2022 through 2025 model year.

One, increasing the stringency of the regulation with a specific focus on pure ZEVs.

Two, would be to require a greater all-electric functionality to qualify as a plug-in hybrid.

And, lastly, restrictions on the use of purchased or banked ZEV credits such as having credits expire, depreciate with time, or be restricted in what portion of the annual obligation that could be satisfied with credits.

However, full consideration of these options have not been vetted through the process and are not recommended for these years.

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STAFF AIR POLLUTION SPECIALIST WONG: Our recommendation to stay the course achieves a balance because there are still significant barriers to increasing ZEV sales. The 2016 California ZEV Action Plan summarizes an extensive list of complementary policies. In addition, some new measures are launching to address two of the more significant barriers: A lack of consumer awareness and insufficient public fueling infrastructure.

New and expansive consumer campaigns are beginning to take shape in California and nationally. This includes efforts by the PEV Collaborative and its Veloz initiative, NESCAUM'S effort to select -- effort to select markets nationally, and Volkswagen's investment in campaigns as part of the diesel settlement's ZEV Investment Plan that you will be hearing in the next item.

In the area of fueling infrastructure, the passage of Senate Bill 350 in 2015 created a new transportation electrification priority for electric utilities, allowing them to make large investments in charging infrastructure and other PEV services, anticipated to be several billion dollars by 2030. Additionally, CARB is reviewing the first Volkswagen ZEV investment plan that proposes a large public charging infrastructure network. Finally, for hydrogen infrastructure the Energy Commission has proposed new station grants that include major energy companies reentering the hydrogen business.

Addressing all these challenges with complementary policies are essential to ensuring market success for these vehicles.

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STAFF AIR POLLUTION SPECIALIST WONG: We will now conclude with what we think should be our next steps. Following this midterm review, we need to look at the road ahead, carefully studying how the transportation sector is changing, and consider what new policies and regulations California needs in 2026 and beyond.

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STAFF AIR POLLUTION SPECIALIST WONG: As we begin the development of new regulations, we need to understand the gap in projected emissions from our current programs relative to the state's targets.

The graph on the left represents total NOx emissions in the South Coast Air Basin where over 85 percent arise from transportation sectors today. The emission levels to reach attainment for 2031 are clearly shown on the bottom. And the graph on the right represents statewide GHG emissions for on-road cars and trucks. Current programs provide important reductions, but the gap is sill significant when the SB 322030 requirements are taken into account, as well as the Executive Order 2050 targets.

It is clear, additional light-duty vehicle programs will be needed to provide further reductions in both criteria and greenhouse gas emissions.

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STAFF AIR POLLUTION SPECIALIST WONG: To assess how to fill this gap, the Mobile Source Strategy describes updated scenarios showing actions that can help the state meet our emissions targets.

This graphic shows a potential technology rollout for the light-duty vehicle fleet that would put us on a path to achieving the greenhouse gas, air quality, and petroleum reduction goals. In this scenario, electric vehicles move well beyond the current ZEV regulation, scaling up to 100 percent of all new vehicle sales by 2050, with 4.3 million ZEVs and plug-in hybrids on the road by 2030. Though this scenario is only a top-down analysis, it does show that there needs to be a significant shift towards electrification to ensure California's long-term goals are being met.

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STAFF AIR POLLUTION SPECIALIST WONG: In addition to our own analysis and research, staff will carefully evaluate relevant external research and maintaining continued dialogue with stakeholders to help guide the 2026 and beyond policy questions. Several recent studies have been released that we are beginning to review, but there will be many more. Although staff have not endorsed or critiqued any of these studies at this point, they are shown here to emphasize how ARB relies on science, data, and stakeholder perspectives in developing our regulations.

For example, the American Lung Association study focused on monetizing the public health and climate benefits from a large transformation to electric vehicles in California and the Section 177 states.

The Environmental Defense Fund and International Council on Clean Transportation studies both conducted technology and cost feasibility analyses of achieving more greenhouse gas and fuel reduction benefits by 2030. And the Indiana University study conducted a macroeconomic analysis of vehicle standards showing potential positive GDP and job impacts.

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STAFF AIR POLLUTION SPECIALIST WONG: To move forward and achieve the large emissions reductions that are needed from the transportation sector in 2026 and beyond, we must think outside the box in developing new regulations. This slide rep -- this slide presents examples of the kinds of issues we will consider.

For example, in the early years of the new program, should fuels be addressed differently in the regulation? The existing ARB GHG fleet regulation includes an upstream emissions factor for ZEVs. Should this be continued? Separately, is it appropriate to grant

ZEV regulation credits for automaker investments in fueling infrastructure?

More broadly, a core question involves the structure of the varying regulations within the Advanced Clean Cars program. Specifically, how should the ZEV regulation change as the fleet emission standards become increasingly more stringent to inherently encourage advanced technology?

Additionally, should the vehicle regulations address the changing transportation sector to include car sharing, ride hailing, and connected-autonomous vehicles? If so, what is the role of the regulation in combination with these other policies?

Finally, in the process for 2026, we believe we can best consider these concerns that the industry and others have highlighted in the context of reopening of the federal midterm review. It's just a question of where to spend our time and resources.

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STAFF AIR POLLUTION SPECIALIST WONG: Although we obviously have not determined the exact path we can bring to you for the regulations beyond to 2025, there are some guiding principles that we hope to follow as we prepare a regulatory proposal over the next few years. We need to seek a structure that maximizes the emissions reductions long term but in a cost-effective way, and that encourages innovation by automakers and suppliers. We need to utilize technology forcing requirements but only where needed to address electric vehicle markets and investment barriers. We need to learn from innovative policies being implemented in Europe, Asia, and elsewhere. And we need to follow -- we need to carefully consider a transition from the end of the current program into the new program.

We will need to develop new regulations and partnerships with the Section 177 states, NESCAUM, the U.S. EPA, Canada, and others.

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STAFF AIR POLLUTION SPECIALIST WONG: This concludes our California midterm review. And with that, staff asks the Board to concur with the recommendations presented today and described in the proposed resolution.

The recommendations are:

One, the adopted 2022 through 2025 GHG standards are appropriate and we recommend no change.

Two, the adopted one milligram per mile PM standard is feasible but new limits may be needed to ensure low emissions in use.

And, three, the current ZEV requirements can be met by the manufacturers and are appropriate to help further market development. Staying the course balances significant process -- progress and remaining barriers.

Fourth, the last recommendation requests the Board's concurrence that we begin the process of developing new standards for 2026 model year and beyond and to bring those standards to the Board for consideration as soon as appropriate but no later than the 2020 model year.

This concludes my presentation.

CHAIR NICHOLS: Thank you. We're also joined today by representatives from several of the states that follow California's Advanced Clean Cars Program and that have adopted our program. So I would like to call them forward at this time.

We have three, starting with Rob Klee from Connecticut's Department of Energy and Environmental Protection.

Commissioner.

MR. KLEE: Thank you so much, Chair Nichols and members of the Board. I believe that we're loading up our slide show.

(Thereupon an overhead presentation was Presented as follows.)

MR. KLEE: Thank you so much for the opportunity to be here this morning.

And we can go to the next slide, I think.

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MR. KLEE: Connecticut is proud to be among the states that have been implementing the Advanced Clean Cars Program, and I'm pleased to be here with my Section 177 colleagues in strong support of the staff's recommendations.

Connecticut is a long-time leader on climate change. We've been developing and supporting forward-thinking climate-related policies and legislation since the early 2000s. We've been participating in groundbreaking regional initiatives like the Regional Greenhouse Gas initiative, or RGGI, because we know that addressing climate change in a meaningful way presents Connecticut residences and our businesses with the opportunity to create a healthy and sustainable environment, a robust economy, and a high quality of life for current and future generations. Therefore we are forging ahead in all areas to meet our aggressive greenhouse gas reduction goals. But transportation accounts for 37 percent of greenhouse gases in Connecticut and 43 percent across new England. Without the ZEV requirements, we simply would not be able to hit our targets for this sector.

Next slide please.

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MR. KLEE: The Northeast states have long been leaders in environmental protection, even as our economies have grown over the years. Whether ranked by emissions per capita, total share of CO2 reduced since 1990, statewide efficiency or other measures, it's not a coincidence that the states have opted into this program under Section 177 consistently rank among the very best performers in the nation.

This chart as one example shows CO2 emissions per unit of economic output for every state in the U.S., with ZEV Program states highlighted in green. And note that the folks here today did a little better than California.

(Laughter.)

MR. KLEE: Next slide please.

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MR. KLEE: All of our MOU states have long-term 2050 goals that match California's. Many, including Connecticut, are in the process of identifying or refining interim targets as well. We're doing so at the direction of my governor, Governor Dannel P. Malloy, who through the Governors' Council on Climate Change, which I chair and is made up of key state agencies, businesses, academic institutions, and nonprofits, and we've been tasked with setting targets for 2030 and 2040. Next slide.

MR. KLEE: Many of our governors signed an MOU in

2013 that -- there are eight states. They are California, Connecticut, Massachusetts, Maryland, New York, Oregon, Rhode Island, and Vermont. These governors set a collective target of having 3.3 million ZEVs on our roads by 2025. They further committed to establish a multi-state zero emission vehicle task force to develop and implement a comprehensive ZEV Action Plan designed to achieve our states' electrification goals.

The task force released this multi-state ZEV Action Plan in May of 2014 that identifies both the collaborative actions and individual state actions needed to address the full range of barriers to widespread adoption of electric vehicles, such as incentives, infrastructure development, fleets, workplace charging, and consumer education and outreach.

Next slide.

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MR. KLEE: At the time our governor signed the eight-state MOU, this matrix that I'm showing you today would have looked much different. Nearly all of the policies shown here have been put in place in the past few years in anticipation of the 2018 ZEV requirements. Please note especially the top two lines.

Since the MOU our states have been meeting regularly with Air Resources Board staff and all the automakers in a process we've been calling the New Collaboration for ZEV Success. Early on in those conversations, the automakers identified consumer incentives and infrastructure as the two most important policies to support near-term ZEV deployments. As this chart shows, our states have stepped up and we are ready.

And, lastly, I'd like to announce one correction to this chart. That asterisk under New York for consumer vehicle incentives, you can change that to a check mark because Governor Cuomo announced just this past Tuesday a $70 million ZEV incentive rebate program that's up to $2,000 per vehicle in New York.

Next slide.

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MR. KLEE: And this is my last one. Just to say, some of the recent highlights that we've been doing in Connecticut to support ZEV's deployment.

We've added $3.7 million for funding for our rebate in Connecticut called the Cheaper Program.

We've recognized this year and in past years our EVs of the year, and the Chevy Volt was the winner in 2016.

We also honor our dealerships for their efforts to deploy ZEVs. Stevens Ford in Milford was our winner this year.

We provide grants for up to a hundred percent for public charging stations and incentives for others to deploy at workplace chargers. And we've ended range anxiety in Connecticut. You're no further than 20 minutes or 20 miles from a charge anywhere in the state of Connecticut.

We have -- our Governor's Council on Climate Change is focused with a laser focus on transportation, looking at vehicle miles traveled. ZEV implementation transit systems at high mileage users. Our comprehensive energy strategy again highlights transportation and is exploring the role the utilities play, taking some learning from the things that have been going on here in California.

So with that I'd like to pass the podium to my neighbor to the north, Christine Kirby from Massachusetts.

CHAIR NICHOLS: Oh, thanks. We'll hold our questions then till the three of your have all finished your presentations.

BOARD MEMBER SHERRIFFS: But just in -- one of the things that you said. It's a goal or everybody is within 20 minutes of a charging station?

MR. KLEE: Currently everyone is within 20 minutes from a charging station in Connecticut.

BOARD MEMBER SHERRIFFS: Congratulations.

MR. KLEE: We've deployed that many stations. We're a small state.

(Laughter.)

BOARD MEMBER SHERRIFFS: Don't apologize. Don't apologize.

(Laughter.)

BOARD MEMBER SHERRIFFS: Well done.

MR. KLEE: Thank you.

Christine Kirby is next.

CHAIR NICHOLS: I assume you mean a level 2 or higher, not just a plot, right?

Okay.

MS. KIRBY: Good morning, Chair Nichols and members of the Board. I'm happy to be here, and thank you for the opportunity.

Massachusetts is, like Connecticut, happy to be among the states that have implemented the Advanced Clean Cars program. And I'm pleased to be here with both New York and Connecticut in strong support of the staff's recommendations.

You heard from Commissioner Klee on the 177 state greenhouse gas reduction goals. And in Massachusetts we updated our clean energy and climate plan at the end of 2015. And we will be finalizing new rules in August in response to Governor Baker's executive order on climate change to ensure our 2020 goal is met.

Without the California program, we will not achieve our near- or long-term goals; and those are our greenhouse gas reduction goals.

The rest of my presentation will be focused on the ZEV requirements.

Next slide please.

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MS. KIRBY: A key theme you will here today is whether the 177 states are ready for ZEVs in doing our part. The answer is unequivocally yes. There is good news in our states, as shown by this chart. Sales are up. In December of 2016, Massachusetts saw the highest number of rebates under our rebate program than any other month since the program started in 2014. That's good news.

And the 177 states in 2016 saw an increase of 60 percent in total PEV registrations, which represents a 50 percent increase in market share in the Northeast.

Along with this, there are expanded numbers of new models, including three models with all-wheel drive capability. And that's something that we've heard continually in the northeast, about the need to have all-wheel drive vehicles. This also helped our sales.

Next slide please.

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MS. KIRBY: More good news. Our states continue to add charging stations in anticipation of a major increase in vehicles beginning in the 2018 model year when "travel" goes away. As many of you know, "travel" has been in place, and we are anticipating that going away in 2018.

This chart shows that infrastructure is much farther along in our states than it was in California, when California ZEV requirements took effect in California in 2012. Of interest is why we have -- still have fewer stations in terms of absolute numbers. We actually have doubled the capacity relative to the number of PEVs currently on the road in our states. So one outlook for every 10 PEVs compared to one outlook for 20 in California.

Next slide please.

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MS. KIRBY: Now, for the not-so-good news. Because of the travel provision, manufacturers have faced no binding sales requirements in our states -- in the Northeast states; and it's not surprising that they have not made meaningful effort to promote their vehicles in our region. Or in many cases to even make them available for a test drive.

Of five of the six OEMs, here's some examples:

The GM Spark EV, not for sale in the Northeast.

The Toyota RAV4, not for sale in the Northeast.

The Fiat Chrysler 500E, not for sale in the Northeast.

Honda Fit EV. It's been for sale but the total volume is capped. And one particular piece of information: Only three rebates have been issued under the Massachusetts rebate program in Massachusetts, simply because the vehicle is not available, and it's not because of a lack of interest.

And finally the Ford Focus. It is available, but not in the numbers that we'd like to see.

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MS. KIRBY: Continue in this theme. We have been pleased to see that many new battery electric products are being introduced into the market. But, again, many have been and remain practically unavailable, and there's three examples of that here too.

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MS. KIRBY: We've presented this type of data in the past. This is also on the issue of vehicle availability. And we shared this at one of the past board hearings. This snapshot was taken just two weeks ago and compares vehicle availability in Sacramento and in Boston. And the picture tells the story. You'll see much more vehicle available in California than we do in Boston.

So given this reality, it's hardly surprising that PEVs are selling more rapidly in California than in our states.

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MS. KIRBY: We have identified consumer awareness, as Anna has mentioned, as an issue. And we note that vehicle marketing is critical in our states. Looking at a measure of marketing effort, this slide shows advertising dollars spent in 2015 with a Chevy Volt and a Nissan Leaf. While both GM and Nissan both ran some ads nationally, they chose to spend heavily on advertising targeted for California consumers.

So comparing this investment in California to the total lack of similar investment in the Northeast, it's not surprising at all to see the discrepancy in numbers from California and in the 177 states.

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MS. KIRBY: Moving onto the staff recommendations. As I mentioned earlier, the 177 partner states support the staff recommendations on the ZEV requirements and the other parts of the Advanced Clean Cars program. And I would like to make the following seven points.

Number 1, banked credits mean industry can comply through 2021 with no increase in market share. So that is very important.

Number 2, scheduling a review too soon perpetuates the incentive to fail. We need to make more time to make the program work, particularly in the 177 states given "travel."

Number 3, technology is proven and costs continue to fall.

And 4, most OEMs have not yet tried to build the ZEV markets in the Northeast or in California to the extent that's necessary.

Number 5, we need to focus on 2026 and beyond to achieve the long-term greenhouse gas reductions. And electrification of the transportation sector is essential. We know this in Massachusetts and we know you know that here as well.

A couple of comments on the midterm review. This occurred five years after the initial 2012 commercial volumes in California took effect. We need five years in the Northeast as well. So we do not need another midterm review until at least 2023. We need to build the market post the travel provision going away.

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MS. KIRBY: Similar to Connecticut, I'd like to provide some highlights of what's going on in Massachusetts. The first is we enacted a piece of legislation at the end of 2016.

Couple of highlights: The utilities can now submit proposals for cost recovery of EVSE in Massachusetts. And two utilities have done that. They've filed with our Department of Public Utilities, which is great news.

And building codes can include requirements for EVSE, which is now under discussion in Massachusetts.

In 2016, we added $12 million to our EV rebate program. This program is called the Massachusetts Offers Rebates for Electric Vehicles, or MOR EV. This program began in 2014. We've had great success with it.

We also implement two additional incentive programs under the banner MassEVIP. The first is to public entities, both the state fleet and municipalities. So far we have funded 208 vehicles and 69 charging stations under that program.

Also, we have a separate piece of MassEVIP where we fund workplace charging. We've identified that as an important piece to provide consumers with certainty that they can charge. So far we've funded 388 units and 618 charging ports in Massachusetts. It's a very, very popular program.

And finally, we've been partnering with Plug In America - I know they're here today - on the first statewide Mass Drive Clean program. We've hosted a number of EV ride and drive events. So that's been very successful.

And we've shown that people that ride in an EV are more likely to buy an electric vehicle after they get into one of these vehicles. So that's been exciting.

So to conclude, on behalf of the Baker-Polito Administration, thank you for the opportunity to be here today, and we look forward to working with California on these issues.

Thank you.

CHAIR NICHOLS: Thank you.

MS. KIRBY: And I will now turn it over to my colleague from New York, Steve Flynn.

CHAIR NICHOLS: Good morning

MR. FLYNN: Good morning, Chair Nichols, Board. Thanks for having us here today. Thanks for providing the opportunity for us to speak.

I'm Steve Flynn. I'm the Director of the

Division of Air Resources at New York State's Department of Environmental Conservation. I'm also a somewhat familiar face, appearing here over the history of time.

Commission Klee stole some of my thunder. Yes, indeed, we just this week announced in New York a $70 million incentive program for electric vehicles. It's a point-of-sale rebate program. So it reduces the out-of-pocket expense for the buyers at the time.

It also includes a significant effort towards additional outreach, so that we have an educated consumer base. That follows closely on the heals just a couple weeks ago of announcements for an additional 450 workplace and public charging stations around the state.

And another important point I wanted to make is relative to staff's presentation this morning on -- in particular New York dealers have expressed concerns about the distribution of credits and the timing of credits. And we appreciate staff's recommendation to take a hard look at this and to monitor this over time to see if there is a problem. And we will most certainly be working with staff on that and helping to understand the issue and making recommendations if necessary.

Can I have the next slide please.

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MR. FLYNN: Sometimes going forward requires us to look backwards. And we have indeed come a long way together. And the emphasis here is on "together." California and the Section 177 states over time has -- the program has been a partnership. Certainly California has the leadership authority under Section 209 of the Clean Air Act. Properly so. The issues here in California predate federal efforts and have been severe, and California is staffed and capable and equipped to address those issues, as we've seen time and again with the work of staff, as we saw at the beginning of today's -- with the presentation to staff for their excellent efforts on the Volkswagen case.

Section 177 allows other states to adopt the program provided certain tests are met. We've done so. And we have done so from the beginning. Mass and New York were at the very beginning. We've been shoulder to shoulder with California all along the way. It's not always in full agreement, but nonetheless working closely. We work closely with staff as these programs are developed as staff -- we come to the Board to speak to you, to tell you what we think and how these things affect us.

We also support you in Washington. When things like waivers are up, we weigh in on those waivers.

We also support you in court. The Mass versus EPA greenhouse gas decision certainly was a foundational.

The Green Mountain Chrysler-Plymouth case in Vermont on the first round of greenhouse gas standards was pivotal.

And so we're here. We're with you. We believe in what we're doing. We believe in what you're doing. But some of that is also the flexibility that is necessary going forward. Staff spoke of the optional compliance plan and the travel provisions. We understand that. We understand that this technological development sometimes needs to germinate and mature in one place before it can spread widely. We've supported those provisions. We helped develop the optional compliance plans through negotiations with staff and manufacturers.

California clearly has the lead, but the Section 177 states bring along market breadth and understanding to really stabilize the results and improve the overall results of what it is you're trying to do.

Can I have the next slide please.

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MR. FLYNN: Why? Well, talking about greenhouse gases. 177 states are all pretty much coastal, just like California is. And certainly sea level rise is a highly visible and very problematic issue associated with climate change. My office is in Albany. I'm 140 miles from the Statue of liberty, and yet I can watch the tide in the Hudson River estuary out of my window. It's a big problem. It's not just skirting the edges, and it's pervasive.

Motor vehicles are the biggest part of our greenhouse gas inventory in the Northeast. In fact, they're also the greatest part of our criteria pollutant inventory.

VMT continues to grow. We are controlling stationary sources. We have cap-and-trade programs for power plants for greenhouse gases. We're investing those proceeds into energy efficiency.

We're doing what we can where we can. We need the cars too.

But it isn't just greenhouse gases. We're also nonattainment in metro New York area for ozone. Just like with greenhouse gases, the motor vehicle sector is our largest single sector. We can't get to attainment. We can't get to the public health we're looking for without the controls. So the California program is important as part of our SIP as well.

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MR. FLYNN: But a key piece of this is that it's working. From the beginning, the program -- very beginning -- it has been identified as technology forcing. And it has been. You know, the original standards when someone put a LEV standard up on the board, everyone cringed and said, "How will we ever get there?" Well, we have. But you have, we have, the manufacturers have; and don't lose site of that.

There's been a great deal of development here and -- you know, I look at this slide and I recall that when the Toyota Prius came out -- generation 2 Prius came out in 2004, Toyota lost money on every one they sold. They never said how much. I can't blame them. But since then it's evolved. They've learned. They've matured the product. They've refined the product. They've found ways to contain the cost. It is my belief that it is now a profitable automobile. And more than that, it's a flagship for them. The technology is advancing. The program is working. There are 300-mile BEVs that are out there now. We didn't -- just didn't have that recently.

And some of these technologies are expan -- some of the advancements that have occurred because of these vehicles have expanded into other markets. We talked about the 48-volt start-stop. I don't think we'd have been there without the technology forcing elements of this program. Some of this stuff would have happened, to be sure. But I don't think any of us believe it would have happened in the time frame that we're looking at now. And time is important.

Another key piece of the evolution of the program though has also been the relationship between states and the manufacturers. We're not adversarial. We meet regularly, often, to talk about the issues for advancing this technology, for getting the marketplace mature, for improving the salability and usability of these products. So that is just -- it is another part of the evolution.

For example, we've been meeting -- we meet multiple times. And just in a couple weeks at the New York Auto Show we have a couple of days of meetings scheduled with 177 states. I think California is coming, and manufacturers, at a showcase event of theirs.

Next slide please.

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MR. FLYNN: This is kind of demonstrative of it. That in just a few years we've seen range drastically expand, charging time greatly improved. Certainly a key is to users that they are not spending a lot of time charging. This is -- these are things that just are continuing to evolve and continuing to develop. Charging is being installed now at 150 kilowatts. We have planning -- the charging is on the planning board for 300 kilowatts. I'm not quite sure how we're going to maintain the heat and deal with that, but we'll figure it out.

And the marketplace is competing on these parameters. They're not just doing it; they're competing on it.

We're now at an inflection point. The inflection point is, as Christine described, the end of travel and the bringing forward of the requirement in the 177 states. We support the staff's recommendation to proceed with the program. Let us move a foot. Let us keep an eye on it but move forward.

Certainly it's a significant obligation for manufacturers. But - and this is an important "but" - manufacturers, states, consumers, infrastructure providers all need certainty, a little bit of certainty. And as staff said, push it out there a few years before we get back at work at it. And Christine said this too. Let's leave it in place for a while. Give us all some certainty. And I think that's what we're asking for the Board.

So in closing - just a couple of comments - again, we support -- we stand here today to support the staff recommendation as it -- as California seeks to reduce the environmental impact of motor vehicle technology, and do so in a progressive but achievable manner.

We're committed to continue to work with the manufacturers to address the obstacles and to help educate consumers. We will work with infrastructure providers and other stakeholders to ensure that consumers can experience a seamless transition to the cleanest technology out there. And it's important, folks. Tomorrow's environment is counting on what happens here today.

Thanks.

CHAIR NICHOLS: Thank you very much. Thanks to the three of you for traveling out here and spending the time with us. And I assume that you're going to be available throughout this discussion. And if possible, it would be helpful to have you also present during the discussion on the Volkswagen ZEV investment plan; because while we're dealing only with the California plan here today, there is a national plan that they've prepared as well. And it would be interesting to get your comments on how you see that helping us all out.

So thank you.

We do have two other state representatives with us who were not part of this presentation. One is our neighbor from Oregon, Leah Feldon. And then we'll also hear from NESCAUM, which represents a whole group of states.

So let's start with Leah please.

Welcome.

MS. FELDON: Good morning, Chair Nichols and members of the Board. My name is Leah Feldon, and I'm the Deputy Director of the Oregon Department of Environmental Quality.

Thank you for allowing me the opportunity to comment to the Board today. I'm very pleased to be here. And I do want to briefly acknowledge my staff with me here today, Dave Nordberg. Dave is our transportation program coordinator, or better known as our LEV-ZEV expert.

On behalf of the Oregon Department of Environmental Quality, I want to commend auto manufacturers for the strong progress they've made meeting future greenhouse gas and zero-emission vehicle requirements. Since the adoption of the 2012 ZEV and LEV III rules, the auto industry has made significant strides in reducing greenhouse gases from conventional light-duty vehicles and dramatic advances in emission-free vehicles.

We also want to recognize the substantial effort the California Air Resources Board devoted to this midterm review. We admire the breadth of this study, and conclude it is appropriate to retain the current requirements for the 2022 to 2025 model year vehicles.

Zero-emission vehicles are essential to meeting Oregon's long-term greenhouse gas emission targets for 2050. Relaxation of the LEV III or ZEV rules would reward manufacturers who made the least effort to prepare for future requirements and do a disservice to manufacturers who made the greatest effort to develop and market compelling low-emission products.

We agree with the ARB staff that the auto industry's progress raises the question whether the requirements for 2022 should be strengthened. We also want to emphasize the critical importance of regulatory certainty, and therefore we believe it is appropriate to continue the existing requirements unchanged.

However, conventional vehicles with even lower greenhouse gas emissions are necessary for a secure future, as are much larger numbers of ZEVs. And as we heard in presentations today, the technology costs to produce said vehicles is going down. To meet the imminent need to future reduce greenhouse gas emissions, we urge you to continue your pioneering work by developing strong new standards for the period following 2025.

Oregon thanks you for all of your work to date and future work combating greenhouse gas emissions to protect public health and our environment.

Thank you very much for your consideration.

CHAIR NICHOLS: Thank you. We also admire what Oregon has done to promote the whole market for EVs through your Drive Oregon program. And I don't know if you were prepared to comment. But I saw something the other day since I subscribe to your emails about a transformation in the program. Do you want to say a word or two about what you're up to there. Or if you don't want to, you don't have to.

MS. FELDON: Chair Nichols, members of the Board. I don't think we're prepared to talk about the Drive Oregon program at this time.

CHAIR NICHOLS: All right. That's okay.

MS. FELDON: But I would be happy to get back with you an some information.

CHAIR NICHOLS: Well, we'll talk later. Thank you.

MS. FELDON: Thank you very much.

CHAIR NICHOLS: Thank you.

Matt Solomon from NESCAUM.

Welcome, Matt.

MR. SOLOMON: Thank you very much. Good morning, Chair Nichols, members of the Board. Appreciate the opportunity to be here. You've heard a lot from the 177 states, so I'm going to try to keep this brief.

I think we've shown our states have done everything that they can do to prepare the market to get ready for these cars. But we can't build the market on our own. It is time for the automakers to step up. We need them to come into the market, not just with product, but with the earnest and energetic marketing effort that they make with vehicles that they actually want to sell. Thus far they have not made the effort to build ZEV markets in the northeast because they haven't had to. They haven't had to because of the "travel" provision. Therefore we strongly agree with staff's recommendations and we hope you will too.

Thanks very much.

CHAIR NICHOLS: Okay. Thanks.

Next we'll turn to Henry Hogo from the South Coast AQMD.

Good morning, Mr. Hogo.

MR. HOGO: Good morning, Chairman Nichols and members of the Board. I'm Henry Hogo, Assistant Deputy Executive Officer at the South Coast Air Quality Management District.

I'm pleased to be here today to provide the South Coast District's staff support of the staff recommendation. We strongly believe that these standards should be maintained as determined by the midterm review for the greenhouse gas standard. We certainly support the 1 milligram standard. In fact, at the 2016 AQMP that you approved yesterday - and I want to thank you for that - shows that light-duty vehicles actually are the largest source of directly emitted PM in our basin from mobile sources. It's the fourth highest contributor. So we strongly support that. And we strongly support the zero-emission technology.

Locally we're going to continue to encourage deployment of zero-emission vehicles, especially through the Enhanced Fleet Modernization Program. And we look forward to working with you on the post 2026 model year standards and looking to strengthen that moving toward more zero-emission vehicles.

Thank you again for the opportunity to speak today.

CHAIR NICHOLS: Thank you.

We really do have a who's who of everybody in the ZEV world here today.

So move next to John Bozzella from the Association of Global Automakers.

MR. BOZZELLA: Thank you, Chair Nichols, members of the Board. I'm John Bozzella, President and CEO of Global Automakers.

Our companies sell 56 percent of the cars and trucks purchased here in California, most of which are made in the U.S. We employ over 10,000 Californians at 79 facilities, including 18 R&D centers and three North America headquarters.

You'd think given the heated rhetoric here in

California and in Washington over cars, there's much that divides us. Not so. We agree that we need to continue to reduce greenhouse gas emissions and improve fuel economy. We agree that developing advanced technologies and consumer acceptance and demand for those technologies are central to the achievement of our goals. We agree we should be making decisions using the latest science and data. We also agree that we must work together. And fundamentally we agree that there is a more effective and efficient way forward than regulatory programs that are inconsistent and require different compliance paths with no added benefit to our consumers or the environment.

When EPA prematurely ended its part of the midterm review, we lost an important part of the discussion, perhaps the most important part: making sure we ended up with a fully aligned national program that balances innovation, compliance, and consumer needs and wants. Last week's decision to reopen the midterm review without prejudging the outcome is fully consistent with the commitments ARB, EPA, NHTSA, and the industry agreed to back in 2012.

I want to assure you that we are as committed to the goals of one national program today as we were in 2012. Right now we should all be getting back to work on this. And your role will continue to be important for the

2022 to '25 standards and beyond.

Let me turn briefly to the ZEV mandate.

The program does have problems. We all know this. We need to understand the state of the market, not just the state of the technology. Meeting the significant numbers here in California will be a big challenge. But here at least you understand the importance of investing in infrastructure and incentives to encourage markets. This is why in percentage terms we're selling six times as many ZEVs in California as in the Northeast states, with similar numbers of models available for sale.

Second, the programs now who focus on one electric technology rather than the broad range of ZEV technologies distract us from what really matters, getting more ZEVs into the marketplace by increasing consumer awareness and acceptance; and it likely leaves benefits to the planet on the table.

We've invested billions in advanced technology vehicles. We remain committed to developing sustainable markets for them and we look forward to working with you to accomplish this critical goal.

Thanks for your time. I hope we get an opportunity to discuss this and answer any questions you have.

CHAIR NICHOLS: Thank you.

MR. BOZZELLA: You're welcome.

CHAIR NICHOLS: Mr. Douglas, welcome.

MR. DOUGLAS: Good morning, Chair Nichols, Vice Chair Berg and members of the Board. I'm Steve Douglas with the Alliance of Automobile Manufacturers. It's a real pleasure to be here.

I only have three minutes so I'll go ahead. And if you go to the next slide. And actually I only want three minutes.

(Thereupon an overhead presentation was Presented as follows.)

MR. DOUGLAS: Of course there's been a lot of media attention around the Trump Administration, the Alliance, automakers, GHG, ZEV, midterm review, waivers. So I thought it might be helpful if I just kind of laid the groundwork and tell you what the Alliance position is and where we're coming from.

First, we fully recognize that California has a waiver for greenhouse gas and zero-emission vehicles and low-emission vehicle programs. And we have not requested or advocated for the Administration to overturn those waivers. We haven't.

We have consistently supported the midterm review on the original timeline as it was laid out and agreed to in 2012. And we did ask the Administration to return to this timeline. So last week -- last week's activity simply brought us back to where we would have otherwise been but for EPA's action at the end of the last year, at the beginning of this year, which we believe was premature.

So with that, I'd like to turn to ZEV, which is actually more my specialty. If you could go to the next slide.

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MR. DOUGLAS: First I just want to point out that 18 through 25 regulations haven't even started jet. So the manufacturers have made great progress in developing 30 -- almost 30 high quality zero-emission vehicles. They're efficient. They're safe. They're reliable. They're fun to drive. And California, for your part - and we appreciate this - has been very good at creating a comprehensive program of complementary measures. However, I want to point out we are a long, long, long way from the finish line. The ZEV market is not sustainable today.

The regulations are very aggressive in California. It requires tripling of the sales. So sales have to triple over the next few years. In the Section 177 states it's five to ten times that amount. So it's a bigger hurdle. And we do expect sales in the 177 states will increase over the next few years. But we don't see any way that they will reach the level that California's at in the time that's required. So I think right -- automakers are rightfully concerned about their ability to comply with these regulations.

We've recommended revising the requirements now. However, if not now, we'd ask the Board to continue to monitor this - and staff - and make appropriate changes, monitor the ZEV market and make appropriate changes in the 2019 time frame.

Thank you very much, and I'd be happy to answer any questions.

CHAIR NICHOLS: I think rather than engaging at this point, we should just go through the testimony, and then we'll have some conversation. Thank you.

MR. DOUGLAS: Okay. Thanks.

CHAIR NICHOLS: Ms. Lilly -- Amy Lilly. Good morning.

MS. LILLY: Good morning. My name is Amy Lilly and I'm here representing Mercedes-Benz. Today I'd like to talk about our robust investments in electric mobility and fuel cell vehicles, our plans for marketing these products, and our commitment to partnering with California to ensure our EV customers' infrastructure needs are met.

Due to time restrictions, I have left a longer version of my remarks in the record, and I'm going to be doing some fast talking here.

Mercedes-Benz' goal is to become the undisputed leader in EV sales in the premium segment by 2025, and we will have over 10 electric models by that year. This is an ambitious goal, but we have already begun to seriously invest in the transition to a more heavily electrified fleet.

By the end of 2019 we'll have six PHEVs on the market and we will continue to offer BHEVs through 2025 and beyond because we believe advanced long-range batteries offer customers a no-compromise solution.

Starting in model year 2018 a hundred percent of our Smart vehicles will be EVs; and Mercedes-Benz will begin to launch our EQ brand in 2019. EQ stands for electric intelligence, and it's comprised of comprehensive electric ecosystem of services, technologies, and innovations, which will be fully scalable across all model.

Lastly, we'll introduce our GLC F-Cell later this year at the Frankfurt Auto Show. Almost $11 billion of our research budget have been dedicated to e-mobility, and we have invested over $1 billion in our global battery production. Investments continue to be made in manufacturing capacity, hardware and designs; and, rest assured, these investments will continue regardless of what the discussions will be with the regulations.

But just offering compelling products will not be enough. Mercedes-Benz fully supports what CARB stated in Appendix B of the recommendations for the midterm review; namely, that fleet transformation to near or pure ZEV also requires consumers to demand and ultimately purchase these products. We're simply not going to reach our joint goals unless we can move beyond early adopters to the mainstream consumers.

I'm here to dispel the perception that our dealers are not serious about selling ZEV vehicles. And we heard that mentioned by Christine Kirby a little bit earlier. Mercedes-Benz U.S.A. has created a new department specifically tasked with preparing our dealers to sell ZEV vehicles by developing and executing new and enhanced training programs, installing charging stations at dealerships or sales and service needs, and embarking on marketing efforts nationwide.

Turning to infrastructure. I think everyone is in agreement that the number of stations is woefully inadequate. Considering that all automakers have plans to introduce a variety of models in all segments, infrastructure must be exponential growth. To help address the concern, we and other automakers are not only building ZEV vehicles, but we're also investing in needed infrastructure. For example, we recently invested in

Charge Point. Also, Mercedes-Benz has been actively supporting the CPUC recommendations to mandate the ISO 15118 communications protocol to ensure ZEV, P -- excuse me -- PEVs to infrastructure interoperability.

In closing, when our CEO, Dr. Dieter Zetsche, announced our goal of becoming the EV sales market leader within the premium segment by 2025 has signaled that Mercedes-Benz is committed to deploying electrified vehicles in the mainstream market. We plan to work collaboratively with CARB and other stakeholders to overcome our consumer acceptance in infrastructure challenges. And, lastly, we're ready to start the discussion about how best to encourage additional ZEV deployment after 2025.

Thank you.

CHAIR NICHOLS: Thank you.

Mr. Lord.

MR. LORD: Good afternoon, Chair Nichols and Board members. My name is Michael Lord, and I'm an executive engineer for the Product Regulatory Affairs Division at Toyota Motor North America.

First I'd like to talk a little bit about some of Toyota's products. Our Prius Prime, which is our new and significantly improved plug-in hybrid, is on the market now. We believe the Prius Prime is the most fuel efficient vehicle in the U.S. today with 133 mpge and an estimated 640-mile range.

The EV range is 25 miles, and we've made many improvements to maximize the driver's EV experience by practically eliminating engine starts during those 25 miles.

And starting at 27,100, before the $4500 federal tax credit, we think it's a great value.

So in addition to the Prius Prime, Toyota continues to lead the initial market for fuel cell vehicles with the Toyota Mirai, a ZEV with an estimated 312-mile range and a 3- to 5-minute refuel time.

And we'd like to thank Chairman Nichols and Professor Sperling for being Mirai pioneers. We trust you've had good experience with the vehicle.

However, you may have some issues so far with infrastructure -- your experience with infrastructure at this stage. And although we made some great progress in California on stations, we have room for improvement in the coverage, reliability, and speed of construction.

And my colleague, who's scheduled to speak next, I think he will be later in the day. I think he's stuck in Riverside traffic.

(Laughter.)

MR. LORD: We'll speak about that later.

(Laughter.)

MR. LORD: So regarding improving in the ZEV Program, I wish to make --

CHAIR NICHOLS: You should have been here for the VMT discussion yesterday.

(Laughter.)

MR. LORD: Right. Thank you.

Regarding improvements to the ZEV Program, I wish to mention four broad and core requests today.

First, we believe the role of plug-in hybrids is undervalued in the current regulation. We still believe that PHEVs can fulfill a significant portion of the emission reduction goals from 2030 to 2050, and that the staff's assessment of the emission impacts needs further evaluation. PHEVs are a technology that customers can embrace, and we believe the credit structure and the current cap should be adjusted in the regulation.

Second, we believe while progress is made in the Section 177 states, it continues to lag the California market. Our request is not to make changes today, but I ask you to direct staff to come back to you with a more robust assessment of the Section 177 state markets and potential regulatory flexibilities to address it.

Third, we believe CARB should consider increasing the maximum credits for PHEV, BEVs, and fuel cells. PHEV credits are max'd out at 80-mile range, and BEVs and fuel cells are 350. By raising this cap, we think it's a good tool incentivizing longer range vehicles in all three categories.

And fourth, and in closing, we need to look at ways to further accelerate hydrogen infrastructure development. In addition to improving the existing AB8 process with the Energy Commission, we encourage ARB to consider additional funding and incentives, including credits under the ARB existing programs, to help us move beyond the hundred stations. And we would like to ask you to direct staff to come back to you with recommendations on how to accelerate the build-out of hydrogen infrastructure.

Thank you.

CHAIR NICHOLS: Thank you. So your colleague is not here. We'll proceed next to NRDC.

Simon Mui.

MR. MUI: Good morning, Chairwoman Nichols and members of the Board. Thank you. I'm Simon Mui with NRDC, director of our vehicles and fuels program here on the West Coast.

First I want to thank staff for their years of hard work on this review. It's been carefully done, thoroughly analyzed. And I think you can all breathe a breath of relief today. Your staff has provided substantial evidence, substantial evidence that the existing standards can be met on time, with no technologies, and a cost lower than we originally anticipated in 2012. In a nutshell, the program is working.

Both the Legislature and the Governor have spoken loudly and clearly last year in setting aggressive carbon reduction goals for 2030, aggressive electrification goals through SB 350, and calling for us as a state to really double down on meeting our air quality requirements.

These standards we're talking about today are the state's major tool to do that. It's achieving the most carbon reductions to date under AB 32 and nationally through the national program. It's the main policy driver for electrification and helping to improve public health in a state where 8 out of 10 people still are breathing unhealthy air.

For these reasons, we're asking the Board to green light staff's proposal. Let's maintain the steady course that California has been on, and continue that through 2025, and begin the stakeholder process and discussions around the next steps post 2025, and further improve and strengthen the ZEV standard through that process.

All eyes are looking to us today, particularly given last week's disappointing announcement from the Trump Administration to reopen the review process federally that was completed. That's the first step to weakening federal clean car standards and fuel economy standards. We know that.

As we've heard, California's program isn't just benefiting the health and welfare of California, but residents from 12 other states. That's 113 million people, one-third of the U.S. population.

Over the past decades this agency has seen federal administrations come and go. But each time it's stayed true to its principles that it will continue to lead and protect the public health and the welfare when others lag, and let the technical evidence be the primary guide for setting standards. And the weight of that evidence today shows that these standards are very much achievable. Please reaffirm these standards and continue moving us forward.

And now I'll let my colleague, Irene Gutierrez, make some additional comments.

CHAIR NICHOLS: Thanks.

MS. GUTIERREZ: Good morning. Irene Gutierrez with NRDC.

As my colleague, Simon Mui, has noted, I'd like to thank the Board and the staff for the years of work that have gone into putting together the Advanced Clean Cars program. I'll make comments on two sections. I'll comment on the ZEV Program and also on California's regulatory authority.

As we've heard from the states, the ZEV Program is a key driver for expanding markets in California and other states. And we've seen cost-tipping points like this in the solar and the wind industry. And the ZEV Program is working. It creates a market for plug-in electric vehicles and drives costs down and makes vehicles more accessible to members of the population.

Automakers can readily meet the targets that ARB has set. As we've noted in our comment letter, expert analysis has shown that the likely sales targets to meet the ZEV requirements in California is 6 percent by 2025. This is lower than the original figure of 15.4 percent sales. ARB's analysis shows that 8 percent sales by 2025 is needed and even Auto Alliance's study shows that only 10 percent sales are needed.

So by all metrics, the ZEV Program is well within reach and becomes increasingly attainable over time as vehicle technology improves and you see higher range vehicles coming on to the market. So with this in mind, we support ARB's recommendation to maintain the ZEV standards through 2025, and we support the proposal to continue strengthening the program for 2026 and beyond.

We look forward to working with ARB and other State agencies on complementary policies to continue supporting the program.

I'd also like to note that we support California's staying firm in its commitment to protecting state residents from air pollution and climate threats. We're disappointed by some of the comments that have been made by global auto makers and the Alliance of Automobile Manufacturers. These groups are now arguing that even if California committed to match federal EPA standards, that it sticks with its commitment even if federal standards are weakened. We closely followed this process, the various negotiations that went on in 2009 to 2012, and we know that this is not what California agreed to. California never agreed to surrender its independent regulatory authority and leave its residents at risk. Industry groups misrepresent what the parties agreed to in signing on to a national program; and they selectively quote the statements made by California in its 2011 commitment letter, which states that California agreed it would only accept compliance with the federal standards as long as they remained as strong as those that were set forth in 2011.

California did not agree to accept every change to EPA standards and it doesn't need a permission slip to go forward with its own.

So for these reasons, we support what ARB has proposed and we look forward to working with ARB and staff in the future.

Thank you.

CHAIR NICHOLS: Thank you, Ms. Gutierrez, and thank you for your clarification on what was agreed to at the time. We've seen a number of statements about that that have been troubling, not just about the one national program but also about the nature of the midterm review itself, which never was intended to have to go out to the full possible length. It was not something that was even contemplated at the time, that it must extend further. It was supposed to be done when it was ready to be done. So the recent cries of process foul about the EPA decision, even though we weren't apart of it, struck us as being strange, to put it mildly, and certainly not based on the agreement that we were a part of.

So thank you for your comments.

Mr. Lutsey.

MR. LUTSEY: Chair Nichols, Board members. Thank you so much for all of your great work cleaning up vehicle emissions. I'm Nick Lutsey. I'm with the International

Council on Clean Transportation. Just wanted to give a few reflections here from some of our recent work.

First, we conducted a major technical study that we just released this week. It analyzes technologies and costs to reduce carbon dioxide emissions in the 2025 and 2030 time frame. Our work parallels and updates all of the great work from ARB staff as well as EPA and NHTSA staff. I'll highlight just a couple findings.

We find that previous government estimates, including the MTR and the TAR by the agencies, overestimate the compliance costs by 30 to 40 percent. And that's due to all of the very low cost efficiency technologies that keep emerging in the fleet.

These standards based on these low cost technologies are extremely cost effective. The consumer fuel savings tend to be two to three times higher than the technology costs. And those findings are robust in that they stand up even in low fuel prices.

If ARB maintains 2025 standards, this will certainly help ensure that the U.S. auto market remains globally competitive as Europe, China and elsewhere continue to move forward with tougher standards for their markets.

Second, we've done extensive work analyzing the electric market -- electric vehicle market developments around the world. Clearly California plays in a central role as an incubator of electric vehicle technology. We found that San Francisco and San Jose are among the global leaders, with 6 percent and 10 percent of new vehicles in those markets being electric vehicles today.

6 to 10 percent new electric vehicle sales is essentially where the ZEV regulation would have us here in California by 2025. So clearly the market is developing much quicker than ARB had anticipated.

So as part of all this, the ZEV Program is certainly a critical catalyst. It increases model availability. It nudges automakers to develop and market the cars. It provides the timetable for infrastructure investments.

At this moment clearly it's important to look at 2030 policy. Costs are dropping. Great new electric vehicles keep entering the fleet. And long regulatory lead time is critical.

To close, California's role as an incubator is extremely important internationally. All of the collaborations with Norway, the Netherlands, Quebec are growing the global scale of ZEV technology. So thanks for all your great work. It's really important to see all these developments and make sure they do become global developments.

Thank you.

CHAIR NICHOLS: Thanks.

Hold on just a second. I think Dr. Sperling wants to say something.

BOARD MEMBER SPERLING: I want to just acknowledge that Nick Lutsey played a very key role back in developing the 2012 -- doing the technical work behind the 2012 standards. Brilliant work, and also happens to be one of my former students.

(Laughter.)

CHAIR NICHOLS: This is not a paid commercial.

(Laughter.)

MR. LUTSEY: Thank you, Professor Sperling. I was taught very well. I really appreciate it.

(Laughter.)

CHAIR NICHOLS: Thank you. Thank you for that.

Okay. Next up we have Chet France from EDF.

Mr. France was also involved at the time in the 2012 process, and brings that expertise to this discussion as well.

MR. FRANCE: Thank you, Chair Nichols and the Board. These are topics that are very near and dear to my heart.

On behalf of the Environmental Defense Fund and more than 2 million members nationwide, I thank you for the opportunity to speak today.

I want to offer our recommendations on the midterm review and the post 2025 clean car standards. We agree and support the staff's conclusion that the current model year 2022 to 2025 standards remain appropriate.

Given the substantial and compelling record, we recommend that the Board reaffirm California's commitment to the current federal standards. These standard -- these recommendations are based on extensive technical record that included multiple opportunities for public comment engagement and input.

The final determination in supporting analysis show automakers and suppliers are developing and deploying fuel-efficient technologies at a much faster rate than was forecasted in the 2012 final rule. And they're doing it as costs that are lower than projected in that rule.

The standards will be met with advances in conventional technologies such as engine and transmission improvements, lightweighting, and better aerodynamics. These improvements have come alongside a dramatic rebound in the auto industry. Vehicle exports are up. Sales are at an all-time high, and the industry has added over 700,000 jobs since 2009.

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MR. FRANCE: Though the technical record supports even more protected standards for 2022 to 2025, EDF believes that the better approach is to strengthen the standards for model year 2026 and beyond. Accordingly, we recommend that the Board direct the staff to begin work on strengthening the Greenhouse Gas and ZEV Program for 2026 and beyond.

EDF recently sponsored a study that examined reductions that may be possible in the 2030 time frame. Tom Cackette, who will follow me, who was one of the authors, will provide the Board with a separate presentation on the specific details of the report. Though as a general matter, it confirms the feasibility and cost effectiveness of deep CO2 reductions.

The major findings of the report are there are under-utilized conventional technologies available to further reduce CO2 emissions, the cost of lithium ion batteries is declining rapidly, widespread introduction of ZEV models is possible by 2030, and the availability of cost competitive ZEV technologies opens a technological pathway for all OEMs to achieve very large CO2 emission reductions.

This analysis provides strong technological, economic, public health, and environmental reasons for initiating work necessary to begin defining the post 2025

Clean Car and ZEV Program.

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MR. FRANCE: In conclusion, we recommend that the Board reaffirm California's commitment to the current 2022 to '25 standards and direct the staff to begin work on strengthening the Greenhouse Gas and ZEV Program.

Thank you for your leadership on these issues, and thank you for considering our comments.

CHAIR NICHOLS: Thank you.

Are you aware of any new studies or reports or other technical information that would call for a reopening of the midterm review?

MR. FRANCE: No, I'm not. And this has been a multi-year effort. I think it's more extensive than I've ever seen in my whole career.

CHAIR NICHOLS: Okay. Thank you.

Mr. Cackette, welcome back.

(Thereupon an overhead presentation was Presented as follows.)

MR. CACKETTE: Thank you. Appreciate the opportunity to share with you the study that Chet mentioned, which a colleague and I prepared for the Environmental Defense Fund. And that study is looking at the opportunities and the potential for achieving greater

CO2 emission reductions in the post 2025 standards, so -- future standards for the next five years or so.

I need to give you a little bit about the study and what we did. First of all, we used the tool that you used and that EPA used to do the TAR, the Technical Assessment Report, and the Preliminary Determination Report; and we made very few adjustments to it. We only extended its modeling domain from 2025, which was the purpose of this meeting, to 2030, and we used some updated information which showed that the -- in the 2030 time frame the cost of manufacturing a ZEV was going to continue to decline.

And we have a number of scenarios, but I'm just going to share just one with you.

So next slide please.

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MR. CACKETTE: So this is the -- this slide shows some of the key inputs and outputs that we came from the study.

As an input, this shows you the declining costs of manufacturing different types of ZEVs over time. So you can see right now we're up there in the, you know, $15,000 range. But you can see that by 2030, a hundred-mile BEV is cheaper to manufacture than an internal combustion engine vehicle. So this is the kind of -- this is important input that shows why ZEVs will be popular and effective in the future.

Click please.

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MR. CACKETTE: A couple study results. One is we looked at a scenario where there were no ZEVs available and how much conventional technology could do. And we found that you could do more than the 2025 standards but only in the range of 10- to 30-gram-per-mile reduction from the current standard.

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MR. CACKETTE: But when we let ZEVs come into the model for selection with these prices I just showed you, then you could go all the way to 90-grams-per-mile reduction, which is taking 173-gram standard and making it an 83-gram standard. So a very big reduction.

So next slide please.

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MR. CACKETTE: This is the results. And I'm going to -- follow the colors, if you would.

We looked at 10-gram increments. And so here's a 50-gram increment and a 90-gram increment, and -- next slide please.

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MR. CACKETTE: -- you can see that the costs are certainly there. There's a prices increase that the consumer would see. But you can also see that the fuel savings are two to three times as large as the capital costs of the vehicle.

Next slide.

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MR. CACKETTE: The payback period is five years. The average person keeps a vehicle for 6.5 years on a new vehicle.

And, finally, the number of ZEVs that would be in the mix to achieve these standards at 50 grams per mile is 21 percent and then 40 percent. So a big increase beyond what we have now but clearly feasible.

And final slide.

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MR. CACKETTE: This is a pathway from your staff that shows how many ZEVs you need to achieve the 80 percent reduction in emissions by 2050 that the Governor has set as executive order.

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MR. CACKETTE: And the next slide shows you where these two scenarios fall on the curve. If you achieve a 90 percent re -- 90-gram reduction by 2030, you're right on the curve towards the 2050 goal of 80 percent reduction from this sector. And if the number is less than that at

50, you could see that you're somewhat below the line and would have to play catch-up in the later years after 2030.

So thank you very much.

CHAIR NICHOLS: Thanks. Before you go, Dr. Balmes had a question for you.

BOARD MEMBER BALMES: I'm not going to take credit for you being my student. I think it was the other way around.

(Laughter.)

BOARD MEMBER BALMES: But I am going to ask you, since you were the one that suggested I buy a diesel TDI Jetta --

(Laughter.)

BOARD MEMBER BALMES: -- what have you done with yours?

(Laughter.)

MR. CACKETTE: Well, I have one and my daughter bought one two weeks before the announcement that they were going to -- they had cheated.

So we still have them, but we're both going to sell them back. And I'm buying an electric vehicle to replace it.

(Laughter.)

(Applause.)

BOARD MEMBER BALMES: I already have.

CHAIR NICHOLS: To allow you to rebuild your credibility here,

(Laughter.)

MR. CACKETTE: Please help me, Madam Chair.

CHAIR NICHOLS: Let me just ask you a question actually about your comment about the 100-mile BEVs. Because, not to speak for the manufacturers, but others have commented independently that they don't really see consumers making a big move to battery electrics -- full battery electrics with less than the 200-mile range. What's your opinion on that?

MR. CACKETTE: Well, that scenario that we presented included a 50 percent mix of 100-mile BEVs and the other 50 percent being 200-mile. And I don't really know what people are going to select. If 200 miles is, you know, a thousand dollars more than a hundred miles, you know which one you're going to buy. But if there's a bigger price difference, I think there will be some sales of lower ones for urban use as a second car - that's kind of what we're doing with all the Leafs that are out there now, for example - and other people that want to try to make this vehicle as primary vehicle will go for the 200 miles and pay the extra money. So I think it will be a mix.

And we didn't show any plug hybrid electric vehicles in there, because they're actually a more expensive choice for manufacturing. But from a consumer standpoint, a lot of people that want one car are going to go for the Volt-like vehicle and use it urbanwise electric. And so I think there will be a mix of those as well.

CHAIR NICHOLS: Thanks.

Okay. Rasto Brezny from MECA.

DR. BREZNY: Good morning, Chair Nichols and members of the Board. I'm Rasto Brezny, the Executive Director for the Manufacturers of Emission Controls Association.

MECA members supply the many technologies that allow light-duty vehicles to comply with both the greenhouse gas and the criteria pollutant requirements under the Advanced Clean Cars program. These include things like fuel injection, turbochargers, all the way out to 48-volt technologies, and the types of catalysts and filters that are required for these different powertrains to achieve criteria pollutant requirements. So we agree with staff's conclusions and their recommendations.

So I want to focus on an area where we feel that more can be done sooner. And this is in the area of PM reduction.

PM -- we know that PM is really not just an inventory issue. It's also a health issue; it's a climate issue with black carbon; and its a toxics exposure issue as well.

So, you know, we expect that by 2025, half the new vehicles made are going to come equipped with the gasoline direct-injected engines. So we've spent a lot of time characterizing the PM from these vehicles, and we know that the GDI PM is very similar to the diesel PM. It has many of the same components, as well as the black carbon that's contained.

Other parts of the world have chosen to address this change in fleet mix by establishing particle number standards. And Europe will adopt these in 2017, later this year; China, in 2020; and India, in 2023. The particle number standard is roughly equivalent to half a milligram per mile.

So you see that the same manufacturers that sell cars in California are going to have to comply with much tighter PM standards in other parts of the world sooner than 2025.

So we've -- numerous studies have shown that, you know, these low PM levels can be achieved either through better fuel injection technology or gasoline particulate filters. And there's a number of vehicles on the road today that are exceeding the one milligram standard.

So catalyzed GPFs go a step beyond that by not only reducing the black carbon, but also the toxics and other compounds that are associated with the PM by over 90 percent, with no impact on CO2 or fuel economy.

So we'd like to work with your staff to look at voluntary incentives that could be used to incentivize this best available control technology here in the U.S. through a modest CO2 credit for achieving the one-milligram standard sooner by putting on the best available control technology on these vehicles.

Thank you.

CHAIR NICHOLS: Thanks.

Mr. Noyes.

MR. NOYES: Good morning, Chair Nichols, members of the Board. My name is Graham Noyes. I'm the Executive Director the Low Carbon Fuels Coalition. We're an organization dedicated to the support and expansion of low carbon fuel policies.

We provided detailed written comments for the record. I will move through them quickly, but would recommend those for any points that are raised here that you'd like to look at in more depth.

And we come forward neutral. We certainly recognize the great work by staff that went into this report and the very -- excuse me -- challenging situation that we're in -- sorry, I've got an allergy raising here.

California's plan relies upon EPA's final determination in NHTSA. But when Senator Chao and -- Secretary Chao and Administrator Pruitt signed the notice of intention to reconsider the final determination of greenhouse gas standards for model year 2022 through 2025 light-duty vehicles, that was a game changer. And we recommend to staff and to the Board to recognize that that was a game changer. The automakers are effectively on a five-year time frame, and so 2022 is today from that perspective. We've now seen the federal process open. And the midterm review itself recognizes that the findings would likely be different if the stringency of the national greenhouse gas standards were substantially changed.

So our recommendation is that the Board keep the Advanced Clean Car rule -- the midterm review open, and establish a return to the Board to discuss what's happening on the federal front, so that California can remain nimble on its feet and be aware of what's happening with the changing federal landscape here.

We also recommend that California build flex fuel vehicles and mid-level ethanol blends back into its policy program. Those have proven to be very successful in terms of reducing petroleum dependence and also delivering greenhouse gas reductions. We've seen the carbon intensity of ethanol drop to about 20 percent less than gasoline. Of course ethanol substitutes completely for gasoline as a fuel. So to achieve those two goals California's invested millions in a network of E85 stations and 20 million gallons of E85 was delivered last year into California vehicles. Those vehicles provide reductions in disadvantaged communities, as is required by AB 197, so it's an on-the-ground solution. And as NREL has said, FFVs can provide a bridge between our current situation to the future realm of new vehicles.

So our specific recommendation is for the Board to receive an update in three months that includes a review of integrating a flex fuel vehicle/mid-level ethanol blend component into the Advanced Clean Cars rule. And our perspective is that in a dynamic federal landscape, California's going to need to be both tough and flexible to achieve its goals.

Thank you.

CHAIR NICHOLS: Thanks. Tough and flexible. Sounds like a pretty good mantra.

Ken Morgan. Morning.

MR. MORGAN: Hi.

Chair Nichols, members of the Air Resources Board. Thank you for the opportunity to speak here today.

My name's Ken Morgan. I'm with Tesla.

And I guess I'll just start by saying we're very excited to be launching our Model 3 vehicle this year. That's a car that is fully electric, zero emission, $35,000, with over 200 miles of range.

And just a quick note on market acceptance. With that vehicle, within the first two months of announcing unveiling that car, we received 373,000 deposits worldwide. And many of those deposits were from California customers. So the market is certainly there for the right type of vehicle, and we're looking forward to getting that off the production line.

And just a quick note on the midterm review. Clearly this is a very critical moment in the history of the ZEV movement. And certainly your decision here today will have an impact, and the guidance you provide will have an impact on the next decade of investment by the automotive community in this technology. And we know this because the federal regulations, Greenhouse Gas Cafe, can be met with incremental improvements to existing combustion engine technologies. So it really is the -- California's regulation that is driving these near-term investments in pure zero-emission technology, and that's why it's so critically important. And certainly also important to hitting some of the emissions goals that were outlined by the staff earlier.

As Anna mentioned during her presentation, in terms of the technical assessment of the trajectory of the ZEV mandate -- and I do just want to recognize briefly that the staff has done a fantastic job with the technical review of the ZEV regulation. But she mentioned staying the course. And so I think it's just important to note that the course that was set in 2012 was 15 percent of sales by 2025. And so if we choose to make no change to the regulation, in fact we are setting a new course that's been reviewed by both staff and other folks that have run this analysis, that's about half of that trajectory that was anticipated when the credit targets were set in 2012.

So we certainly feel that it's really important to look at this credit oversupply and to make a decision to amend the regulation as soon as possible to get us back on track to hit some really significant milestones by 2025, such that we are on an upward slope towards that 2030 goal.

As the staff have outlined in their scoping plan update, we need something in the order of 4.2 million plug-in cars by 2030 to hit the state goal of 40 percent GHG emissions reduction. But the current trajectory of the regulation only gets us to 1.2 million by 2025. So it's pretty heavily backweighted today, and I think that does put the 2030 goal at risk. So we certainly would recommend that the Board take some near-term action as quickly as possible to address the oversupply of credits.

Thank you.

CHAIR NICHOLS: Thank you.

MS. HOLMES-GEN: Good morning, Chair Nichols and Board members. Bonnie Holmes-Gen with the American Lung Association in California; and also a proud ZEV owner of over three years.

California's leadership on clean cars is providing tremendous returns in health and clean air benefits, not just for California but for all the ZEV states and indeed around the world. We have been pleased that the American Lung Association be able to quantify those benefits in own report, Clean Air Future, that we released last fall. And I wanted to just talk for a moment about some of those health benefits.

Our report finds a widespread shift to zero-emission vehicles in all the ZEV states, a shift that builds on our current ZEV regulation, Advanced Clean Cars, and ramps up to 65 percent of ZEVs in our fleet by 2050 would bring tremendous health benefits. And this would bring benefits to millions of people in all of our states. The public right now is bearing a huge cost, billions of dollars annually in health expenses and climate damage from our dependence on petroleum fuels.

Or to bring it down to a more personal level, for each 16-gallon tank of gas we're burning, it costs society about $18.42 in health and climate impact costs. This is a very conservative estimate and only looking at the passenger vehicle sector. So moving to zero emission, it's going to dramatically reduce these costs and increase the benefits to public health.

Here's the bottom line. A robust ZEV Program in 2050 would result in over 90 percent reduction in emissions that generate smog and soot from vehicles, around 85 percent reduction in health impacts, and more than a 50 percent reduction in greenhouse gases from passenger vehicles compared to 2015, which is similar to taking all the cars off the road in the Northeast states. And this adds up to a savings of over $33 billion. And that's 20 billion in health savings alone across the zero-emission vehicle states.

This is an enormous advance for public health. We can break it down and look at:

Reductions in asthma attacks. 96,000 fewer asthma attacks.

Reductions in lost work days and reductions in premature deaths. Over 2,000 fewer premature deaths.

We have all this data. We've shared it with you.

But I want to make sure that we've brought it into clear focus today as you're looking at this important regulation and determining the future.

To conclude, please direct the staff to move forward quickly now, to build on the next phase of Advanced Clean Cars and Zero-Emission Vehicle programs to keep us on track to meet our climate goal and realize these tremendous health benefits. And please keep the particulate matter controls on track as staff is recommending.

Thank you very much.

CHAIR NICHOLS: Thank you.

Eileen Tutt.

MS. TUTT: Chair Nichols and members of the Board. Good morning. My name is Eileen Tutt. I'm with the California Electric Transportation Coalition.

I'm not going to repeat anything that's in our letter. We completely support the staff recommendation specifically regarding the ZEV part of the program. And we're really happy to be working with them throughout the whole process. So we found them to be, as usual, very pleasant and responsive to work with.

I do want to just point out something because I didn't see it really highlighted in Anna's presentation; and you'll not be surprised to hear me say this. The ZEV

Program is on track and we're glad you're going to keep it on track hopefully. We are -- California is clearly committed to zero-emission vehicles. But probably the number one threat to the continued market acceleration beyond even the rates we're at today is the fact that we just don't have a reliable incentive program in place. And so we really, really need that. And I'm worried about the federal incentives. Actually I'm worried about much more than that. Federal government.

(Laughter.)

MS. TUTT: But I also -- I just think it ought to be a no-brainer that in California we would have a reliable incentive program. So I just hope that you have not forgotten that, and I'm sure you won't.

But I want to say, so thank you for your consideration, and I hope that today turns out the way I think we all hope it will turn out.

BOARD MEMBER SPERLING: Can I ask a question?

CHAIR NICHOLS: Yes, go head.

BOARD MEMBER SPERLING: What do you mean by a reliable incentive structure? What would that be?

MS. TUTT: Well, we have a budget proposal. So thank you, Dr. Sperling, for asking that question.

(Laughter.)

MS. TUTT: I think what we would like to see ideally, not just for light-duty vehicles but for medium- and heavy-duty vehicles, we would like to see 650 million appropriated annually for the next five years either from greenhouse gas reduction fund - so we definitely need to reauthorize cap and trade - and/or through some sort of tax incentive structure. That's our proposal. And I'm -- I will actually make sure you get a copy of it.

BOARD MEMBER SPERLING: Thank you.

CHAIR NICHOLS: Okay.

MR. HOUGH: Good morning, Chair Nichols and Board members. I'm Merlyn Hough. I'm director of Lane Regional Air Protection Agency in Lane County, Oregon. Lane County is about the same size as Connecticut. But we --

(Laughter.)

MR. HOUGH: But we don't have level 2 chargers every 20 minutes yet.

(Laughter.)

MR. HOUGH: We were formed in -- we're a local air agency formed in 1968 under the Oregon statutes. I won't repeat the written comments since it's really just repeat -- supporting many of the things already said. We strongly support the ARB staff recommendations. We're very encouraged by the midterm evaluation and the midterm review by EPA and the national highway traffic safety folks and Air Resources Board. We're encouraged that there's even more technologies available for manufacturers to meet the 2022-2025 standards; more than we expected back in 2012 and at similar or lower costs than estimated back there.

I've also provided copies of more detailed comments by the National Association of Clean Air Agencies, so that's in the record. And as already been stated, you know, the ZEV portion of your midterm review is not just important for meeting California's goals but also for the multi-state ZEV Action Plan states, the Section 177 states that's been discussed already.

I'm also a member -- Lane Regional Air Protection Agency's also a member of Drive Oregon, and I could try to respond to that question from earlier. Leah Feldon and Dave Nordberg from Oregon DEQ and I put our heads together. There's so much happening with Drive Oregon. Several initiatives in the Oregon legislature. But we decided you were probably asking about the showcase center that's being planned for downtown Portland. That's part of a $1 million grant from U.S. Department of Energy, a multi-faceted outreach program. But that storefront center is intended to complement the Electric Avenue that's downtown already. There's several quick charging and level 2 stations that are available right down there by the Portland General Electric offices. That's the other P.G.E. on the West Coast. And that is to provide brand neutral sales folks able to provide ride and drive opportunities and also long-term electric vehicle rental and provide complete and balanced information as a major part of that outreach. So if that was --

CHAIR NICHOLS: That was the question. It was, yes. Thank you.

MR. HOUGH: So thank you for this opportunity. And please keep up all your good work. We're very appreciative of what you have done over the years. You've reduced vehicle emissions and increased fuel economy. It's -- you know, whether you're talking air toxics or ozone precursors or greenhouse gases, transportation emissions are a big deal.

Thank you.

CHAIR NICHOLS: Thank you.

Okay. I was just handed another whole page of people who want to comment, so we'll move along.

MR. SHUMAKER: Good morning, Chair Nichols and members of the Board I am Cory Shumaker, Project Coordinator of the California Hydrogen Business Council, a California industry trade association with a mission to advance commercialization of hydrogen in transportation and stationary applications to reduce greenhouse gases, criteria pollutant emissions and dependence on oil.

The California Hydrogen Business Council would like to voice its strong support for continuing California's commitment to bring 1.5 million zero-emission vehicles on California's roads by 2025, supported by strong policies like the ZEV mandate. The CHBC sees California's leadership as essential in accelerating the transition to electric vehicles, including fuel cell electric vehicles, which reduce air pollution and improve public health specifically in disadvantaged communities.

The hydrogen and fuel cell community is showing strong economic growth, stimulated by the policy framework developed through California's commitment to clean and emission-free technology for transportation and other industry sectors.

The CHBC strongly encourages the Board to look beyond the 2025 standards and start developing policy recommendations especially for zero-emission vehicles and infrastructure support for the post 2025 time frame.

Thank you.

CHAIR NICHOLS: Okay. Thanks.

MS. REYES: Good morning, Chair Nichols and members of the Board. I'm Susana Reyes with L.A. Mayor Eric Garcetti's Sustainability Team.

On behalf of the mayor, I am here to thank you and your staff for the wonderful report. And I am here to voice his support for your determination of the appropriateness of the Clean Car Standards Midterm Review.

Los Angeles has a long history of some of the greatest air quality challenges in the nation. Yet we have come a long way, due in part to the work of the Air Resources Board, and for that we are thankful. This progress must continue. The mayor is absolutely committed to clean vehicles. He has required that at least 50 percent of our annual city fleet procurement be pure battery electric.

We have ensured that Los Angeles Department of Water and Power offer generous residential and commercial rebates for its charging stations. There are 1300 publicly available charging stations throughout the city, beating our 2017 goal of 1,000. And we have partnered with your agency to launch a new low income EV car share in Los Angeles, and the grant will enable the disadvantaged communities to access clean, pure electric battery cars and to take advantage of 200 charging stations in the pilot areas by the end of this year.

But L.A. is not alone in its commitment to clean vehicles. With 29 other mayors across the country, Mayor Garcetti recently issued an EV Request for Information, and this EV RFI demonstrated to OEMs and manufacturers that these 30 cities have over 114,000 vehicles that could be electrified, representing over $10 billion in potential investment in EV sedans, trucks, and vehicles of various types. We have received 37 responses to the RFI so far. And that's a very encouraging sign that we can make this happen.

So we applaud the Air Resources Board's efforts to improve air quality and reduce greenhouse gas emissions through increasingly robust clean-car standards that keep California at the forefront of environmental protection and innovation.

Thank you for this opportunity.

CHAIR NICHOLS: Thank you. Thanks to the city of Los Angeles for all you guys are doing.

MS. PHILLIPS: Kathryn Phillips with Sierra Club California.

As you can imagine, we're very disappointed by what we're seeing at the federal level; so today, feels very warm and welcoming. And we want to thank for continuing your commitment to clean air and the ZEV Program.

One of things that has helped prevent the level of ZEV adoption that everything else points to meeting to happen and that should happen and that could happen is the actions by the automakers and the dealers themselves in their lack of applying best practices in this sales of vehicles.

Recently, last spring Sierra Club volunteers -- Sierra Club put together a report where we basically did a shopping experiment. And 174 volunteers around the country in the ten ZEV states visited 308 dealerships. And some of the things they found are pretty discouraging. When you consider how much effort has gone into making sure that the technology is right, we still have not been able to rely on the auto dealers and the automakers to work as well together as they need to to sell these vehicles and make them available.

Nearly half the time EVs were not prominently displayed or were often hard to find. They were hidden some place on the lot if they were there at all. Sales people failed to mention state and federal incentives, and those can be a big draw for EVs.

Some of the cars couldn't be test driven because they weren't charged. That was in 14 percent of the cases. When you're talking about 388 dealerships -- rather 308 dealerships, 14 percent is pretty high. Can you imagine going in to drive a gasoline-powered SUV and them saying, "I'm sorry, we don't have any gas in it. You can't try it"?

(Laughter.)

MS. PHILLIPS: Only half the time sales people told these shoppers how to charge the vehicle while traveling. So they were left with the impression that you either had to stay in your neighborhood or be at a big disadvantage.

Another interesting thing is that the dealers themselves had complaints. Sometimes the automakers charge these certification fees. Some automakers don't charge them. But one dealer complained about being charged $50,000 to do -- for a certification fee. So because of that we wouldn't carry EVs.

So I think, in conclusion, that the automakers and the auto dealers themselves can do a much better job of making sure that these vehicles sell.

Thank you.

CHAIR NICHOLS: Thanks.

We have -- excuse me, before you speak. We just got one more card in. And I think that's it, we're going to cut off any additional witnesses at this point. We've got a robust discussion here.

Thanks.

MS. ADAMS: Hi. My name is Kitty Adams. I'm the Executive Director of Adopt a Charger. And I'm grateful that I can be here today to thank CARB for the ZEV mandate. I want to encourage you to continue this work, you know, beyond 2030.

And I also wanted to just comment because -- in response to some of the automakers' presentations specifically about range anxiety. I'm on the front lines of trying to sell cars, and I really hear more about lack of appropriate body style than range anxiety. I jokingly say to people when the Ford F-150 comes with a plug, I can retire because these cars are going to sell themselves. So I just want to make sure that we encour -- do everything we can to encourage the automakers to offer zero-emission vehicles across the whole range of their offerings.

And also too is really alarming for me to see the presentations from Connecticut and Maryland and Massachusetts and -- where they have -- they're participating but they don't have the cars to sell. So if there's anything California can do to force the issue and make the automakers make these cars available in all 50 states, I think that would be a very advantageous direction to move in.

Thank you.

MS. HOLMES: Good morning. I'm Laurie Holmes, Senior Director of Environmental Policy for Motor and Equipment Manufacturers' Association, or MEMA.

MEMA represents more than 1,000 companies -- motor vehicle companies that supply motor vehicle companies -- sorry -- 1,000 companies that supply motor vehicle components for use in the original-equipment and aftermarket industries.

Motor vehicle suppliers play a significant role in developing innovative materials technologies that improve vehicle performance, fuel efficiency and emissions, and are committed to environmental policies that enable the introduction of new technologies.

MEMA supports ARB's continued alignment with the national program by maintaining that deem-to-comply provision allowing for compliance with the adopted EPA greenhouse gas national standards. This deem-to-comply provision is extremely important to the success of the national program.

MEMA strongly supports consistent greenhouse gas standards at the state and federal level and urges California to continue to focus on collaborating with EPA and NHTSA on a harmonized true national program. A harmonized national program provides long-term regulatory clarity and certainty that are critical for suppliers to make the necessary long-term business and technology investment decisions.

MEMA supports the conclusion of ARB to maintain the phase-in of the 1 milligram per mile PM standards starting in model year 2025. Maintaining that standard provides regulatory certainty necessary for MEMA's members to commit the requisite research and development to assist manufacturers in meeting future regulations cost effectively.

As we've also heard in the other comments, MEMA urges ARB to provide further flexibility in the ZEV mandate. So further flexibility for the plug-in hybrids by allowing OEMs to comply with more PHEVs than what is currently allowed in the regulations through model year 2025. MEMA believes that PHEVs can serve as the successful transition to ZEV technology by appealing to a broader market, especially under the current market situation.

MEMA would also support ARB working with industry to develop an additional test cycle similar to the one described in appendix H to measure PHEV tailpipe criteria emissions more thoroughly. This additional test cycle could then be used to provide additional ZEV Program performance-based credits that incentivize tailpipe criteria emissions controls technology for PHEVs, which would provide incentives that would move the ZEV Program to more fair, balanced, and performance-based driven standards and solutions.

Thanks for your time.

MR. BOESEL: Good morning, Chairman Nichols and members of the distinguished California Air Resources Board. My name is John Boesel. I'm the President and CEO of CalStart.

I want to make clear it's Boesel, not Boesella.

(Laughter.)

MR. BOESEL: We are a national nonprofit organization working to build the clean transportation technologies industry as a strategy to produce -- provide high quality jobs, improve public health, and prevent global warming. Though our members are working on a wide array of technologies and fuels, they all share a common belief that innovation can solve our challenges.

I'm standing here today to strongly endorse the staff recommendations while wishing their was an opportunity to do even more.

Looking back to 2012 when the Advanced Clean Car Programs was adopted, it's impressive to see how much progress and innovation has occurred, in large part due to joint policies of the ARB, EPA, NHTSA, and the Section 177 states.

I want to describe the progress and why we support the staff recommendations with the following four points:

First of all, California is now the home to three emerging light-duty electric vehicle manufacturers;

Faraday Future, Karma Automotive, and Tesla Motors. These companies are here because California is where the action is and because of ARB's policies. This is also where a lot of great talent is.

Tesla is now the largest manufacturer in the State of California, period, end quote -- or stop -- hard stop.

(Laughter.)

MR. BOESEL: Tesla has 22,000 employees in its combined operation with Solar City in the state of California. There are a lot of other states that would kill for -- to get those job.

Charge Point, the nation's largest EV charging company, is also based here in California.

California is also home to the U.S. headquarters and operations of BYD, who presently focus on electric buses and trucks in the United States. BYD was the largest manufacturer of electric cars in the world in 2016, and submitted a letter yesterday strongly endorsing the staff's recommendations and the ZEV targets.

Since 2012, when the program was announced, it's also been very exciting to see how the global automobile industry has moved in mass to Silicon Valley. Not including Tesla or your traditional mechanics and dealer jobs, there are probably 4,000 new jobs related to the automotive industry in the Silicon Valley alone that have occurred since 2012.

Secondly, the ZEV technology, the technology has improved incredibly since 2012. We've seen basically the same battery pack in the -- at the same price in 2012 is now -- and you can go from 75 miles to 230 miles in that same pack. I want to give General Motors a lot of credit for what it's done.

Also, per -- a study we did on Tier 1 suppliers -- shoot.

(Laughter.)

MR. BOESEL: They are very committed to investing in the future of technology.

So let me just wrap it up even though I had a few more points, which I'll submit in writing, is that we see at least four OEMs right now between Faraday Future, BYD, Volkswagen -- or at least three willing to say that they support the standards. And that was something that was very different from 2012.

And then some very strong comments by BMW CEO basically saying that by 2025 they see 15 to 25 percent of all sales being electric vehicles, which is basically an endorsement of the standard as well.

Thank you very much.

MS. KINMAN: Good morning. If only that dolly were as smooth a drive as my EV, I'd be in a good spot this morning.

My name is Michelle Kinman, and I'm the clean energy advocate for Environment California Research & Policy Center. And I'm very pleased to present some of the more than 10,000 petitions that Californians all across the state have signed expressing strong support for the ZEV mandate. These petitions were gathered by organizations representing the environmental, public health, scientific, consumer, and faith communities, including the American Lung Association in California, the Coalition for Clean Air, CalPIRG students from UCLA and UC Riverside, California Interfaith Power & Light, Plug In America, Sierra Club California, the Union of Concerned Scientists, Environment California.

This diverse set of voices is united behind the following petition statements, quote: Yes, I want more zero-emission vehicles on the road and support strong policies like the ZEV mandate that will lead to at least 1.5 million ZEVs on California's roads by 2025. By accelerating the transition to electric vehicles we can clean up our air and improve public health, especially in our most disadvantaged -- or, excuse me -- polluted communities; reduce global warming pollution; save Californians money at the pump; and stimulate economic growth, end quote.

I would like to thank the ARB for your long leadership on clean vehicles. Now more than ever, with the administration in DC threatening to put the brakes on cleaner vehicles, your continued leadership is essential, and we urge you to enact more stringent standards now and in post 2025.

On a separate but complementary note I would also like to present a letter prepared by my colleagues at Environment America to President Trump and signed by more than 1100 public health professionals nationwide urging the administration to make climate change a top priority, including, quote, ensuring that the U.S. maximizes reductions in automobile pollution and fuel consumption by setting the strongest possible fuel economy and greenhouse gas standards for automobiles, while encouraging policies and incentives for zero-emission vehicles to fully transition our transportation sector to zero carbon pollution, end quote.

So I think you can see that you have a lot of different constituencies that have your back on accelerating the transition to a zero-emission vehicle future.

Thank you.

MS. DRUFFEL: Good morning, Chair Nichols and

Board members and ARB staff. I'm here on behalf of the faith community. I am Allis Druffel, and I work with California Interfaith Power & Light. And I am here for the strong recommendation for the ZEV mandate, for it to be kept as strong as possible.

I'd also like to say to the auto industry representatives in this room: Thank you so much for your strides in creating fantastic vehicles that clean our air, save money at the pump, and strengthen our economy.

And at the same time, to the industry representatives and ARB: Automakers are challenged to continue their excellent process in creating cleaner vehicles. Do not turn back based on temporary low gas prices. We have to remember why we are here right now. We are here because we are in a planetary crisis. People are actually suffering from multiple illnesses and dying. We have 5200 premature deaths in the South Coast air quality alone due to poor air quality. So we're at a crux here when we recognize that the planet is in crisis and that there are far too many people that are sick and dying from pollution sources.

So ARB and industry: We need you really badly right now. You have the technology, the know-how, the committed wonderful workers to make a cleaner California and nation happen.

And I'd just like to include that Interfaith Power & Light is in 40 states and the District of Columbia, and we are actively advocating to our members about consumer demand for electric vehicles and for the installation of charging stations.

And I have 400 more petitions here in this bag, whoever wants it.

So --

CHAIR NICHOLS: Give them to the clerk please.

MS. DRUFFEL: Okay. Great.

Thank you so much.

MR. LEWIS: Good morning, Chair Nichols and Board members. My name is Mike Lewis. I'm with Pearson Fuels out of San Diego. Some of you may have heard of us. But a real quick rundown.

We started, we built a gas station, a fuel station in San Diego back in 2003, 14 years now. And it had a lot of different alternative fuels, first time in a lot of places. We had biodiesel, we had propane for vehicles, two pressures of natural gas, six electric chargers in E85. The first E85 pump on the West Coast in the United States. And that station struggled very badly for -- in fact, it lost money for seven years in a row. And one of the things that kept us going was that several years into that the Air Resources Board came up with a program to promote alternative fuel infrastructure around the state. And we ultimately got I think $1.3 million to build E85 sites around the state. And then we went on to get funding to build a couple biodiesel terminals. We've helped develop a hydrogen station; I have few more in the works. We got some funding from the Air Resources -- or from California Energy Commission to build more E85 sites. And now we have -- we supply 88 E85 stations around the state of California.

And it works. We have major gasoline station chains contacting us. We -- to do E85. We -- the public buys a lot of E85. We have a record number of stations, record number of volume sales almost every month. And it's been very successful. We've opened seven this year already. 2017 we've opened seven, including San Bernardino, Fontana, Fresno, Chula Vista. A lot of these locations are in the -- they score highly on EnviroScreen, as they're supposed to with AB 197. And they don't cost any more, the vehicles don't cost any more, so the consumer doesn't have to pay any more for the vehicles and oftentimes saving money on the fuel.

And so what I want to recommend to you is that you reconsider in the midterm review the greenhouse gas conclusions. Because obviously, God knows what the feds are going to do, and you don't want to leave it all in their hands. And I would suggest to you that the state's invested $15 million building E85 sites. And I thought as a gas station owner I was doing what I was supposed to. Because it was my -- the funding that you guys put there initially that kind of kicked it off. And I'm not asking for any more funding. The E85 industry doesn't need any more funding, and the self-sustainable it has about a 20 percent greenhouse gas reduction. And I'd ask you to keep that midterm review open so that flex fuel vehicles could continue to be incentivized or at least not disincentivized.

Thank you for the time.

MR. LEVIN: Good morning. My name is Joe Levin, and I'm the Executive Director of Plug In America. We're the national voice of the EV driver. And I'm here to make sure that the voices of EV drivers in California, in the other ZEV states, and all over the country are heard in today's discussion.

The basic truth is that electric drive is a better way to move cars around and that people love these cars. They like the way they drive. They like the convenience of being fully fueled each morning and never having to go to the gas station. They like not having to think about maintenance. They like keeping their fuel dollars local, instead of sending them half way around the world. And they like keeping their air clean when they drive.

People want to buy these cars.

The main complaint that we hear about these cars is that the availability is so limited in much of the country. More than 30 models are now available in California. But in many states you can find only a handful of electric vehicles.

We've put on dozens of ride-and-drive events around the country. But outside of California we have a chronic problem of finding enough cars for our events. People show up. They want to test drive EVs. And sometimes there are not enough cars for the demand. People wait around and then after 30 or 45 minutes they give up and they go home. So that's another reason we feel very strongly about keeping the ZEV rule strong.

I have in my hand here letters from 88 mayors and city council members from most of the major cities in the other ZEV states. Because we have a short time, I won't list all the cities, but there's 88 cities. And I also have letters from 32 different state legislators from all of those states. These have all been submitted already into the record.

And these are people that represent literally millions of their constituents that are asking for a stronger ZEV -- a strong ZEV rule that will put more electric vehicles on the streets of their cities and make them more available for their constituents so they can buy or lease them.

So I'm happy to make sure that their voices are heard here today. And I want to support the staff recommendations. I hope that you do as well, and make sure that these cars are available for people to purchase everywhere.

Thank you.

MS. PIERCE: Good morning, Chair Nichols and members of the Board. I'm a member of an EV club, the Electric Vehicle Association of Southern California. When I moved to Orange County from out of state in the late spring 1979, I kept getting lost on the freeways. Friends kept telling me to get my bearings; remember, the mountains are to the north. I kept looking at them. Mountains? What mountains?

About eight months later, after some heavy rain, I finally saw the mountains. They were beautiful.

The smog was always so bad back then, the mountains were hardly ever visible. Thanks in part to emission restrictions, that is no longer the case.

In 1989, I moved to the Inland Empire with my youngest -- when my youngest daughter was less than a year old. I felt a lot of guilt for that move when she developed asthma. We could liter -- from where we lived, we could literally watch as the smog rolled in from L.A. throughout the day.

My older girls in school had to forego outside activities on those smog days when the air was deemed unhealthy. It happened a lot when they were younger. But as the years progressed, it happened less frequently.

We all know that the Southern California region has some of the worst traffic congestion in the country. The emissions from all that traffic causes so much health problems to everyone. Placing restrictions on emissions reduces the brown air and the health problems.

The easiest way to reduce emissions is to drive -- the easiest way to reduce emissions is to drive zero-emission vehicles. The requirements that California has developed over the years to ensure reduced emissions has had a positive effect not only in California, but across the country and even the world. More countries are developing zero-emission vehicle requirements due to the advances in technology developed because what California started.

Please do not regress in this fight. If zero-emission policy is abandoned, or emission requirements are relax, the air will once again be brown every day and overall health of residents will decline. If we lose site of California's zero-emission goals, we will also fall behind in technological advancements that countries like China are developing.

I drive a 2012 Leaf -- Nissan Leaf and it's so fun to drive. It is quiet and fast off from the stop. When I first got my car, there were not a lot of choices. Thanks to all the progressive California rules, there are many zero-emission vehicles available now and more developed all the time. Please keep moving forward. Don't go backwards.

Thank you.

(Applause.)

CHAIR NICHOLS: Thank you.

DR. REICHMUTH: Chair Nichols and members of the Board. My name is David Reichmuth and I'm speaking on behalf of the Union of Concerned Scientists. And thank you for taking the time today to listen to myself and all the other stakeholders that have come here today.

I'd also like to thank staff for their work on the midterm review. It's a comprehensive document. It's technically sound, and it will serve you well as you make this decision on how to proceed with the ZEV regulations.

We support the staff's recommendations in the midterm review to remain -- to keep the Advanced Clean Car

Program as is through 2025. We submitted detailed comments on this, so I just want to hit just one or two items to pull out from those comments.

Staff recommends making no changes to the ZEV Program in California and the 177 states. We agree. The ZEV Program has been successful in bringing zero-emission vehicles to the state and giving many Californians the option to buy a cleaner and, frankly, better alternative to a gasoline vehicle.

Now, in the comments submitted some of the automakers have suggested that changes are needed to the program especially regarding implementation in the 177 states. They point to the lower sales in the East Coast 177 states as compared to California, showing the inability to sell these ZEVs on the East Coast. This ignores several important factors under the control of automakers, the most important being ZEV model availability and ZEV inventory availability.

In part due to the travel provision as we heard from the representative from Massachusetts, some automakers have not sold certain ZEVs on the East Coast. One example is the Fiat 500E BEV, which is available only in California and Oregon, despite the fact that it's sold over 5,000 units here in California the last three years.

Other models have substantially lower inventory available. So they're technically available in the 177 states on the East Coast, but functionally they're unavailable.

We at UCS did a study on this issue. We found that when you looked at the availability in different cities, there are stark differences. In Boston there's about 90 percent fewer ZEVs on average available than in the Oakland Bay Area.

And that is includ -- that's -- that holds even when you take into account the differences in vehicle ownership between these cities.

Simply put, car buyers can't buy cars that aren't there, and they won't consider those that they can't see and test drive at dealerships.

Now, we also agreed that staff -- that ARB should ask staff to begin the process of developing ACC standards for post 2025. We know that we're making progress in reducing emissions, improving air quality. But that progress needs to not just continue, but it needs to accelerate after 2025.

California has clear targets for lower emissions, and the ARB should start the work of bringing all stakeholders into the process of designing policies to achieve those goals.

Thank you.

CHAIR NICHOLS: Thanks.

MS. HEARTQUIST: Hello. My name is Christina Heartquist, and I'm speaking today on behalf of Jack Gillis, auto expert and author of the Car Book, and Mark Cooper, Director of Research, both of the Consumer Federation of America, a national association of over 250 nonprofit organizations working to advance the interests of American consumers.

For consumers, California's Clean Cars Program saves money and strengthens local economies. So the Trump Administration's decision to rescind EPA's final determination on fuel economy standards makes California's clean car leadership more important than ever. The work you do is federalism at its best.

California's current standards are anchored in a joint agreement reached by automakers, Washington, and Sacramento; and CFA urges CARB to stay the course. Because 12 other states and the District of Columbia have adopted California's standards, your decision today will affect whether 113 million Americans will be able to buy cleaner cars, save money at the pump, and breathe cleaner air.

Most importantly, consumers strongly support what CARB has been able to accomplish. At CFA our polling consistently shows that the overwhelming majority of

Americans - Republicans and Democrats - from the nation's heartland to the coasts - supports making cars run on less gas and pollution because it drives savers money -- it saves drivers money.

Under the Clean Air Act, California and the other clean car states have the right to set their own standards and protect their own air quality. This is an important right, has been recognized for decades, and has been protecting both lungs and pocketbooks ever since.

These 13 states and the District of Columbia represent some of the most vibrant economies in the country. When consumers can spend less on gas, they spend more on local goods and services. This builds the economy and communities across the nation instead of exporting money to out-of-state and foreign oil interests. Clean car standards have generated economic growth in jobs across the nation by spurring the development and manufacture of advanced efficiency technologies, and California's zero-emission vehicle program has driven development of some of the cleanest cars on the planet.

For consumers, ZEV makes it possible to disengage entirely from the volatile oil market and avoid stopping at the gas station ever again.

Years of analysis and input from automakers, advocates in governments, and other stakeholders have shown that current clean car standards are achievable and cost effective for automakers and consumers. Our work at CFA backs up these findings.

We have exhaustively studied the economics of clean cars and there is absolutely no question that from the perspective of individuals, families, and businesses that buy or lease, car owners benefit from the minute they drive off the lot.

As we'll clearly demonstrate in our written testimony, robust clean vehicle standards are good for consumers. Without strong state leadership from California and the states that have adopted CARB standards, consumers will be saddled with less efficient, more costly, and greater polluting cars and trucks. With California's leadership, these 113 million Americans will save gas, money, breathe better air, and have access to a broad array of cleaner, more efficient vehicles.

On behalf of consumers across America, the Consumer Federation of America urges CARB to stay the course.

CHAIR NICHOLS: Thank you.

MS. MOELLER: Good morning. My name is Jennifer Moeller, and I come before you today as a mother on behalf of Moms Clean Air Force and a concerned citizen.

When it comes to caring for my children from a mother's perspective, there is nothing more important than health and safety. As a mom living in Los Angeles, health issues stemming from air pollution is very concerning.

The traffic congestion and smog is a large ongoing problem for many of us moms as we run our kids from one activity to another. In fact, all drivers are impacted by both the heartache and headaches of sitting in traffic for prolonged periods of time and taking in all that unnecessary smog into our lungs.

For children, this is especially concerning, as it impacts those young developing lungs and bodies even more. This is why I am here today, to urge you as California's leadership council to act on moving forward with the California Advanced Clean Cars Program, and here's why:

California has led the way on clean air policies, making it the first state to develop a regional air pollution control district in 1947 to address the many ongoing crucial and health affecting air quality problems in Los Angeles.

Congress subsequently adopted a new provision of the CAA section 177 allowing other states to opt into California's vehicle emission standards, which means a large number of states have opted into California's standards over the years, and since then 12 have opted into our LEV and ZEV standards, overall representing 35 percent of cars sold in the U.S.

Mainly California's economy has grown simultaneously as the state's leader in harmful-emissions reduction. Of California's 19 areas that once exceeded either the one-hour or original eight-hour ozone standards, only four still exceed those standards today.

Even the South Coast and San Joaquin Valley, two areas of the state that face the nation's most critical air quality challenges, have seen significant progress.

Clean air progress in California has occurred at the same time the state population has increased by over 25 percent and the economy has continued to grow.

California is the world's sixth largest economy, and the job growth in the state has outpaced the national rate, all while adopting the nation's most protected air quality policies.

I am the mother of three beautiful children under the ages of 6. So when it comes to health and the environment, I can't stress enough how passionate I am about clean air, which means standing for zero-emission vehicles and a Clean Cars Program to support it.

This not only benefits our state as a whole but our environment by making a significant cut into our smog, lessening asthmatic resulting health diagnoses in our children, and creating a longer lasting planet for our future. Lets work together to make a difference, not just for us, but for our children.

Thank you, Board members, for your time and consideration.

CHAIR NICHOLS: Thank you for being here.

I'm a fan of yours on social media. I follow you.

(Laughter.)

CHAIR NICHOLS: Okay. I think we should -- I'm sorry because you just got up here. Maybe we'll want to take one more witness. But we've been going since 8:45. Our court reporter hasn't had a break, and I think we want to continue this item through to the final conclusion before we break for lunch, and then break for lunch.

So let's take a 10-minute break, 10-minute break. Will you be okay with that?

All right. We'll bring you back up in 10 minutes then. Thank you.

(Off record: 11:59 a.m.)

(Thereupon a recess was taken.)

(On record: to 12:15 p.m.)

CHAIR NICHOLS: All right, everybody, please settle down.

We want quiet for our witness.

Okay.

MS. HERZOG: Should I go ahead?

CHAIR NICHOLS: Yes, Ms. Herzog, you can go ahead.

MS. HERZOG: Thank you.

Good afternoon. My name is Megan Herzog. I'm an attorney at the Conservation Law Foundation, or CLF. Founded in 1966, CLF is a member-supported nonprofit that uses law, science, and economics to tackle the environmental problems that threaten New England. We work in five ZEV states - Massachusetts, Vermont, Maine, Rhode Island, and Connecticut.

I traveled all the way from Boston to represent a broad coalition of ZEV state environmental advocates and residents who strongly support the ZEV Program. I have here more than 700 letters from people who want more EVs to be sold in New England.

I also bring a letter signed by 34 public interest organizations that are actively promoting ZEVs in the northeast and the mid-Atlantic.

Our organizations have helped achieve a number of major successes in our states, including rebate and grant programs for EVs, multiple new statutes and utility commission policies, and thriving public education programs.

These initiatives and many others are driving increased adoption and awareness of EVs in our region. And we are committed to advocate for further progress, but we need your help.

Transportation is our region's single largest source of greenhouse gas emissions. And they are critical to meeting our ambitious climate requirements as the ZEV program. For instance, Massachusetts Global Warming Solutions Act requires emissions reductions of 25 percent below 1990 levels by 2020, and 80 by '50. Vermont is even striving for 95 by '50. Our states may be smaller but we have mighty goals, and we will not submit to false claims by industry. We want to drive electric.

Rhode Island, which is roughly the size of Yosemite Park --

(Laughter.)

MS. HERZOG: -- nonetheless offers $2500 in a rebate for an EV purchase.

Connecticut has a population on par with Fresno County, but boasts nearly 350 EV charging stations.

And in Massachusetts, which is comparable to the Bay Area, utilities are pursuing $70 million worth of investments in EV infrastructure.

Section 177 states are proud to stand with Californians as clean energy leaders, and we thank the

Board for all that you've done to advance the EV marketplace in our states.

We will continue to defend our states' rights to regulate climate pollution and air quality and to defend public health in our states. And we urge you to move our shared legacy forward and stay firm on your commitment to strong clean car standards for our states.

We look forward to continuing to support implementation of the ZEV Program.

Thank you.

CHAIR NICHOLS: Yes, go ahead, Ms. Riordan.

Wait just a second, if you would.

BOARD MEMBER RIORDAN: I just have a quick question. And, that is, in your states, do you find it difficult to find an EV to try out and to use? Is that a problem for your states or not? Are they plentiful or not?

MR. HERZOG: No, it's absolutely a problem, as I believe you heard from other testifiers before. There have been studies where folks have gone to dealerships in attempts to drive EVs and often they're not charged or they're not available or they're models that just aren't sold in our states.

And so I think these letters show that people want more EVs. We'd love to have the option.

BOARD MEMBER RIORDAN: Have you followed up at all with the dealers to inquire why more aren't available?

MS. HERZOG: We do engage in a lot of dialog with the dealers, and we're continuing to work with them. But I think the ZEV Program regulations and end of "travel" will be essential to getting more cars on our states.

BOARD MEMBER RIORDAN: Thank you.

MS. HERZOG: Thank you.

CHAIR NICHOLS: Supervisor Serna, did you have -- oh, no. Sorry.

All right. Go ahead.

(Laughter.)

CHAIR NICHOLS: I wanted to take this moment because I hadn't had a chance earlier to introduce our newest member of our senior executive team at ARB, who happens to be from -- most recently from Massachusetts and from your organization, where she became known nationally as a leader in the environmental justice community. And she is now our assistant executive officer for environmental justice. And she's standing right there to wave to everybody.

Veronica Eady.

Veronica.

(Applause.)

CHAIR NICHOLS: Welcome. It's just -- it's really great to have -- Veronica, to have this new position, and to have her here when we're considering these issues which are so important to all of us.

So thank you for giving me the opportunity to piggyback.

MS. HERZOG: Thank you.

MS. SMART: Hi, Chairwoman Nichols and members of the Board and CARB staff. My name is Anne Smart and I'm the Vice President of Public Policy for Charge Point. We're the largest network of EV charging stations in the world. Right now we have more than 18,450 charging ports here in California and 33,000 across the country.

I'm here today to congratulate staff on a great report, and continue to support our current path towards 2025. For us in the charging station industry, it's really important that we have this regulatory certainty. It helps us know what the projections are going to be for EV sales, helps us size our own investments, helps us figure out range on our technology. It really helps to make sure that we have our own consistent market along with the EVs that are out there.

In addition to continuing on the current path, we also want to make sure that we continue to get rid of the "travel" provision for BEVs. For us it is also important that we move forward with getting as many EVs as possible in the non-California ZEV states. We're doing our part to put infrastructure there, it has been said by several people. But demand for EVs help drives demand for charging stations. And though it is a chicken-and-egg issue, if we can get more cars and dealerships there, we can also get more charging stations in the ground.

Beyond 2025, Charge Point supports creating an additional goal along the lines of what staff recommended. However, we encourage that as this new regulation is developed, that CARB work with automakers, charging infrastructure providers, and other stakeholders to set this goal so that it's both ambitious yet achievable beyond 2025.

Aligned with that we also think it would be important if this state were to set a charging station goal. I have put this in writing a few times now. But I do think that as we are figuring out how much charging infrastructure we need to support these vehicles, that you have a number in mind or at least a goal or a target. I've suggested based on NREL numbers a goal of one public charging station for every five electric vehicles - NREL is the National Renewable Energy Laboratory - that we should have a goal of one public charging station for every five electric vehicles on the road. That would include level 2 and DC fast chargers. Or in order to make sure that our charging stations are located throughout the state, it's not just in coastal areas, perhaps a goal per mile of one charging station every 30 miles might be a more appropriate goal to set.

But as we're looking for what happens beyond 2025, it would be great to work with CARB to set some sort of charging station goals so that we're all on the same page as to how many charging stations we need and whether or not we're there or falling behind.

Lastly, for us we think it's incredibly important that we continue to support ZEV adoption in disadvantaged communities. For the charging station industry, it's really important that we also have vehicles in those communities that we're working to get more investments there. And we look forward to working with CARB to make sure that happens.

Thank you.

MR. WUNDER: Chair Nichols, members of the Board, my name is Andy Wunder. I'm the manager in CERES California program. CERES is a nonprofit organization advocating for sustainability leadership. We mobilize a network of 39 leading U.S. companies representing over $400 billion in annual revenue. These companies are committed to advocating for the adoption of meaningful energy and climate policy. This group is called BICEP, Business for Innovative Climate and Energy Policy. This group includes many California-based companies such as Levi Strauss, eBay, and Dignity Health.

I am here on behalf of BICEP to show business support for Air Resources Board staff recommendations detailed in the summary report for the Advanced Clean Car Review -- Midterm Review.

I'd also like to strongly voice BICEP's support for California's authority to adopt and implement its advanced clean car regulations. Regarding greenhouse gas emission standards, we support continuing California's participation in the national program.

However, if EPA's greenhouse gas standards are significantly weakened, we urge ARB to assess the need to adopt new stronger standards. Strong standards provide critical reductions in greenhouse gas emissions needed to ensure California meets its 2030 climate goals. Strong standards benefit consumers, businesses, and the economy, as money saved on gas is diverted to consumer spending. And strong standards drive innovation and investments in advanced vehicle technology necessary to keep American companies competitive in the global economy.

Regarding California's Zero-emission Vehicle Program, we support staff recommendations to strengthen the ZEV Program post 2025 to ensure the program meets its intended goals. Reaching these goals are key to California's meeting its clean air and climate and public health goals.

In addition to reducing environmental public health impacts, a strengthened ZEV Program provides key bottom-line business benefits. The ZEV Program is creating a robust market and reducing ZEV purchase costs for corporate fleets. This helps fleet managers transition to cheaper-to-fuel electric vehicles and avoid petroleum fuel price volatility.

Regarding particulate matter emission standards, we support maintaining the stringency of the 1 milligram per mile particulate matter 2025 emissions standard. This drives strong climate health benefits and will ensure healthcare cost savings and increase productivity in California's economy.

In summary, BICEP strongly supports ARB staff recommendations to maintain the Advanced Clean Cars Program as outlined.

Thank you very much for your time.

MR. SHEARS: Good afternoon, Chair Nichols and members of the Board. My name's John Shears. I'm with the Center for Energy Efficiency and Renewable Technologies, here to strongly endorse the recommendations of the staff and to encourage you to accept those recommendations and to move forward.

I'm one of the NGO folks who has worked most closely with the El Monte staff. And I want to congratulate and thank the El Monte staff as well as the rest of the crew for the fine work that they've been doing just to keep tabs on things and making sure that we can indeed move forward with this program.

I wanted to also sort of step back out of the bubble for a second and take note. I think it was Mr. Bozzella earlier this morning who said that this program's too aggressive. I'd like to remind everyone that in the Arctic this year, the average temperatures were 20 degrees warmer than ever before; in the winter, 20 degrees warmer in the Arctic. There are some climate scientists who are now predicting that the Arctic could end up being ice free year-round. That has serious implications for the global atmospheric wind systems and how they link to the current systems.

California's climate is one of the most vulnerable climates to the effects on the planet's winds and ocean currents.

This program, which started as California's first climate program is critical to helping us and the rest of the world through California's leadership move forward to deal with climate change. And as we saw yesterday with some of the other provisions that the Board has adopted, California is not just picking on the auto industry. California is doing everything it can to address climate change.

Another aspect of all of this of course is -- are the state SIPs. Something else that was considered yesterday. And the work in the vision process that Joshua Cunningham and other folks led up with the CARB staff, if California doesn't move forward with programs like this program, we are at greater and greater risk of not only not being able to address climate change in the way we need to, but also getting into violation of the state SIPs and running afoul of the federal government in that manner.

So there's the paradox here of if we pull back on this, we risk running into other violations with the federal regulators.

So I encourage you to move forward and to also consider dropping the USO 6 limit based on further development through El Monte.

So thanks.

DR. JACPOR: Good afternoon, Honorable Chair Nichols and Honorable Board members. My name is Dr. Karen Jacpor, and I'm here today as a representative of the American Lung Association as a doctor for climate health, as a patient, and as a parent here in the Inland Empire.

I've been fighting severe asthma and I've been hospitalized or admitted to the emergency room so many times, I have lost count. At least over 40. And so I know firsthand how important it is the work of the clean air programs, and I really applaud the work of the California Air Resources Board.

Sometimes I feel like a canary in a coal mine when I notice that my breathing is worse when the air quality index worsens. My daughter is unable to play outdoors about 100 days a year because I can't supervise her outdoors on unhealthful air days.

Each year, 15 billion in health and climate damages are caused by passenger vehicles in California, according to the Lung Association report issued last year. But health impacts can be reduced by 80 percent by 2050 through strong zero-emission vehicle policies. The bottom line is that zero-emission vehicles can save lives with this 80 percent reduction in health consequences.

I am very privileged to show you today that there is broad public health support. I have two letters. This letter represents 300 professionals -- health professionals from across the country; and this letter represents 28 health -- leading health organizations in California. And this -- among these 28 health groups include the California Medical Association, the American Academy of Pediatrics, and the California Academy of Family Physicians, and we're calling for California to keep us on the right path.

Our letters states that clean car programs are working as planned to reduce emissions and that the Board should start now to develop the next generation of clean vehicle standards. We believe that California's authority to develop stronger than federal standards is critical to protecting the health of vulnerable communities, including the residents of this region that face high ozone levels.

California's standards should be implemented and maintained, and California's authority must be preserved. This is first and foremost a public health issue for all Americans.

Thank you for your work on the review, on developing and implementing the programs that I need to breathe today, and so that our kids will grow up in air that won't put them at risk of a permanent lung health deficit for life.

Thank you very much.

MR. MAGAVERN: I'm Bill Magavern with the Coalition for Clean Air. And I've been working on clean car issues since the late '80s when I was one of Nader's Raiders in Washington D.C. So I've had my share of tangles with the big auto company.

But I've also for the last three years been happy to be the owner of a General Motors car, a Chevrolet Volt, which as you know is a breakthrough plug-in hybrid. And I say that because I do believe that the big auto companies can transform themselves and become part of the solution instead of part of the problem and they can be drivers of change and social responsibility.

But they're only going to do that if you tell them to, because we've seen historically, whether we're talking about fuel efficiency or catalytic converters or seat belts or airbags, that those innovations get put on the cars when government requires it.

And we now have the federal government going in the wrong direction, so it really falls to this body to keep us moving forward.

And the auto companies lament a lack of consumer acceptance. But we know that they spend billions of dollars to shake consumer desires. And you've already heard this morning that they're not spending those billions to get people to want to buy ZEVs. And that needs to change.

They also need to do a better job of motivating the dealers. And the study by Sierra Club confirms the experience of so many EV shoppers who have found that the dealers are not interested in or not prepared to sell them electric vehicles.

This is of course an issue where California plays a really important role nationally because of our unique authority under the Clean Air Act. It's also about protecting the health of Californians.

And we support all of the staff recommendations. I want to particularly call attention to the importance of maintaining the particulate matter standards. You have our letter on that. And we also support strengthening that standard over time because, as you've heard, the European Union already has a tighter standard.

We also applaud the staff's intent to explore broadening the ZEV standard. And we're particularly interested in the possibility of including heavy-duty vehicles because, as we discussed yesterday, we really need to go zero emission in the heavy-duty sector in order to attain both our air quality and our climate standards.

Thank you very much.

MS. McGHEE: Good afternoon. My name's Lisa, and I'm with the San Diego Airport Parking Company. And it is a pleasure to be able to see the opportunities that have been a part of clean transportation. And it's kind of perfect that I got to follow Bill because he kind of just allowed me to lead into some opportunities that I wanted to speak about today.

Moving forward really is about adoption, and relating to SB 350. And we need to drive zero-emission vehicles. And who we are targeting is a big part of how we maybe can accelerate adoption. It's not just about light duty. If you look at your own model in table 15, it shows that your vans and your trucks have no ZEVs. There's actually only one zero-emission van today in the entire nation. I speak to you because that is the type of vehicle that we drive. It's a passenger vehicle. It's also for personal use. So I do think there's a great opportunity to create OEMs -- branded OEMs to help reduce this gap of inventory that simply just isn't available.

I have driven in one-year's time 125,000 miles in a ZEV. So there's a lot of pluses and benefits for a ZEV. And there's also many barriers.

And so adoption is a big part of how we can continue to move the SB 350 forward, and we need inventory to do that.

Airports is what I wanted to talk about. I'm an off airport parking operator. We have 350 shuttle vans in San Diego. We average 50- to 100,000 miles per year. That's 17 million miles in a year. We would gladly find the ZEV use to be exceptional for our type of sector. It's short haul. We're in -- in a controlled environment.

So there's a lot of pluses that I think that could be considered when you target how you can accelerate adoption.

Moving into efficiencies. We're lacking some standards on efficiency. And what I want to bring up is, what is a kilowatt hour in miles? You know, we don't really have a standard right now. So how are we going to compare fuel regulation standards in ICE vehicles to an electric vehicle? That's an important element that's missing right now. We do not know how many miles is a kilowatt hour, and we're not having any regulation for it.

Also considering there's multiple exemptions associated with certification that -- are other things that can be considered when we talk about durability, useful life. There is no requirement for garage services right now for a ZEV OEM. That's created an obstacle for me.

And so I would suggest that if we can continue to try to help move the space forward that we have some more regulations to support the space for adoption.

Thank you.

MS. REINHARDT: Good morning. My name is Alisa Reinhardt and I'm the Director of Regulatory Affairs for the California New Car Dealers Association.

California's new car dealers support the findings of your midterm review. We especially found the CARB staff's discussion around the state of the ZEV market and the current levels of consumer demand very thoughtfully done, and want to reiterate what we said in our written comments to the Board.

We maintain that every new car sold that replaces an older, higher polluting car means cleaner air and safer roads, and our state's dealers are ready and willing to partner with you to help put more zero-emission vehicles and hybrid vehicles on our roads.

Automakers have done a fantastic job introducing a wide variety of exciting new vehicle options in this space. And California dealers will gladly sell any one of these cars to anyone walking into a dealership that is qualified to buy one.

Any stories you may hear to the contrary are anecdotal at best, and are simply not representative of California's dealer body as a whole and are support for your efforts.

Thank you.

REV. KOTEEN: Good afternoon. A fellow Unitarian once wrote in a cartoon that people of a limited intelligence are drawn to meetings like moths to a porch light.

(Laughter.)

REV. KOTEEN: He presumed that it was -- that they had a very large bladder-to-brain ratio --

(Laughter.)

REV. KOTEEN: -- and managed to sit for a long time and wear everybody else out.

But after sitting here yesterday for several hours, I decided that it really takes buttocks of steel --

(Laughter.)

REV. KOTEEN: -- and a very stiff spine. And I therefore honor you for having that capacity.

(Laughter.)

REV. KOTEEN: I hope your chairs are more comfortable than the ones in the audience.

(Laughter.)

REV. KOTEEN: When I was thinking about yesterday and today, the phrase that came to mind was from Exodus, and it was about hardening Pharaoh's heart. And it didn't seem fair to me when I read that that God not only punished the Egyptian's but he also hardened Pharaoh's heart so that Pharaoh wouldn't release the Israelites.

But I realized, first of all, that I was guilty of what religious liberals always claim of conservatives, which is that I was being guilty of misplaced literalism. But, secondly, it was an acknowledgement that Pharaoh could not be Pharaoh without a hard heart, and he could not be willing to give up his slaves.

And we have all become slaves to the fossil fuel industry. Not just you, but me, and everyone else.

And I'm wondering when we're going to start treating tailpipes the way we treat cigarettes. I remember when I could smoke anywhere I wanted to, including an airline, and even in some places -- movie theaters and restaurants. You can imagine what effect that secondhand smoke had on people who weren't smoking.

And yet right now we still have tailpipes that spew the same kind of poisons. And I'm in support of what you're doing today, but we all need to do more.

So yesterday's testimony, particularly by the two members who are physicians, about how painful it was not only to see that -- the testimony people who have already had relatives that are dying, but people who are in the process of dying right now as a consequence of this, brings us to mind that whatever we're doing now, we're called upon to do more.

Thank you for your time.

MR. SCOTT: Good afternoon, Chair Nichols and Board members. My name is Craig Scott from Toyota's advanced technology group. And I'm proud to tell you today that in the last year Toyota has sold nearly 1500 Mirai fuel cell vehicles and we're well on our way to reaching our first milestone of 3,000 by the end of next model year.

That said, a meaningful expansion of sales to achieve our shared goal of reduced greenhouse gas emissions in the transportation sector will require growing hydrogen infrastructure both in number and capacity.

Because we recognize the importance of helping guide the development of infrastructure, Toyota has taken the unusual step of getting involved by providing both financial and technical assistance, initially by building stations at three University of California locations, followed by helping to start first element in California, and then a network of 12 stations in the Northeast.

Finally this year we were proud to participate in the groundbreaking Energy Commission award to Shell, the first network of hydrogen stations in the U.S. to be built by a major energy company.

Similar to our vehicle rollout efforts, we believe it is necessary to accelerate the 100 goal from 2024 to 2020. Considering the amount of time it takes to site, permit, and build locations, the time is upon us to decide how the State can support a network beyond 100. We currently estimate the need is around 225 sites by 2025, and we must also include the other ZEV states. Reducing emissions is our shared goal, and to be effective, we need to sell fuel cell vehicles across all locations.

So far in the Northeast the only hydrogen station network project to be funded is the one by Toyota and Air Liquide.

As we move beyond the first 50 funded stations we would continue to request the state's support to improve the allocation of AB 8 funds. Namely, the following are specific requests. Customer needs and preferences must play the primary role in selecting site locations. Both coverage and capacity are of key importance. Three stations in close proximity are needed for a gasoline-like experience. The station capacity must grow by a factor of 3 to 4 times. Local communities and property owners must be incentivized to help drive this effort. Station project applicants must demonstrate control of the site before being awarded funds. And grant awardees need to be incentivized to complete the project within a 12- to 18-month time frame or be subject to funding termination and reassignment.

My last comment for today involves the price of hydrogen at the pump and the very serious and immediate need to find a pathway to reduce it substantially.

In addition to the financial support in developing stations, Toyota has also provided $15,000 in complimentary fuel to each Mirai customer to show our appreciation, but to also insulate them from the gap in prices. To gain widespread market acceptance, an incentive mechanism to reduce the price and make it closer to gasoline parity is necessary. We believe the cost must fall far below the $11 per kilogram mentioned in the MTR report. And in fact in Japan the target is 8.75, where natural gas as you know is far more expensive than here. We believe a reasonable and achievable target for California is 5.50 to $6 per kilogram.

Toyota remains committed to helping the State and it's stakeholders.

And we thank you for your time today.

MR. EDER: Good afternoon, Board. I'm Harvey Eder. I'm speaking for myself and for the Public Solar Power Coalition.

I want to incorporate into the record here the record from the 2016 AQMP, the environmental document associate economic document. And in that, there's information about equity -- I want to talk to you about solar equity and environmental justice low income people.

There's a -- a book called "The Capital in the 21st Century" about equity by a French economist that's in the record, and saying how inequity in our society is increasing. And there's also discussions that have been had with the senior staff vis-a-vis the Board that we've participated in. We've proposed 10 million low- and middle-income electric vehicles and another from 250,000 to a million trucks, solar electric either batteries or hydrogen fuel cells.

We're looking at models of -- trying to get equity to low income people as well as just the corporations and whatnot, upper income people that take the tax credits and write-offs. And so we think this is important.

Solar elect -- nothing has been said about where the electric comes from. It's got to come from solar. Fifteen years ago you had folks coming here, said we've got solar electric. Paul Scott, et cetera. And that's -- I mean, you know, it can't be from natural gas, from fossil fuels, or nuke. There's still 600 megawatts of nukes coming from Palo Verde vis-à-vis Edison, and more from some of the local public power here that extend to the power lines.

Anyway, this needs to be looked at. Solar has come down and is coming down. We're looking at robotics, artificial intelligence. There was an article in the Times how they're going to use robots to prune in the Central Valley and up in Napa. And this is -- the difference between regulation and automation -- and this is -- we got to look at the biggest picture in society and look at what's happening with equity and who's going to own and control these things. And this needs to be done now. We're looking at the public-private partnership.

Also there's the book that was incorporated into the record, "This Changes Everything," by Naomi Klein, with 350. This does change everything. Included in the record is the information on 750 to 800 parts per million CO2 equivalent. We can't just use CO2 anymore.

And anyway, thank you.

MR. WHITE: Madam Chair and Board members. I'm John white. I'm happy to be representing the Center for Energy Efficiency and Renewable Technologies this afternoon and also the Hydrogen Business Council.

Couple of thoughts that come to mind. I was with the Board and in the audience in 1990 when the original ZEV mandate was adopted. And I also go back a little further to when we were discussing the feasibility of the 3-way catalysts. And one of the uniform things we learned is that what we think it's going to cost turns out to not be what it actually costs because we put our minds together we get scale and we work together.

I want to compliment the staff and the Board for, first of all, really good hearing and lots of good contributions. Important technical work that our friends at EDF and ICCT gives us confidence that we can do this.

And I think also the fact that the State of California and -- is stepping up with a significant integrated program of incentives for infrastructure as well as to assist in buying the vehicles. Bodes well for our success.

But there are dark clouds on the horizon. I'm recalling the original statement on the floor of the United States Senate by Senator George Murphy in 1967 articulating the reasons for California to attain its ability to set its own standards. And he said it is because of the extraordinary and compelling problem that has existed and that exists in the State of California that the state has had to make great effort in the past that will undoubtedly be called upon to make even greater efforts in the future to assure that the citizens of the great State of California will have acceptable and clean air.

That's still true. There's a lot riding on your continued leadership and moving forward for the health of our citizens. We still have too much nonattainment. We make great progress, but we have much more work to do.

So we strongly concur with the recommendation to stay the course in the midterm review. And we also very much agree with the need to begin now to lay the foundation for the next set of standards from 2026 to 2030; because it's at that point that we look like we're going to be close to the crossover point where the EVs are going to be cheaper than conventional vehicles and are going to be a favorite choice. But we've got to sort of seed that market and continue with the progress.

And I'd also like to urge our friends in the auto industry to think twice about betting on the Trump Administration as their future. You know, one of the things we've wanted all these years is to have stability, to have predictability. Your process has done that. The administration seems prepared to throw a monkey wrench into that process. But I think we're going to be here longer than they are. And I think the auto industry would be well advised not to bet against the State of California when we have done so much together with them to accelerate the progress of the technology.

Thank you very much.

CHAIR NICHOLS: Thank you. And you were the last witness on our list. So I'm going to close off the public testimony portion and move into some discussion on the part of the Board. And I know a number of my fellow Board members are going to want to have comments on this item.

But I'm going to do something that I don't usually do, which is to start the conversation rather than try to wait till the end.

So first of all, I want to say that I think it's quite clear that the Air Resources Board is going to affirm the technical reviews that were done by our own NEPA staff as well as the work of a number of independent analysts.

I want to make it clear that we invite the global industry to bring us their best cars and trucks and to take advantage of the willingness of our leaders. Not just of the officials, but from all of the groups that you've heard from here that want to work to provide a range of incentives to make these vehicles affordable. We understand that you are in business to make money. And we don't want to interfere with that to any extent more than we absolutely have to to help you help us get the vehicles that we need.

We invite you to come and sit down with us, if you have specific concerns about the implementation of the existing regulations that can be addressed without weakening the overall impact, which is what I've heard the leaders of your associations say is what you wanted to do.

We want the cleaner cars that will save consumers money and are fun to drive, because that's what we do in California.

Now, I also want to turn to the industry representatives who are here, and those who are not here but are based in Washington, to say, what were you thinking? What were you thinking when you threw yourselves upon the mercy of the Trump Administration to try to solve your problems? It just does not make sense. And when we hear today that you didn't really mean to question the validity of the California waiver, well, our newly confirmed head of the Environmental Protection Agency said he was prepared to do just that.

What did you mean when you said you didn't want to question the overall thrust of the standards? Why do another review if the current program is basically okay? And if there were changes that needed to be made again on the implementation side, bring them forward and have the discussion. We invite you to do that.

So that's my opening here for the rest of the Board to chime in. I'm sure people will have other things they wish to say. But I just want to make it clear that the outpouring of support that we have here today is not just unique to California. You've heard from a number of representatives of major state agencies that have also come to be with us. And I hear from consumers and from activists all over the country as well as all over the world who want to be part of the move to a successful zero-emission vehicle market.

So let's take action today on the resolution and then let's move on.

So, Dr. Sperling, would you care to comment next.

BOARD MEMBER SPERLING: I'll follow Chair Nichols' lead on this.

I will say, first of all - backing up just a little bit - is the staff did do an extraordinary job. I mean, that was an extraordinarily sophisticated, careful, quantitative analysis of the situation, both for the ZEVs and for the greenhouse gas standards.

And I also want to note that this -- I've been particularly impressed with the speakers today. It must have been probably -- well, probably a quarter or a third nailed it exactly at three minutes and did it in a very articulate way. I mean, I think this has been the best group of speakers we've ever had in terms of being articulate and getting the time.

Okay. So getting back to the point at hand.

You know, the greenhouse -- so let me just delve a little more deeply into this.

So the greenhouse gas standard, all of the evidence, all of the analysis, call it science, call it economics, shows that, if anything, these standards should be even more aggressive. And that's because every single study shows that there's more savings than there is cost, with discounted appropriately and so on. I mean, think about it for a minute. That means this is one of the best regulations or policies anyone has ever adopted. What we're saying is that this saves consumers money, it saves economy -- the economy money. Forget about greenhouse gases, forget about air pollution. It's great before you even -- and then if you add those on, I mean it's even better.

So to get back to the -- you know, the Washington D.C. story, you go there, and I don't see any way where the evidence can be shown that the standard should be weakened in any way.

Now, I understand the industry wanted -- you know, was concerned about some of the details of it, the alignment and flexibility. And I actually agree they had good points on that. How they got themselves into the situation where they are now is probably, you know, not in anyone's best interest. But being that what it is, you know, I agree, there's some changes that should be made. You know, one of them that really irks me that I'd like to see change is that electric vehicles lose all of their multiplier credit and, not only that, but upstream emissions are assigned to it. And I'm not sure exactly how that's going to be done, because if you take the average for the country, you know, in some places the grid emissions are pretty high.

And so that takes away much of the motivation certainly from a regulatory perspective for the car industry to be investing in electric vehicles. So it's moving us in the wrong direction, and the industry itself would agree with that.

And so, you know, I'm not the politician so I don't know how this is played -- going to play out. But certainly I know California is going to take a very strong position that, you know, if anything is done, that's fine as long as it's more stringent in fixing some of these.

So that's the greenhouse gas story.

And then the ZEV story, which is to -- the greenhouse gas one, it's so straightforward and obvious, it's like, you know, okay, that's easy. The ZEV story is perhaps a little more complicated. In many ways -- and not only in many ways. I would say the ZEV mandate has been the most important, most effective policy in the world to accelerate advanced technology, advanced electric drive technology.

And we're starting to see that. Okay, you know, it took a while. There were some blips along the way and it had a tortured life for many years. But it played a really important role. It sent a signal that was, you know, important to the industry, to battery makers and so on, and we're seeing that now. We see great tech -- you know, the car -- the car companies have done a great job. The car technology is very impressive. It's getting better and better. I've driven and owned many of them. The battery costs are coming down quickly, much faster than almost anyone expected. But to go back to what John White was saying, when we as a society, economy, and people focus our resources and our attention on something, it's amazing what we can do. And that's what's happening with batteries. And the same thing, you know, as we gear up with fuel cells, we're going to see the same thing with fuel cells, for sure.

I would say -- having said that, we are not alone. And this is actually a good story. China has soared past us in terms of number of vehicles. They sold 500,000 electric vehicles last year, way more than the U.S. did. Over 300,000 cars, a hundred thousand electric buses, 50,000 electric trucks -- heavy-duty trucks.

Norway has over 30 percent market share for electric vehicles. 30 percent. You know, we're at 3 percent.

So this really is an important policy. Now, the point of this policy though, before I get into some more of the details is, the point of this policy is commercialization, to advance the commercialization of electric vehicles, of zero-emission vehicles, plug-in hybrids, fuel cells. It's not to reduce air quality -- reduce pollution. It's not to reduce greenhouse gases. Yes, we want those benefits along the way. But those benefits are so tiny at the market shares we're talking about, that the point of this is to accelerate commercialization.

So as we think -- go forward, certainly past 2025, as many people have said, there's lots of reasons and lots of motivations to really ramp up the number of zero-emission vehicles, and we need to be committed to doing that. A regulation by itself can't do that.

So as the staff has indicated, as we've heard from other people, we need a lot more focus on incentives, and we have to make those certain, we have to create more of a certainty in them. They should be at point of sale like it was either New York or Connecticut said they're doing. We need better marketing. We need better -- more infrastructure, both hydrogen and electricity.

And the pricing -- electricity pricing. You know, in California we have these tiered rates in most cases. And that means if you add an electric vehicle to it -- you know, to your household, you actually would pay more unless you had some special electric vehicle rates or time-of-use rates.

Now, we're making progress on all of these. The PUC is working on the prices. We are funding more infrastructure. But we've got to do it more and better. And I think that, you know -- Chairwoman Nichols has emphasized this in the past. And I think -- you know, we've got to figure out how to double down on all of those. The PEP collaborative is working. And marketing, I would note also, which is important.

Okay. So what does all this mean in terms of any changes on the ZEV side? There is one thing that I feel strongly about, a change that I would like to see. And that is -- it's not a change. It's an extension. And that is what's been known as the transportation system credits. And this is something that right now it -- it was snuck through in 2012. That's not a technical word.

(Laughter.)

BOARD MEMBER SPERLING: And I didn't notice it. I didn't realize it. And, you know, it's scheduled to be phased out at the end of this year. I think that's a huge mistake, because we're talking about -- as we talk about complementary measures in marketing, this is one of the cheapest, easiest ways to do that. Because what it's going to do is it's a way of getting more of the electric vehicles, the ZEVs into car sharing, into some of the new mobility services out there. And what we've -- if there's anything we've learned is people need to have the experience with these vehicles before they buy them. And we've seen -- we've had market research funded by ARB and others that have shown that the knowledge and awareness of electric vehicles is remarkably low, even for people that are buying new cars. And it's really shocking, you know, when you look at, you know, some of those findings.

So this is something that does it easy and cheap. And so I would really argue for an extension of that going forward.

The other thing I wouldn't argue with quite so strongly but I believe strongly is -- and especially going forward, is with plug-in hybrids, creating more flexibility. The point -- and certainly 2026 and beyond. We -- the point of the ZEV mandate is to get vehicles out there, to get the industry investing in them and the technology. And we don't -- you know, we're not brilliant enough to know exactly how this is going to play out. And the 177 states especially, they have different markets than us; and we understand that even less well than we do the California market.

So I would put that on the table as something to think about. You know, I know there's the, you know, waiver issues and so on. But if there's some way to do that certainly for 2026 and beyond, we need to create more flexibility.

CHAIR NICHOLS: Are you not worried about the cold start problem?

BOARD MEMBER SPERLING: The cold start problem I think is overstated in the sense that if we have, say -- if the plug-in hybrids are, say, 6 percent of the market sales in 2025, and -- the plug-in hybrids are, say, 5 or 6 percent, and that would mean they're like 1 or 2 percent of the total market -- and now we're talking about a tiny part of 1 percent. So through 2025, no. I don't think that's a big issue. Beyond it, yes. But we are -- I hope we are adopting new test procedures that will make sure that there will not be any of those, that we fix that. I see that as a temporary problem and that we should be focusing on getting more vehicles out there and commercializing them.

CHAIR NICHOLS: Okay. Dr. Balmes, you're next.

BOARD MEMBER BALMES: Thank you, Chair Nichols.

Well, I'm going to sort of get down into the weeds a little bit more. I brought up earlier Tom Cackette's Jetta Diesel. I turned mine in and bought Chevy Volt, and I want to talk about my experience, you know, buying that vehicle.

I went to a local East Bay Chevy dealer where the vehicles were prominently displayed. You first came on to the lot, there were several right next to a Stingray, you know, and they sort of caught attention, looked good. They were clean. They were ready to go.

Actually the one that I drove was a fancy one with every available option. And because I was getting a good deal for a Volkswagen, my wife let me buy the fancy one with the Bose stereo.

(Laughter.)

BOARD MEMBER BALMES: It's fun to drive. I bought it in November. I still haven't finished the original gas tank. I have a half a tank left. And there's no reason that these vehicles can't be marketed effectively.

That was an example of a, you know, California dealership, but, you know, you can do this in 177 states.

And I don't watch much TV, but I'm a big Warriors fan and I watch Warriors games. And do I see advertisements for plug-in hybrids or battery electric vehicles? No, I see ad after ad for Silverados, F-150s, and Ram trucks. I mean, the industry talks about there's no market for these vehicles. Well, you create market. You put millions of dollars into advertising. You say the public doesn't want to buy these vehicles, but you don't try to sell it to them.

And, you know, I can only add my support to what

Chair Nichols said about, you know, I don't know where you guys are going - and I'm talking to the auto industry here. For the last few years I've been telling -- I've been listening to how you're cooperating with us, trying to move ahead, trying to help us meet our both air quality and greenhouse gas climate change goals. I don't know. You have to work with us to achieve those goals, not work against us.

I want to say also that I want to endorse the issue about a reliable ZEV incentive program. I wish our legislators were here today. They were here yesterday. I think that at least Assemblyperson Garcia's staff person is here. Please take the message back to your assemblyman that we need to have a stable ZEV incentive program if we want the public to continue to buy the cars in the numbers that we need to have them do so.

I have a specific question to staff. It's an informational question. The MECA representative asked about a -- had a proposal for a voluntary GHG credit related to -- well, a credit for a voluntary use of a gas particle filter. I just would like staff to comment about that. I'll pause for a second, if anybody can do that.

DEPUTY EXECUTIVE OFFICER AYALA: Dr. Balmes, I'd be happy to do that.

The proposal that MECA has made, we find it to be reasonable, so we are committed to working with them and trying to figure out what is the right mechanism to try to promote the deployment of the technology. We agree the technology is a good solution. It's not the only solution. So we're in a good place.

BOARD MEMBER BALMES: Okay. Well, thank you.

And my last point is also directed towards staff.

Dr. Sperling doesn't often say that staff presentations are sophisticated.

(Laughter.)

BOARD MEMBER BALMES: And he -- I want to support his compliment. I really thought that the presentation today was outstanding, and -- I'm even getting choked up here -- because, you know, this agency has proposed and has implemented important zero-emission vehicle and fuel economy standards that are impacting the world, and it's been supported by solid work of our staff.

And, you know, the public support for what our staff has proposed I think is proof of the worth of the work.

Thank you.

CHAIR NICHOLS: Thank you.

Ms. Mitchell, you're next.

BOARD MEMBER MITCHELL: Thank you.

One thing I think we can start with is that this program has shown remarkable progress. It began in 2012. We're only five years into this program and we -- this has just been amazing where we are today, which also leads to a conclusion then in the next five years it could be even more amazing.

And I expect we will see some very dramatic changes in the transportation industry as we go forward. And I think that the work of this agency has really been the catalyst to get where we are now.

With that, I also want to express a really strong support for our Northeast states. While this program has been successful in California, we need it to be successful across the nation. And the Northeast states in the Section 177 program is a pathway to get there.

Those of us who are on the Board, we get your comment letters. And one thing I want to remark on is we got 700 letters from residents in the Northeast states all asking for these electric vehicle cars. And these were just people off the street. They weren't people in the industry. It was 700 people who bothered to write us a letter asking for electric vehicles. And that should be a message to our dealers and our OEMs that, you know, there is a demand for these cars. In fact, in conversations with Tesla, I learned that their best market is the Northeast state. And they've solved some of the problems with cold start. And we also know that Northeast states want all-wheel or 4-wheel vehicles because they have weather patterns that demand that. So OEMs should be looking at that as their future manufacturing goal.

So some of things that came out of the testimony that I think we should be looking at is charging stations. Obviously we need infrastructure both for EVs and for hydrogen. And I think that should be something that we look at post 2025. And it was mentioned that perhaps we should have a goal for the number of charging stations. So that's something I think our staff could study.

Another thing that we need to be thinking about is that we need to have more EVs in clean vehicles that are shuttle vans, that are light-duty trucks, that are the SUVs, because this is what's happening to our market: People are buying these things with low gas prices, but also because that's what's available. We don't have EVs -- or many EVs in that category. I know we're moving in that direction. But if there's a way that we can stimulate that production, that would be good. And also that's a note for the OEMs that are out there.

I think the other thing post 2025 is we need to look at the credits in the market, both for EVs and for plug-in hybrids.

There -- we know that there is -- some of that has been a little bit skewed because we had advanced faster than we thought, we got better range vehicles much faster than we thought, and that credit market has been kind of slanted because of some of the advancements that we didn't expect. So that's one thing we should be reviewing.

It was also mentioned that the PM standard of 1 milligram per mile can be even better. It can be 0.5 as I understood it from the testimony. So let's take a look at that too and study it as a possible goal for future.

Again, I want to echo what has been already said about a reliable incentive program. That's really important in these early stages, to get that incentive program going so that we move past early adopters and increase this market. It could be rebates. It could be stickers for the HOV lanes. It could be tax credits. And there's probably some other innovative things we could think of that would stimulate the market.

I also think as we look at post 2025, let's look at the global market and compare ourselves against what is happening globally. It was mentioned that -- I think Dr. Sperling said 500,000 sales of EVs in China. And I think we should be comparing ourselves against that market so that we're at least trying to move in that direction. And OEMs should pay attention to that too. The market is global. It's not just California and a few states in the United States.

And finally, I think we need to be looking at what is the transformative things that are happening in transportation:

Car sharing like Uber and Lyft. And some of those are very involved in first and last mile.

The other thing is autonomous cars. I once heard a presentation where someone said the worst thing that could happen to us is autonomous cars, because now you'll have a bunch of cars running around with nobody in them. And that is not good for our congestion problem.

But autonomous cars that are zero emission is an opportunity. And so that is an area I think we should be looking at. I don't know exactly how we attack it. But I think that we should be taking into consideration these kinds of new things that are happening in transportation.

Thank you.

CHAIR NICHOLS: Okay. Next I have Dr. Sherriffs and then Supervisor Serna.

BOARD MEMBER SHERRIFFS: Thank you very much.

One advantage of being way down on the end here, I've got my own camera.

(Laughter.)

BOARD MEMBER SHERRIFFS: So I had to say

something. You know, use the technology.

This has been a remarkable morning and early afternoon. Thinking about what is success. And there has been so much success in this process. Really remarkable and really wonderful to be part of all of the energy that's here, and really grateful to people who have come from far to testify and support the work and help advance what's -- what we're working on.

You know, really, well, why do we have advanced clean cars? Well, in fact it is to decrease greenhouse gases and to improve air quality. And it's been remarkable the success that this program has had in terms of, as has been pointing out, advancing technology and commercialization of the technology.

We pick a lot on the manufacturers and the dealers in terms of supporting this moving forward. And we all have our stories. And I could talk about what it took to get the battery replaced in my car. I will say and -- for the manufacturer, that was great. They stood behind it. But I had to take the car to the dealer three times and point out to the repair person which was the dial we needed to be looking at that indicated there was a problem with the battery.

But maybe this will take care of itself, because we look at the global market and we see the sales in China and we see 30 percent of new cars in Norway. Although we had heard that these things don't work in cold climates. And the last time I looked, Norway was still pretty cold.

So maybe this problem will take care of itself.

But, you know, we were called earlier. And we all recognize, this really is just the beginning. We're always called to do more. This is great success, but it's just moving forward; and we certainly need to be engaging in that process, looking to 2026 beyond. Because we think about incentives, well, one of the great incentives for the manufacturers is having a clear path forward. That we think hard and long and get it right so that it is an appropriate pathway and a pathway that is going to work and can be counted on.

Incentives, so important in terms of developing our infrastructure. It's wonderful to hear how successful places like Connecticut have been.

You know, this is so important for air quality for the valley. Every zero-emission vehicle in the valley, boy, that is huge in terms of us trying to get to our PM2.5 and our ozone. But, again, the valley presents its own challenges in terms of being a relatively rural, having the corridors in terms of freight so important to the State's economy. But also reminding us as we look at 2026 and beyond, boy, we really need to broaden this, we need to do so much more to bring heavy-duty trucks into this, to help the manufacturers move forward with more options in terms of vans, airport shuttles, those types of things.

And pickup trucks. I have lots of farming friends in the valley who say, "100 miles, that'll work for me. But there's no pickup option that's going to get me around my ranch today." And I know for myself, confession: I have a pickup truck. My wife wants me to get rid of it. It could be our electric vehicle, and that would satisfy me.

But it's not an option, yet. So I'm looking forward to the future and looking forward to continuing to work 2026 and beyond. And the sooner we start that, the better.

CHAIR NICHOLS: Supervisor Serna and then Mr. De La Torre.

BOARD MEMBER SERNA: Thank you, Chair Nichols.

So Dr. Sherriffs just stole a little bit of what I was going to say. I have a number of things I want to comment on. But I too have a pickup truck. And, you know, it's an aluminum body, F-150, so it's light weight.

But it does occur to me and it sounds like others on this Board that that's certainly a part of the market that has not been exploited in the kind of way that we want in terms of advancing battery electric and plug-in hybrids for the purpose of hauling and towing in some cases. And I think that is certainly something that I'd be looking forward to seeing the chart next time that has the pickup truck icon on the chart. So...

One of the things that stood out to me today in terms of the testimony was something Bill Magavern said. And I'm not sure if he's still here or not. But, you know, he reminded us that we are here to essentially make -- in this case make the OEMs meet the market. And I think that is something not to be taken lightly. I mean, as regulators and certainly as some of us are elected officials, sometimes that makes you wince a little bit. But I think in this case that's certainly the best way to think about our role in this, is to interject what we need to see happen here in not just the California market but certainly assisting, as has been noted today, other states in terms of expanding the market for ZEVs in particular.

I think what Dr. Sperling said earlier really resonated with me, and I presume others, about, you know, just exposing consumers to the experience is something that I think is absolutely critical. And what I haven't heard, and maybe there's someone that can correct me if I'm misstating this, but it seems to me that there are all kinds of opportunities to do that. For instance, just getting here to this meeting the last two days, we had to rent -- a number of us had to rent cars at the airport. And just kind of wondered out loud whether or not any of the rental car agencies are looking at programs that could expose consumers on a -- obviously on a limited time basis to the experience of driving ZEVs or plug-in hybrids or other types of model vehicles that aren't just based on ICE propulsion. So I think that's an option.

I think, you know, the dealers when they have loaners -- when they give loaners to their buyers that are having their vehicle serviced, that's another opportunity to expose the market for a limited time and get people thinking, getting consumers thinking about the ben -- not just the environmental benefits of driving something other than an ICE engine vehicle but the quietness, as someone mentioned, of driving a battery electric.

These are all the kind of creative things that I haven't heard yet - and again correct me if I'm wrong - that I think ought to be -- ought to be exploited.

And lastly, I think certainly the need to expand our infrastructure has everything to do with the ability -- overall ability to see expansion in the market.

I had a visit from someone here that -- in California that is in the business of mobile solar charging stations for plug-in vehicles. I think it's ingenious. These things are -- basically you drop them down and they're ready to go. They charge themselves. Those of us that serve up here in local government capacities I think have a responsibility to seriously look at technologies like that that are relatively easy. You don't have to have an open trench scenario that's costly and disruptive. You can literally just have these things dropped in parking lots. And there's even a model of this portable charging station, if you will, that can be adapted for street use.

So those are the kinds of things in the menu of kind of creative thinking to expand the market that I think we're going to have to see more of.

And then I'll just end by again thanking staff. I think, as was noted earlier, you've just done a yeoman's job of really providing not just this Board but the public with I think some very clear challenges that we have still but certainly all the complementary policy directives that we need to see the market expand.

Thank you.

BOARD MEMBER SHERRIFFS: The Fowler Library has a solar charging station. It's wonderful.

BOARD MEMBER DE LA TORRE: Thank you.

When I came on the Board, one of the -- the first big thing that I faced was that deal in 2012. I came late

2011. And I was getting lobbied by many of the people in this room about that deal. And there were so many unknowns around that deal. This Board had a really hard time trying to anticipate what was going to happen. And we all took that leap of faith.

And so here we are doing our midterm review, which was part of the deal back then. So we are following through. We've done the analysis. And we are going to vote in a little bit on this. But I can't think -- you know, I'm trying to think back to 2012. And I can't think of anything in this situation that we're in in 2017 that goes against what we sought out in 2012. I can't think of anything that went wrong in these intervening years. I can't think of anything that is shaky or scary today that we didn't know back then. It's turned out pretty damn well.

And so when you do a midterm review it's -- in my mind, it's an off-ramp possibility. Well, there is no damn off-ramp. We're doing exactly what we said we were going to do. You're doing exactly what you said you were going to do. In a couple of years we're going to have double the number of electric vehicles on the streets or being offered for sale, which I think is going to really kick in the market with more variety. Some of you have heard me talk about some of the electric vehicles that I think that are less than attractive.

(Laughter.)

BOARD MEMBER DE LA TORRE: I think that's going to change, because there's going to be so many more options - cool options, big options, small options, different options. 200-mile options. That was not something we were talking about in 2012.

Maybe Dan was.

(Laughter.)

BOARD MEMBER DE LA TORRE: So, I mean, here we are in the middle of this thing -- well, not quite the middle but where we proposed we were going to check this thing out, and it's all working. So why would we take the off-ramp? Because something has happened in Washington D.C.? And I can appreciate how hard it is for the OEMs. It's like being between two bickering parents. Right?

(Laughter.)

BOARD MEMBER DE LA TORRE: And we're the cool one, by the way.

(Laughter.)

BOARD MEMBER DE LA TORRE: I can understand. I can appreciate how difficult that is. I can understand that on the one hand you have environmental measures, that is our purview; and on the other hand you might have, say, manufacturing incentives or tariffs that might be implemented on imports. I get it. It's tough.

But, I'm going to paraphrase a conversation I had with one of your associations, after the other association sent a letter to the Trump Administration saying you wanted to roll back some of this stuff. And that was that you take a long-term global view of the marketplace: That there is a world marketplace; that there is a United States marketplace; and there's a California marketplace, and those are all woven together. And that you need to do product development over the long term and you need to develop products with an eye toward where that global marketplace is going, to Dan's point about sales in other countries. And you're doing that. You've been doing that for a few years now.

So, whether it's four years or eight years, why would you change for U.S. market or for the California market when there's a world market out there that is heading in this direction? And I would argue that the California market and the world market are exactly on the same page regardless of what's going on in Washington D.C.

So from a business standpoint of the biggest market and the longer term direction, this is the right way to go to stay on track here. So if a divorce is going to happen at some point, we are going to litigate that divorce strongly.

And I think the point that was made from the VW settlement earlier - right? - that there were 500,000 of these cars here in the United States, but 8 million of them in Europe. That should tell you what I'm saying here, that I don't -- I'm not making this stuff up. We are just a little piece of the pie, even the United States. I know it's hard for us to not be, you know, the greatest all the time.

(Laughter.)

BOARD MEMBER DE LA TORRE: And then in terms of what's going on in Washington, I would just point out, you know, within the first hundred days we've had that spectacular success of the travel ban. And the headline just right now a couple of hours ago, "House GOP gives up on health care bill as Trump suffers first legislative defeat."

(Applause.)

BOARD MEMBER DE LA TORRE: So when your parents are fighting --

(Laughter.)

BOARD MEMBER DE LA TORRE: -- you can see which one has their act together and which one doesn't.

(Applause.)

BOARD MEMBER DE LA TORRE: Again, we understand, I understand this difficult spot you're in. But your interests, your business interests long term and in the marketplace of vehicles in this world are more aligned here than they are elsewhere.

And I'll close with again going back to the beginning of all this, which is "a deal is a deal." There were three parties at that table back in 2012. We're one of those parties, and we are going to continue to exercise our authority under that deal until we decide that that deal is no longer valid.

Thank you.

CHAIR NICHOLS: Thank you. Next in line is Vice Chair Berg, who I believe is going to actually propose the resolution.

VICE CHAIR BERG: Well, I do see -- Diane, did you want to make a comment?

BOARD MEMBER TAKVORIAN: Is that before --

VICE CHAIR BERG: Yeah, I'm going to move. Okay.

BOARD MEMBER TAKVORIAN: Thank you.

Well, hard to follow Member De La Torre. I would say current White House tenant, 0; human environmental rights, 3. Let's call it that so far, at least on the books. So I'd say bet on California if that's a summary.

And I want to thank all of CARB. I am inspired by our Chair's opening comments, and I think that this -- this is a CARB legacy issue. And it's clear that this Board is committed, the staff is committed. You've made it happen, and not just for California and the United States but for the world.

Since we're all disclosing our vehicles, I guess I need to say that --

(Laughter.)

BOARD MEMBER TAKVORIAN: -- I drive a 2012 Volt. And my experience in purchasing was probably different than Dr. Balmes. It actually wasn't in the front lot. I knew what I wanted when I walked in. And there was a sales guy that said, "Really? You sure? I can put you in this" whatever. But I knew what I wanted, and it has since then been a really positive experience. But that's four years -- five years and I think it's really changed.

Unfortunately there's one mechanic at our dealership that -- and, you know, we're on a first-name basis and I know what his days on and off are, so I know when I can get service.

But -- you know, but I think it's changing and it's great to be part of that evolutionary change and to watch those things happen and to hear these stories.

I will say - and no one will be surprised by this - that, you know, one, low income communities and disadvantaged communities are benefiting from these ZEVs being on the road. We are located next to freeways and next to major roadways. So the cleaner these cars get, the less polluted our communities get, the less asthma our kids have. So that's a huge advantage, and no one can deny that.

The other fact is is that our communities are not part of this story yet. And we need to be. So we need to improve the incentives. I endorse what folks have said about really needing to make those incentives better, and we need to make them more available for low and moderate income families - I think that's really important - and for the secondary market. It's important for folks to be able to purchase these cars on the second round.

So I support the measure and I congratulate everyone who's worked so hard on it. And everyone who is here today, we really appreciate all of your hard work on it.

BOARD MEMBER BALMES: Before you go and propose the resolution, I just want to say -- I've already shared this with my partners here -- my Chevy Volt dealer must have heard me, because they're now trying to sell me a Volt. "Electric cars of the future. Come see the new Chevrolet Volt here at" --

(Laughter.)

BOARD MEMBER BALMES: "Please call for a test drive."

(Laughter.)

VICE CHAIR BERG: Madam Chair, understanding the only thing that is preventing us to go to lunch is moving Resolution Number 17-3. I propose that we adopt --

BOARD MEMBER SHERRIFFS: Second.

VICE CHAIR BERG: -- Resolution 17-3.

BOARD MEMBER BALMES: I enthusiastically second.

CHAIR NICHOLS: All right. Will all in favor please signify by saying loudly aye.

(Unanimous aye vote.)

CHAIR NICHOLS: Any opposed?

None opposed.

No abstentions.

All right. Thank you all so much.

And we will take a lunch break, and we will be back to take up our last item of the day, which is the report on the ZEV investment plan after lunch at 2 -- no, wait -- 3 -- 3 o'clock.

(Off record: 1:44 p.m.)

(Thereupon a lunch break was taken.)

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

(On record: 3:06 p.m.)

CHAIR NICHOLS: Ladies and gentlemen, we're ready to resume the meeting.

We have quite a number of people who've signed up to talk on this item. So let's just get started with the staff presentation.

This is the discussion of the First Draft Volkswagen Zero-Emission Vehicle Investment Plan.

The diesel emission enforcement case has been settled through a series of partial consent decrees covering mitigation of the emissions caused by the noncompliant diesel vehicles, vehicle buy-back and repair solutions to address the polluting vehicles and compensate the vehicle owners, and a commitment by the company to invest in zero-emission vehicle programs that will support the ZEV market.

Last December, staff updated the Board on activities associated with implementing part of a Volkswagen 2 liter engine diesel partial consent decree; specifically, the zero-emission vehicle investment commitment.

Since the December update, a settlement for the 3 liter engines and also a penalty settlement have each been agreed on. The two new settlements will bring another

$220 million to California along with other benefits such as a required increase in available Volkswagen ZEV models and vehicle types. Today's update is focused primarily on the investment commitment portion of the 2 liter consent decree.

Just as a reminder, because this comes up every time this topic comes up again, Appendix C, the ZEV investment settlement, is not either a civil penalty or mitigation. It does commit Volkswagen to investing $800 million in California on ZEV infrastructure, brand-neutral public awareness marketing, increasing access to ZEVs, and green city projects.

So if done well, this investment will benefit Volkswagen in their new ventures into the ZEV world without a doubt. But it will also benefit equally, if not more so just based on numbers, the other firms and stakeholders that are involved in ZEV as well.

In February, staff provided Volkswagen with a publicly available guidance document intended to inform the company's first 30-month ZEV investment plan. This guidance document was based on public input, feedback from the Board, and input from our sister state agencies, as well as the California Legislature.

Earlier this month, as required by the consent decree, Volkswagen submitted a draft ZEV investment plan to ARB staff. I look forward to hearing more about the plan, in particular how well it aligns with the requirements of the consent decree and our February guidance.

So, Mr. Corey, will you please introduce this item.

EXECUTIVE OFFICER COREY: Yes. Thanks, Chair Nichols.

So Appendix C of the 2 liter partial consent decree requires investment plans noted by Volkswagen. And Volkswagen must invest, as you noted, $800 million in ZEV projects in California over four consecutive 30-month periods.

Eligible projects include installing zero-emission vehicle fueling infrastructure, brand-neutral consumer awareness campaigns to increase awareness of ZEVs, and therefore support growing ZEV vehicle market and projects that will increase access to ZEVs for all consumers in California, including those in lower income and disadvantaged communities. VW may also invest in green city project.

As noted, VW recently submitted its first plan to ARB. This plan is currently being reviewed by ARB staff with respect to its alignment with the consent decree and the guidance by ARB to VW. This presentation of the Board will review key elements of the consent decree and the guidance document sent to VW, and provide an overview of VW's draft plan in its adherence to the consent decree and guidance, recognizing we're early in the review process.

Ellen Peter, our chief counsel, will now make a brief statement providing the legal context for this item.

Ellen.

CHIEF COUNSEL PETER: Thank you, Richard.

VW has signed settlement agreements with owners and lessees of the 3 liter and 2 liter diesel cars with its VW dealers and with various state attorney generals. In addition, VWAG, the German parent company, pled guilty to criminal charges and must pay a $4.3 billion fine.

To date these settlements total over 20 billion in liability. Moreover, many lawsuits are still pending against VW around the country and around the world.

There are four settlement agreements that ARB signed with Volkswagen. One is already approved by the Court. And three agreements still need to be considered by the Court probably on May 11, 2017.

From the settlements that ARB signed, California will receive 153.8 million in penalties and costs, 423 million in mitigation trust monies, and an additional 25 million for low income Californians.

VW simply writes checks. They cannot touch this money.

The market for clean cars was distorted by VW's marketing of their illegal diesel cars. One of the settlement agreements VW signed with ARB requires VW to invest 2 billion nationwide in zero-emission infrastructure and programs over the next 10 years. 40 percent of that amount, 800 million, must be spent in California. The shorthand reference to this money is Appendix C.

The Court-approved settlement places conditions on those investments. But in contrast to the other monetary relief, this is an injunctive term and it's not a penalty. VW must meet the consent decree's requirements contained in Appendix C, but the penalties are in other parts of the agreement, not in C.

Because staff's update today focuses on Appendix C, and since it's only one element of the agreements, I wanted to make this comment first up front just to set the stage.

Thank you.

EXECUTIVE OFFICER COREY: Thanks, Ellen.

Now, I'll ask Jeffrey Lidicker of the Emissions Compliance Automotive Regulation and Science Division to give the staff presentation.

Jeffrey.

AIR RESOURCES ENGINEER LIDICKER:

(Thereupon an overhead presentation was Presented as follows.)

AIR RESOURCES ENGINEER LIDICKER: Good afternoon, Chair Nichols and members of the Board.

Today I will be providing an update on the implementation of the Volkswagen diesel settlement, in particular Appendix C, the ZEV Investment Commitment. My presentation will then provide a summary of VW's ZEV Investment Plan and, finally, I will go over a timeline of next steps.

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AIR RESOURCES ENGINEER LIDICKER: Before we get into the contents of the submitted Draft ZEV Investment Plan, new settlement agreements have been reached between VW, the U.S. EPA, and United States Department of Justice, and the California Air Resources Board since the last Board update in December. In addition to the approved 2 liter settlement, there is now a 3 liter and a civil or penalty agreement pending court approval.

First, let's review the 2 liter settlement approved by the federal judge last year. On October 25th, 2016, the United States District Court for the Northern District of California approved a proposed partial consent decree between ARB, VW, U.S. EPA, and the United States

Department of Justice. The consent decree partially resolves Clean Air Act and California State claims against VW for equipping its 2 liter diesel vehicles with defeat devices. This consent decree mitigates the environmental harm from the violations including the excess emissions from 2 liter diesel cars on the road. There are four elements of the consent decree. Each element is described in a separate appendix.

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AIR RESOURCES ENGINEER LIDICKER: The 2 liter agreement requires Volkswagen to pay billions of dollars to address the vehicles on the road through a buy-back or fix if approved by ARB and EPA. It also establishes a mitigation trust VW will pay for to mitigate excess NOx emissions as well as an excess $800 million -- $800 million ZEV investment commitment. About $381 million from the NOx mitigation trust will come to California to be spent by the State.

Under the ZEV investment commitment VW will invest in eligible projects including ZEV infrastructure, access to ZEVs via a green city, and awareness, all of which will be discussed in more detail shortly.

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AIR RESOURCES ENGINEER LIDICKER: The VW 3 liter partial consent decree was approved upon in December of last year and has not yet been approved by the judge. Under the 3 liter agreement VW will continue almost $42 million to -- contribute almost $42 million to the NOx mitigation trust for the State to spend, and $25 million to the Air Pollution Control Fund intended for the State to spend on ZEV-related projects for low income Californians. Also, in the 3 liter California agreement are requirements for a second green city comprised primarily of disadvantaged communities. Additionally, new ZEV models and vehicle types, such as crossover vehicles, are to be brought to the California market in 2019 and 2020. The 3 liter agreement also includes a requirement that VW sell at least 5,000 new ZEVs per year in California from 2019 to 2025.

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AIR RESOURCES ENGINEER LIDICKER: Finally, a civil penalty agreement, which covers both 2 and 3 liter diesel engines, has been reached, but also has not yet been approved by the judge. This agreement provides that VW will pay $153.8 million in penalties into the California Air Pollution Control Fund in addition to injunctive relief.

The different elements of the settlement work together to address the need to make the vehicle owners whole through either buy-pack or repair of the vehicles, mitigation of the environmental harm caused by the increased emissions coming from the cars, actions to repair the green car market through the support of the ZEV market and, finally, penalties to push -- punish VW for wrongdoing and deter others from violating our standards.

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AIR RESOURCES ENGINEER LIDICKER: This slide summarizes the VW monetary settlements in one table, and clarifies the distinct intentions for each category of funding. In the far left column, the three parcel settlements are listed.

In the middle column are the traditional monetary relief sums, which are mitigation funds and penalties.

In the column on the right is the injunctive relief, or more innovative agreement benefits. In particular, the $800 million is a commitment by VW to invest in ZEV support in California. This investment is expected to have global impacts that transcend the borders of California, and that will hopefully support the vehicle market both in California and in the rest of the United States.

Although the funds are to be spent by VW, California has retained parameters within which the funds must be spent. We expect that the result is that at the end of the 10-year spending commitment the investments will not shut down, not be removed, but that they will continue on in service. And in order for this self-sustaining goal to be achieved, VW may be able to benefit from its investments and a profit by year 10 is possible and even necessary.

Although some of the monetary relief funds go to a trust and some go to the California Air Pollution Control Fund, in total there will be approximately $600 million for the State to spend, which is completely separate and different from the sum VW will spend in California.

Total settlement funding for California amounts to almost $1.4 billion. To put the $1.4 billion into context, the national amounts VW will spend including its commitment to buy back or fix affected vehicles over $14.7 billion, not even including the 3 liter buyback or fixed costs.

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AIR RESOURCES ENGINEER LIDICKER: This slide and the next slide summarize Appendix D, the Environmental NOx Mitigation Trust, which was discussed at the December Board hearing, and provide an update in light of the new arrangements.

California will receive $381 million from the trust under the 2 liter agreement and $42 million from the trust under the 3 liter agreement to California to mitigate the total lifetime excess NOx emissions resulting from the use of illegal defeat devices.

The trust will fund specified mitigation actions to replace older, dirtier, heavy-duty vehicles and equipment with cleaner vehicles and equipment.

The consent decree specifies nine eligible mitigation action categories that can be funded. They include: Scrap and replace funding for on-road freight and drayage trucks; transit, shuttle and school buses; ferries and tugs; and off-road freight equipment;

Shorepower for ocean-going vessels; and

Up to 15 percent of the trust may also be used to fund light-duty electric vehicle charging stations and hydrogen refueling stations.

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AIR RESOURCES ENGINEER LIDICKER: Based on past experiences with states other than California, U.S. EPA required the use of a trust for the mitigation fund. The trustee, Wilmington Trust, was approved by the judge as of March 15th, and the mitigation trust is expected to be effective later in 2017.

VW will deposit the required funds into the trust in three equal annual installments beginning within 30 days after the trust effective date. The trustee will be responsible for disbursing the funds. The Governors of each state will name a respective lead agency to manage the trust funds allocated to that state. The lead agency for California has not yet been named.

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AIR RESOURCES ENGINEER LIDICKER: As mentioned, the Governor will identify a lead agency to act on the State's behalf in implementing California's allocation of the trust.

Once the Governor has identified a lead agency, that agency's task will include developing, through a public process, a beneficiary mitigation plan that describes the overall use of the funds; implementing the beneficiary mitigation plan and the mitigation actions identified in the plan; and submitting semi-annual reports to the trustee on the implementation status of the mitigation actions.

Staff will present a status update on Appendix D to the Board later this year.

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AIR RESOURCES ENGINEER LIDICKER: Now I will turn to the 2 liter agreement's ZEV Investment Commitment in Appendix C. This portion of the 2 liter consent decree includes the following:

A commitment for VW to invest $2 billion over a

10-year period in ZEV-related programs in the nation. Of that $2 billion, $800 million will be invested in California, which is about 40 percent of the total commitment.

The investments will be carried out in four 30-month spending cycles, with about $200 million being spent in each cycle. For each ZEV investment cycle, VW will submit a plan to ARB for review and approval, and the investments made will be reviewed annually by a third party auditor.

The goals of the investment plan laid out in the consent decree are to promote and advance the use and availability of ZEVs in California by supporting transportation electrification, supporting the next generation of zero-emission vehicles, growing the ZEV market, and supporting access to ZEVs. This could include increasing access to low- and moderate-income consumers and disadvantaged communities.

AIR RESOURCES ENGINEER LIDICKER: The 2 liter consent decree establishes eligible investment categories for VW that support the goals of Appendix C.

These include: ZEV infrastructure, brand-neutral education and public awareness campaigns, ZEV access programs and a green city initiative.

Pending judge approval of the 3 liter Consent

Decree, a second green city will be funded from the 2 liter funds that must be comprised of primarily disadvantaged communities.

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AIR RESOURCES ENGINEER LIDICKER: We'll turn now to a review of milestones to date for Appendix C and then begin the summary of the VW ZEV Investment Plan.

Recall that the 2 liter partial consent decree was approved by a federal judge in October of last year. Subsequently ARB held a public workshop, a public Board hearing, and a public open comment period last year specifically to gather public comment to use in developing the guidance document, which ARB submitted to VW on February 10th of this year.

The guidance document represents a summary of California's priorities and advice based on public input regarding ZEV investment opportunities consistent with the objectives and criteria set forth in Appendix C.

VW's draft ZEV Investment Plan was posted online for public access and comment on March 14th. At the same time, a notice went out via listserv to notify members of the public that the draft plan was available.

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AIR RESOURCES ENGINEER LIDICKER: ARB approval of the VW ZEV Investment Plan is based primarily on the terms of the 2 liter Partial Consent Decree, specifically in Appendix C. All spending in the plan must be within the eligible spending categories of ZEV Infrastructure, ZEV Access, ZEV Awareness, and Green City.

Examples of specific requirements for projects include brand-neutral ZEV public awareness efforts; and should VW create any new companies or services to comply with the consent decree, such as a car-sharing company, EV freight service, or an EV charging company, all associated marketing cannot mention any automobile brand in writing or display any automobile brand logos.

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AIR RESOURCES ENGINEER LIDICKER: The consent decree also requires that the ZEV Investment Plan:

Provide a description of all ZEV investments, contain an explanation of how each investment makes progress towards and/or meets one or more of the goals identified in the consent decree;

Contain an estimated schedule for implementing each investment and milestone of each project in 6-month intervals; and

Contain projections of anticipated credible costs associated with each investment broken out by 12 stipulated accounting categories.

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AIR RESOURCES ENGINEER LIDICKER: I'll turn the presentation now to a summary of VW's first ZEV investment plan submittal. ARB received the plan about two weeks ago and it is undergoing review.

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AIR RESOURCES ENGINEER LIDICKER: To start, this slide shows a breakdown of how VW proposes to split its first $200 million investment cycle funds.

The table shows in millions of dollars the approximate allocation of first-cycle funds by spending category. You can also see the national spend along with California numbers and the totals along the bottom.

As you can see, with the national investment of $300 million, the total VW investment in California and the nation combined will be half of a billion dollars.

For California, VW proposes to spend $120 million, or 60 percent of the budget, on ZEV infrastructure; $44 million, or 22 percent, on Green City initiatives; and $20 million, or 10 percent, on ZEV education and access programs. Overhead for all of these activities is projected to be less than 10 percent.

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AIR RESOURCES ENGINEER LIDICKER: I will now summarize the EV charging network vision that VW includes in its plan submittal.

For locations with long parking times, such as at multiple unit dwellings and at the workplace, VW's plan includes installation of level 2 chargers that have approximately 7.2 kilowatts of power. This power equates to about 20 minutes of range for each hour charge. These installations would benefit a broad cross-section of drivers who have not been served by the traditional at-home charging model.

For locations with medium parking times, such as at retail or municipal garages, VW's plan includes installation of level 2 chargers or even 50 kilowatt DC Fast Chargers. VW's plan also includes experimental community depots. These community depots would be conveniently located adjacent to multi-unit dwellings but don't currently have charging access, and will provide fast-charging capabilities.

This new concept simulates a gasoline station and has the potential to serve disadvantaged communities. VW's plan notes that some of these community depot stations may be at the "super" 150 kilowatt power level for even faster charge times. DC fast chargers installed to date are typically only 25 to 50 kilowatts by comparison. The community depots are a new concept that would provide data and learnings for the future.

For locations with extremely short parking times, such as along highways, VW's plan includes installation of 150 kilowatt super fast chargers and also some 320 kilowatt chargers. These very high-powered chargers are designed to respond to anticipated future ZEV needs.

The plan describes bringing two innovations to the market with these investments: The community depots designed to function as electric gas stations for those who cannot charge at home, and highway fast chargers that are up to six times faster than currently installed chargers. Chargers this fast could provide 200 miles of range in potentially just over 10 minutes.

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AIR RESOURCES ENGINEER LIDICKER: This slide shows the overall EV charging infrastructure budget and timeline in the plan for the first 30 months. The plan allocates $40 million, or one-third of the budget, to the community-based or local charging networks, which would be expected to yield over 350 stations.

$65 million, or 54 percent of the budget, is allocated to the long-distance highway network, which would be expected to yield over 50 stations.

According to ARB's estimate, the total $120 million investment in EV chargers is expected to satisfy less than 10 percent of California's estimated demand based on the State's goal to have enough infrastructure in the State to support 1 million ZEVs by 2020.

This table, reproduced from the VW ZEV investment plan, shows the approximate timeline for the development and installation of the EV charging stations over the first 30 months.

Even more chargers could be installed in subsequent 30-month cycles. Adherence to this timeline is dependent upon when the ZEV Investment Plan is approved by the State.

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AIR RESOURCES ENGINEER LIDICKER: VW's ZEV Investment Plan describes how the infrastructure plan was developed. This includes the use of a gap analysis to set the number of charging stations and their proposed locations. This gap analysis is based on the difference between the currently installed infrastructure and the projected demand. VW's proposal is to locate stations where they are most needed after taking into account existing stations. This would mitigate the effect on existing companies, as any location that already has adequate infrastructure won't be considered for new stations.

The Plan describes the total investment amount for EV infrastructure in the first 30-month cycle as being $120 million. Lastly, the Plan states that the planned network will be interoperable, meaning that there will be universal access. All chargers would accept several forms of payment, including credit cards, and all nonproprietary charging standards would be supported.

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AIR RESOURCES ENGINEER LIDICKER: This slide details -- shows the details of the community or local charging network described in the Plan submittal.

The Plan states that over 350 EV charger stations are targeted to be installed in communities. The plan calls for a mix of charger types including level 2 and multiple power level DC fast chargers. Installations in multi-unit dwellings and workplace locations, on which an emphasize was placed at the Board hearing in December, would benefit underserved communities.

As I'll describe further in coming slides, VW proposes an initial focus for its community and local charging in five metropolitan areas of California.

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AIR RESOURCES ENGINEER LIDICKER: Cash guidance to VW articulated the need for investments not to be sprinkled all over the entire state and to learn from mistakes made in the past where some installed infrastructure has gone unused.

VW's plan selects for EV charger installations five major metropolitan areas that cover the majority of the projected ZEV adoption. VW notes that other areas may be included in subsequent spending cycles.

VW's approach would insure initial investments are utilized, which will ultimately drive success throughout the State of subsequent investments. The following slide describes the methodology laid out in the plan in more detail.

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AIR RESOURCES ENGINEER LIDICKER: This image comes from the VW ZEV Investment Plan and shows the process VW describes in the plan to select the five areas for EV charging installation in the first spending cycle. The VW plan states that the decision process for selecting these areas and allocating funds included an analysis of each region's projected needs versus current supply.

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AIR RESOURCES ENGINEER LIDICKER: Switching now to the long distance network chargers, this is a map provided by VW in the ZEV Investment Plan submittal that shows the upper two quartiles of the CalEnviroScreen in red and yellow. Imagine, if you will, a highway network of approximately 50 stations spanning east to west and north to south.

VW's plan states that roughly 25 percent of these chargers will be in communities in the top quartile of the CalEnviroScreen scores, and over 50 percent, or half, of the chargers will be in communities in the upper half of the CalEnviroScreen.

These DC fast charger stations may act as anchor investments supporting communities that currently have little or no ZEV infrastructure. Installation of over half of the VW long-range EV charger stations in disadvantaged communities may spur EV adoption.

Characteristic of long-range charging is the desire for the shortest possible charge time. To answer this challenge, VW proposes a network that would consist of 150 kilowatt and 320 kilowatt chargers, which are three to six times faster than current DC fast charger equipment. These higher power DC fast chargers will enable fast charging times for vehicles on the horizon with longer range. In short, these chargers will be future proofed against technology development over time.

VW describes a network that would cover about 12 highways, with each site in the network having an average of five plugs with some of each charging standard.

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AIR RESOURCES ENGINEER LIDICKER: This table from the VW ZEV Investment Plan shows more detail about the charger network locations. The Plan's goal is to create a

California highway network designed to place high speed charging stations along the long-distance routes with the highest estimated ZEV traffic, as well as to link the prioritized metro areas to form a cohesive statewide network. Many of these locations could also serve disadvantaged communities.

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AIR RESOURCES ENGINEER LIDICKER: Now I will move on to the Green City portion of the VW ZEV Investment Plan submittal.

If the 3 liter agreement is approved by a judge, there will be two Green Cities, with the second one predominantly consisting of disadvantaged communities. Thus, VW's Plan selects the first Green City based on its composition of disadvantaged communities secondarily and primarily for its potential success and potential benefits.

This first city will grow the Green City technology and business models, which do not exist anywhere in the U.S. at this time.

It will spread the word to other cities, acting as a demonstration ground and as an example or model.

Lessons learned from this city would inform planning and decisions for the second Green City and contribute greatly to the second Green City's likelihood of success.

Although the Plan envisions investing in several services and models relying on technology not yet developed, such as possibly autonomous vehicles in later spending cycles, VW proposes that the first spending cycle consist of ZEV car-share and ZEV delivery services. These are intended to increase accessibility of ZEVs to city inhabitants and create a green mobility habitat. The Plan sees these initiatives as serving as pilots to help spur the widespread adoption of ZEVs and mobility services.

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AIR RESOURCES ENGINEER LIDICKER: As mentioned, VW's stated objectives for the Green City program are to offer a set of ZEV initiatives that are accessible to the city inhabitants and create a green mobility habitat. These initiatives should be leveraged to offer residents better quality of life through enhanced mobility and improved air quality.

This edited figure also comes directly from the VW ZEV Investment Plan and presents the analysis that led to identification of the first Green City candidates.

Step 1 on the figure indicates that VW began its analysis by looking for a city with a population size of greater than 400,000 residents, which the Plan describes as a city large enough for scalability of projects, with demand for car-sharing programs and the potential for increasing ZEV access to disadvantaged communities.

Step 2 on the figure indicates that VW evaluated each of the remaining cities for Mobility Fit, which it further defined in the displayed subfactors: Mobility demand or the VMT of the city, the community flow patterns specific to the city, and an evaluation of the other transport services available within the city (such as Car-share or Uber or otherwise). The plan explains that these factors are considered against the functionality of ZEVs that will be used in the Green City programs.

Step 3 on the figure indicates that VW then evaluated the cities for potential impact, which is further defined in the displayed subfactors: Societal Impact, which refers to the magnitude of the potential change; Implementation Feasibility, which refers to the practicality of implementing such programs in a particular city; and Awareness Impact, which refers to the potential impact on city residents and possibly other entities outside the city.

The Plan then combined the scores from steps 2 and 3 to arrive at a final score for each city. You can look at the posted ZEV Investment Plan on ARB's website to see the weighting system described in the Plan. ARB staff are still evaluating this city selection process.

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AIR RESOURCES ENGINEER LIDICKER: The Plan identified three potential Green City initiatives on which to focus: ZEV car-sharing, ZEV delivery fleet, and a ZEV taxi fleet provider. To support these initiatives, the Plan proposes the installation of approximately 50 EV chargers for the ZEV Car-share program and 25 more for the ZEV delivery fleet in the first 30-month cycle.

The Plan's proposed first Green City is Sacramento.

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AIR RESOURCES ENGINEER LIDICKER: Moving on to the ZEV Awareness Campaign outlined in the VW ZEV Investment plan, we see a budget of $20 million in California for this first 30-month cycle.

These programs must be brand neutral, as stipulated in the consent decree, and must not feature or favor VW group vehicles. However, they may say "sponsored by VW" at the end, but neither that message nor VW's name or brand may be prominently displayed.

The VW ZEV Investment Plan describes a multimedia or multi-channel ZEV awareness campaign. The proposed multimedia approach utilizes each media channel to deliver a different part of the message. The Plan states that VW would utilize television to expand the audience and familiarize the audience with ZEVs, and outdoor advertising such as billboards or consistent signage at charging stations to show the benefits of ZEVs and charging infrastructure. Digital media, experiential programs, and partnerships with other entities are proposed to further deliver different parts of the message.

One example given by the Plan is that television may be used in phase 1 to raise the overall ZEV awareness, while on-line digital media could be used in subsequent phases to disseminate more specific messages and deal with particular issues associated with ZEVs.

VW describes plans for experiential initiatives like ride-and-drive events under Public Access Initiatives. In the National Plan, ride-and-drives are considered Public Access Initiatives. California, however, cease sees these activities as public awareness building activities and not access activities.

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AIR RESOURCES ENGINEER LIDICKER: That concludes our summary of VW's ZEV Investment Plan submittal. I'll talk now about how we will go about evaluating the plan.

ARB staff is soliciting public comment and direction from the Board on the evaluation of the VW ZEV Investment Plan for consistency with the goals and terms of Appendix C. ARB will approve or disapprove the plan, in whole or in part.

Key metrics of the evaluation process will include the plan's adherence to the requirements set forth in the 2 liter consent decree.

Quickly, some of the consent decree requirements for what must be included in the Plan are:

The plan should include a description of all investments.

It should detail how each investment makes progress toward one or more of the goals of the consent decree.

EV charging should be able to service all ZEVs with nonproprietary connectors.

ZEV investments should not be concentrated in a single area of the State.

Investments cannot include research and development.

The plan must address charging station maintenance.

The plan must include charger implementation plan details, a description of how VW will monitor and maintaining each ZEV investment, the anticipated creditable costs associated with each project, and an estimated schedule for implementing each investment in six-month intervals.

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AIR RESOURCES ENGINEER LIDICKER: Other key metrics to evaluate the plan include those laid out in the Guidance document sent to VW containing further information to be included in the plan and provided information regarding ZEV investment opportunities that are consistent with the objectives and criteria set forth if Appendix C. The Guidance reflects the public input received through late 2016. These include the following:

Early, visible progress.

Projects that are transformational.

EV infrastructure that includes multiple unit dwellings, workplace, public, and long-range sites.

Investments be complimentary and additional.

Programs prioritize disadvantaged, low-income, and disproportionately impacted communities.

Investments include business competition and conduct considerations, including a self-sustaining model.

That the Awareness campaign include multi-lingual, multi-cultural elements.

Access in Green Cities that prioritize disadvantaged communities and track performance.

That Data collection and reporting is important and expected.

And encouragement of hydrogen infrastructure investment.

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AIR RESOURCES ENGINEER LIDICKER: After ARB has approved the ZEV Investment Plan, VW has a lot of work to do in a short time frame.

VW has to coordinate the site selection process with input from multiple stakeholders including state agencies, local authorities, and site hosts.

After that will be site permitting and the negotiating and signing of up to hundreds of contracts.

In short, VW will have to spend at an unprecedented rate for an extended period of time.

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AIR RESOURCES ENGINEER LIDICKER: This slide reviews the timeline and the process for ARB's eventual decision on the VW ZEV Investment Plan.

The Draft plan was posted on March 14th. Public comment was also opened on this same day with a notice on the website and an invitation for public comment via listserv.

A legislative hearing was held on March 21st and the ZEV Investment Plan has been presented to the Board today.

The public comment period will close April 10th, almost a month after it opened.

Briefings for various entities such as legislators and interested Board members will be held, and the target dates for preparing and issuing the decision is late April.

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AIR RESOURCES ENGINEER LIDICKER: But the process does not end once a ZEV Investment Plan is approved. VW will present to ARB staff every six months on its progress, as well as submit written reports to ARB annually.

VW has requested ongoing coordination with state and local agencies. The goal is to collaborate on site selection, dialogue with utilities, and help with permitting and easement efficiencies.

Working with state agencies will provide additional oversight and help the projects complement the state's investments, and afford the opportunity to ensure project implementation meets the state's goals, especially for investment in disadvantaged communities. ARB's new Assistant Executive Officer for Environmental Justice is expected to be part of this group.

Additionally, an independent third-party auditor will provide annual reports on spending and accounting for all projects related to the Plan.

And just with you think it's time to rest --

(Laughter.)

AIR RESOURCES ENGINEER LIDICKER: -- there will be ZEV Investment Plan 2, then the 3rd, and finally the 4th over the next 10 years. ARB will main a public and transparent process throughout this 10-year investment period.

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AIR RESOURCES ENGINEER LIDICKER: The investments to be made by VW are coming at a critical time, as the ZEV market ramps up in the coming years. These programs and services have the potential to be transformative and highly supportive of California's efforts to grow the ZEV market and broaden the reach of electrified transportation to all Californians, include those in disadvantaged communities. Beyond California, this commitment by VW has the potential to support additional ZEV markets critical to the overall success of ZEV transportation.

Finally, we look forward to keeping the Board informed about the VW ZEV Investment Commitment.

Thank you for the opportunity to provide this update.

CHAIR NICHOLS: Okay. Let me just make a couple comments before we get started with the witnesses.

First of all, I think we're going to invoke the two-minute rule from the beginning here --

(Laughter.)

CHAIR NICHOLS: -- with 45 people who want to comment. And the amount of comment that's been included already in this process, I don't think we need to have the three minutes from everyone.

However, that doesn't mean that we're not going to be hearing from you; because as you can tell, this is a long process. We're going to be with -- we're going to be with this plan for many, many years. And that's a good thing. But we want it to begin in as strong and successful a way as we possibly can.

This is -- it's going to be an interesting relationship.

I want to make sure that two things are clear. First of all, I don't want to have this Board having to hear every change in the plan, every adjustment in the amount of money that's going to one category or another or every issue that comes up with respect to a project. I expect we'll be hearing from our constituents, you'll be hearing from people on an ongoing basis. We're going to want to be informed. And ultimately I suppose, at least somewhere along the way before we get to the end of the first period, we're going to want to audit, in effect, the expenditures. And I want to be sure from staff that

that's your understanding, that we're going to be in a position to do that.

I see head nodding, but I just want that to be clear. Because right now what we're looking at is a proposed expenditure plan, which has a fair amount of meat on the bones, but still has a lot of missing detail which will have to be developed in order for them to actually spend the money.

Having had conversations with company in, you know, recent weeks, I'm convinced that they are moving fast and smart to figure this out.

But we're not going to be sitting back here in a month, you know, line by line going through the expenditure plan.

So Mr. Ayala or Mr. Corey, do -- or Ellen, whoever.

Ms. Peter.

CHIEF COUNSEL PETER: Yes, Chair Nichols. In terms of your request for the audit, built into the consent decree is a third-party reviewer that we approved. And that reviewer will go out and check on the different aspects of it when -- including the money, including the installation since we have on-the-ground checking. We didn't want to take that on ourselves. That's not what we do. But they at their expense has to go out and confirm that these things are actually being built.

One of the questions that had come up before in other charging situations is maintenance. We've had people come in over the years talking about things not being maintained. In the consent decree, maintenance is required. And this is one of the things that the third-party reviewer will collect that kind of data. So we were trying to design a program, seeing problems we've seen before, build that in, and then also make Volkswagen pay for reviewer to go check that data. So that's built in. Every six months there's a report back to ARB, a meeting at least once every six months. There's annual reports; those would be made public, including the third-party reviewer and the audit. So we want to make sure the money's going where it's supposed to go.

CHAIR NICHOLS: Okay. Thank you.

With that, let's start with our list, and begin with Larry Greene from the Sacramento Air Quality Management District.

MR. GREENE: Thank you. Thank you, Chairman Nichols and members of the Board. I'm pleased to be here and have this opportunity to testify on behalf of my board and our collaborative partners in the Sacramento region.

We commend the Board and staff for staying the course on ZEVs and your great work on the VW case.

My testimony is in support of Sacramento as the initial Green Cities location. I guess that's a surprise, right?

(Laughter.)

MR. GREENE: Our district is part of a strong network in our region. Our PEV collaborative, Take Charge Sacramento, has regular meetings already to coordinate ZEV efforts, and includes the city and county of Sacramento sustainability managers, our fleet managers, our district, SMUD, SACOG, Sac airports and other partners in our region. It's already in place and prepared to help and participate in the effort that -- the Green Cities effort.

We coordinate with and apply for grants through the Air Resources Board, CEC, U.S. EPA, and DOE. We have active grants for 29 EV school buses; 8 EVs and a car sharing program in low-income areas; and are developing a robust light-duty EFMP Program.

All those programs that I spoke of are directly in or support our CalEnviroScreen communities in Sacramento.

We're also collaborating with our regional partners in developing and deploying hydrogen fuel cell locomotive retrofits and hydrogen fuel cell Class A tractors. So we have other kinds of activities that are underway in our area too.

This program will roll out in Sacramento overlaid on a robust and experienced set of partners that are ready to help and participate. We will help this effort be successful and look forward to the journey.

Thank you.

CHAIR NICHOLS: Thank you.

MR. SCHEMBRI: Thank you, Chairman Nichols and Board for the opportunity to comment today and for your leadership in ZEV deployment across California.

I'm Dave Schembri, CEO of EVgo, the largest provider in the nation and in California of public fast-charging services for all EV models. As of today, approximately 90 percent of the State's population, or 35 million Californians, live within 35 miles of at least one EVgo fast-charging freedom station.

We believe that the EV charging industry is at a critical inflection point, needing a massive investment in charging infrastructure. EVgo has been and will continue to make investments in California and across the country. But we enthusiastically welcome the $800 million in California and $1.2 billions elsewhere in the U.S. committed under the settlement agreement that will help a broader deployment of EVs.

EVgo believes that this funding with the oversight of the Board and active participation of a broad array of private sector EV charging service providers and suppliers will be critical to making widespread EV adoption possible.

Cycle 1 of the California ZEV Investment Plan is critical to ramping up an effort that focuses on public charging infrastructures in cities and highways while also laying the groundwork for sustained funding over the life of the settlement.

Drivers want EV charging to be easy, accessible, and affordable. EVgo is one of many private-sector participants seeking to do just that. And the bulk of those industry representatives believe that the additional capital into the sector through Cycle 1 will definitely help that effort.

So in conclusion: And we're committed to fulfilling the vision of public charging infrastructure for all. We support Cycle 1 and look forward to continuing to work with the Board over the coming months and years to ensure that this and subsequent segments of the plan work to make EV charging accessible to all Californians.

Thank you.

DR. LANGDON: First of all, thank you for this California ZEV Investment Plan and all the great work that went into this. And thank you for letting me comment.

My name is Chris Langdon. I am a research associate professor at the Peter Drucker School of Management at Claremont Graduate University, which is located nearby.

Our school has submitted a proposal to Volkswagen, and we are a little bit concerned that something may be overlooked. What we are concerned about can be summed up in just one word: "Customer."

Peter Drucker is the father of modern management, and he once famously said, "If there is one purpose in business, it is to create a customer." And though we all agree with this, in reality customer centricity is too often an afterthought. Too often there's a great deal of excitement focused only on the technology side alone.

And let me quickly give you two examples in transportation to illustrate the point.

Driver assistant systems. Automakers have spent lots of money on this technology. On paper, this technology makes sense. It saves lives. But many customers switch it off. Why? Because it beeps and blinks and distracts us. The fact that the customer has been an afterthought is limiting the technology.

And then the example of EV sales. Most people don't drive more than 40 miles per day; and engineers have confirmed this in many, many market tests; and therefore, they gave their cars double and triple the range just to be safe.

And yet, hardly anybody of us is buying EVs. Why? Because we as customers have anxiety that these vehicles don't have enough range and they're not convenient enough for us.

In engineering theory, 120 miles should be more than enough. But not in consumer psychology.

And this brings me to my point: Your initiative will invest some 120 million in creating more ZEV infrastructure. Is this what is truly holding back the ZEV future?

In closing, if Peter Drucker were still alive today, he would remind us to first do the right thing and before doing it right.

So, and bad customer centricity including customer economics and consumer psychology.

Thank you very much.

CHAIR NICHOLS: No questions?

I have a question for you, Mr. Langdon.

My understanding is that you or some of your colleagues have actually submitted a research proposal to use some of the funds for that purpose.

MR. LANGDON: Yeah, we could use an existing fleet to run experiments, you know, standard academic research. We try to understand how can we really make this more attractive for customers. In other -- yeah, sorry.

CHAIR NICHOLS: No, I understand. I think it's very interesting.

I guess my question is, is that actually consistent with the consent decree? Can we use it for that purpose? I know the company is doing its own -- I mean quite a bit of internal -- some -- presumably paying for some research to be done. But I don't whether they're charging it against the fund.

CHIEF COUNSEL PETER: So research is not a credible cost. But it -- it's like the Devil's in the details. I don't understand what their proposal is. I don't know -- you could -- VW can spend more than 800 million.

CHAIR NICHOLS: Of course.

CHIEF COUNSEL PETER: So you could actually -- they could give access to them to the data potentially. I mean, there's different ways to do it. So I can't really comment one way or the other. But pure research is not eligible because we didn't want to have Volkswagen frankly, you know --

CHAIR NICHOLS: We want actual --

CHIEF COUNSEL PETER: We want projects on the ground.

CHAIR NICHOLS: Stuff, stuff. But at the same time, in the plan that they submitted to us - and I believe this is in the public plan - it indicates that they've done quite a lot of analysis and modeling of where there's a need and -- as you said, that they've thought a lot about infrastructure. So the question is, if we were -- well guess I can begin and ask the question of the company, what are they thinking in terms of where they should be further asking questions.

So thank you.

MR. LANGDON: Thank you.

BOARD MEMBER SHERRIFFS: Can I -- along those lines though, there is money in the settlement for public education and awareness. And this would certainly -- I mean, that's the implication of this, which is so important. It's great to have highlighted that. I don't know if research per se is going to fit in. But there clearly is money in the settlement, yes, for public awareness and outreach.

CHAIR NICHOLS: Okay. Thank you.

All right. Next.

MR. GROSS: Good afternoon, Chair Nichols and Board members. My name is Tom Gross with Southern California Edison.

Edison appreciates the opportunity to speak on the first draft of the California Zero-emission vehicle Investment Plan. Edison supports efforts to increase the availability of electric vehicle infrastructure. We recognize that zero-emission technology is essential to the attainment of the national ambient air quality standards and the State's GHG goals.

Electric vehicles with their storage capabilities have the added benefit of allowing for greater utilization of renewable energy.

The Volkswagen Zero-emission Vehicle Investment Plan has a number of elements that have already been articulated. And Edison supports these ideas as a part of the plan. The State investor-owned utilities, as directed in SB 350, have submitted applications to the CPUC for a variety of electrification projects; some for light-duty vehicles, others for heavy-duty projects. But there's a great need for additional infrastructure and there's ample space for both the investor-owned utilities projects and the VW plans articulated here.

SCE looks forward to closely collaborating with Electrify America on these important projects.

Thank you.

CHAIR NICHOLS: Thank you.

MS. REGE: Good afternoon, Chair Nichols and members of the Board. I'm Julia Rege, Director for Environment and Energy at the Association of Global Automakers.

Global Automakers' companies sell 56 percent of the vehicles purchased in California. And Global Automakers has always and will continue to support that all options of -- technology options will be needed to achieve ZEV and climate-change goals going forward. And so our companies are investing billions of dollars in advanced technologies. That means plug-in hybrids, battery electric, and fuel cell electric vehicles.

We appreciate the work that's been done to date on the investment plan, but we are concerned it's too narrowly focused on plug-in options. We recommend that the plan include hydrogen as well and devote a portion of funds specifically for hydrogen infrastructure. The inclusion of this will help support this all-inclusive approach that is needed going forward for a low-carbon light-duty transportation fleet.

Thank you.

MR. LORD: Good afternoon. Nice to be up close again today. I have a quick statement on the Volkswagen Investment Plan. And my name is Michael Lord with Toyota Motor North America.

Toyota fully supports ARB's technology-neutral approach to vehicle electrification, and strongly agrees with ARB's view that the VW Investment Plan should follow the same principle and support the rollout of both plug-in and fuel cell technologies.

As ARB has recognized, both battery and fuel cell technologies will be critical and necessary to meet the State's clean air and climate goals, and Toyota supports the use of plan funds to support the market for both.

We believe the lack of investment in the investment plan on hydrogen hurts the rollout of fuel cell vehicles in relation to battery electric vehicles. By failing to acknowledge the essential role that hydrogen will play in electrification, not just in the light-duty fleet but across the transportation spectrum, the current proposal will seem to follow only one pathway, and a pathway that not all manufactures are pursuing, in the sense a proposal may not only fall short of being technology neutral and serving ZEVs with nonproprietary connectors, but also is arguably not brand neutral. Toyota therefore urges ARB to work with VW to assure that hydrogen is included in this and subsequent investment plans.

Thank you.

MS. CHEN: Good afternoon, Chair Nichols, members of the Board. I'm Patricia Chen with the countywide planning department at the L.A. County Metropolitan Transportation Authority, or Metro.

Metro is the regional transportation planning, programming, construction, and transit operator authority for Los Angeles County. We are located in the South Coast Air Basin, which is a nonattainment area for both particulate matter and ozone. With 26 percent of the State's population and its registered vehicles, including those affected by the settlement, to fully address the Plan's goals, VW must invest significant resources in Los Angeles County. We're grateful for the opportunity to share a few thoughts regarding VW's public plan.

We support the inclusion of both community and highway depots in the Plan network vision for chargers. Our EV charger proposal seeks to install EV chargers at 93 commuter sites, with access to our rail and fixed guideway customers, making over 400 million boardings per year.

Forty of these sites also happen to be located at or near freeways. Widespread availability of chargers in park-and-ride lots will encourage commuters to consider acquiring electric vehicles. So we hope to be considered under the plan.

I also want to mention that we agree with the February 10th ARB guidance that transit is an important element of the zero-emissions vehicle charging and deployment system.

For our proposed battery electric upgrade of the popular Orange Line busway, the on route chargers are a meaningful incremental investment that can help bridge the gap between current technology and operational challenges.

(Laughter.)

MS. CHEN: Okay. I wanted to just say that we really appreciate the investment contemplated in disadvantaged communities and also support the other important proposals coming from L.A. County sponsors.

Thank you again for the opportunity to comment.

CHAIR NICHOLS: Thank you for being here.

MS. ADAMS: Hi. My name is Kitty Adams. I'm the Executive Director of Adopt a Charger. Adopt a Charger's a nonprofit organization that solicits sponsorship to install electric vehicle chargers in places like national parks, state parks, museums, and universities.

I wanted to thank CARB staff, Board members, and Commissioner Nichols for leading the charge on this. I think this is a wonderful opportunity. In the investment plan they specifically mentioned the California State Parks. I was happy to see that because it aligns with Governor Brown's 2016 ZEV Action Plan that's requiring charging at the parks.

I've been working in the park setting for --

since 2011. These are difficult areas to commercialize. The installations are very expensive. And in addition to this, these locations, these high profile destination locations, the intent is to go beyond just charging cars and educate the public. So when we can get the EV curious to engage in conversation with an actual owner, they're going to learn about the benefits of driving these cars.

Another important aspect of these chargers at the parks is it supports the greening of the fleet. It's allowing them to transition their light-duty fleet to plug-in electric vehicles.

Another important aspect to me is the 6,000 employees of the State Parks. This is low-hanging fruit when it comes to selling cars. There's actually pent-up demand with these people to purchase these vehicles.

This investment also complements the CEC grant that was awarded to Adopt a Charger in 2014 on behalf of the State Parks. Part of this we just completed a district-wide survey and we'll be able to prioritize the next round of parks to receive funding.

So thank you very much for considering the parks in this investment.

CHAIR NICHOLS: Thanks for your work.

MR. SHUMAKER: Perhaps I don't need an announcement?

Go ahead and start.

My name is Cory Shumaker. Thank you again for allowing me to comment on the VW settlement. I represent the California Hydrogen Business Council comprised of a hundred companies.

Fuel cells offer a long range and fast refueling capability that is not limited to light-duty vehicles, but can offer -- also offer options for public transport, transit, medium- and heavy-duty goods movement. And it's also good to note that hydrogen is already at least 33 percent renewable. So I'd like to leave you with three points.

Historically the State has been agnostic in its support for technologies that offer zero tailpipe emissions, which include fuel cell electric vehicles.

The CHBC membership voices its profound disappointment in that of the $200 million first round of Volkswagen investment settlement, zero dollars were allocated to hydrogen fuel cell infrastructure in vehicle deployment.

Next, by ARB's own AB 8 report projections, in 2020 and 2021 there will not be enough hydrogen fueling stations to support the increase of fuel cell electric vehicles on California's roads. Volkswagen's settlement could allow for additional station buildout in time.

Which leads me to my third point.

California can not wait until the next round of VW funding. Hydrogen infrastructure needs additional support now. The CHBC believes that a lack of investment in hydrogen infrastructure in this funding cycle will also send a signal to other states, discouraging further fuel cell electric vehicle adoption and limiting price reduction benefits associated with higher production volumes.

To conclude, the CHBC very much appreciates the great work and immense support from the State's agencies. It is mutual goal to improve the lives of Californians and provide them with the choice of zero-emission vehicle options. Therefore, we strongly believe that the Board should require VW to submit a revised investment plan for settlement moneys to be technology agnostic, provide funding to help the State meet the increasing demand of fuel cell electric vehicles, and to set the right example for the rest of the nation to follow.

Thank you.

MR. DANGBERG: Good afternoon, Madam Chair and members of the Board. My name is John Dangberg. I'm assistant city manager here representing Mayor Darrell Steinberg, who sends his regrets that he could not be here. But he wanted me to speak on his behalf and voice

Sacramento's strong support for the Volkswagen Investment Plan.

First, Sacramento is ready and has the ability to deliver on this opportunity for the State and the Sacramento region. This investment in Sacramento will catalyze the advancement and use of ZEV technologies in a manner that is rapidly scalable and transferable to other areas of the State.

So why Sacramento? This would be a transformative opportunity for the city of Sacramento and our community. Sacramento is rated as one of the nation's most diverse communities where people of color are the majority. The CalEnviroScreen designates our disadvantaged census tracts in the top 10 percent in the state, and 84,000 people in Sacramento live in high poverty census tracts.

This initiative will greatly strengthen affordable clean mobility options, integrate workforce development, and serve as a model for others.

We provide a rare opportunity to test programs that can be replicated across a range of communities. And as the State's capital, Sacramento is at the heart of California's policymaking. Showcasing the State's capital as a green city sends a strong message about the State's commitment to sustainability and zero-emission vehicles.

Sacramento's readiness is built on our early initial investments in zero-emission technologies and our strong partnership with key organizations, including UC Davis and other regional agency partners.

Among other important initiatives, work with key partners resulted in our first regional EV readiness plan in 2013 known as Take Charge; and a second phase is currently underway.

While this is a good start, we are in need of a concentrated investment to scale up our efforts and achieve our share of statewide ZEV targets.

So I will conclude by saying we stand ready to work with you and your staff and Volkswagen to grow the market for ZEVs, test out innovative ideas that spread to other areas of the State, and provide new transportation options to low income residents in disadvantaged communities.

Thank you very much.

MS. ROSIA-TREMONTI: Chair Nichols, members of the Board. My name is Ashley Rosia-Tremonti. I'm the Sustainability Manager for the city of San Diego. I report directly to our city's chief sustainability officer.

We were pleased to submit a proposal for the invest -- VW investments back in January, and we are happy today to submit comment on their first cycle investment plan.

Overall we would have preferred additional detailed justification and general transparency within the investment plan, though we are excited to see investments happening in the San Diego region. We do want to ensure that Volkswagen is taking into account local existing plans and that they are collaborating with local governments and local organizations. This will be key to the success of these individual projects.

Per example, San Diego regionally has an EV readiness plan already designed. It was developed by the San Diego Association of Governments and the Center for Sustainable Energy in collaboration with various cities, Caltrans, local labor, universities, the Port of San Diego, and others. It is unclear from the investment plan whether or not these types of plans were taken into account when identifying projects.

Continuing on with the topic -- the important topic of collaboration, I would like to call out figure 3 of the Investment Plan. It demonstrates the number of proposals submitted by region to Volkswagen. And we would like to emphasize that the number of proposals received does not necessarily indicate interest or need for EV investments. As we determined we would collaborate, the

City of San Diego reached out to outside organizations and submitted a single proposal. So naturally we had fewer proposals submitted to Volkswagen. But that does not necessarily mean that we don't have the interest.

Through this proposal process, we have also researched and determined that the city of San Diego receives about one-third the amount of state funding on a per-capita basis compared to other cities identified in this investment plan, and 30 times less than the city receiving the largest amount of state funding. We want to take opportunities such as this one to close that gap and see beneficial and wise investments made in our region.

Thank you.

MS. REYES: Good afternoon, Chair Nichols and members of the Board. On behalf of Mayor Garcetti, I want to thank the Board and Electrify America for the presentation and their time, and also to thank Electrify America for the positive recognition of L.A. in the initial ZEV Investment Plan as being a region worth receiving targeted investment.

L.A.'s Green City proposal came together as a result of a coalition of organizations. We are the Green City L.A. Coalition, and these members are here today -- some of the members, and will be expressing their support and recommendations for why L.A. is ripe for the Green

City designation and investment.

I'm here on behalf of the city to urge Electrify America and the Board to increase investment in L.A.

The Volkswagen settlement stems from a diesel vehicle pollution. No one has been hit harder from diesel pollution than the communities in Los Angeles. In L.A. County alone it represents over half of the state's disadvantaged communities according to the CalEnviroScreen.

It says that the plan should prioritize disadvantaged communities. The plan from Volkswagen indicated that it's a secondary consideration.

Investments in cleaning our air and sustaining livable and sustainable communities will not go to waste in Los Angeles. Dollar for dollar, using funds for zero or near-zero emissions are -- off of these projects maximizes the reach of investments in transportation, mobility, and infrastructure.

L.A. is a city that knows how to accelerate these transformative programs. And we are here to help. The Mayor's office in particular will be eager and excited to work with Electrify America to make this happen within the 30-month period. We are ready. We have projects that are shovel-ready for investments.

Simply put, we believe L.A. is ground zero for the next iteration of urban mobility, technology, and innovation. Investments in electrification are made -- you know, that are made in L.A. will be leveraged and maximized in ways that are unequaled throughout the State.

Thank you for your time.

MS. NORTON: Good afternoon, Chair Nichols and Board members. My name is Hilary Norton and I'm the Executive Director of FAST, Fixing Angelenos Stuck in Traffic, and Fast Links Downtown L.A.

(Laughter.)

MS. NORTON: Yeah, imagine my job.

So I'm also part of the Green City L.A. Coalition. We're committed to transforming the region through a partnership with Metro, the City of L.A., the L.A. Cleantech Incubator, and Green Commuter through our Fast Link DTLA program.

Our zero-emission micro-transit and van pools connect to a growing ZEV transit network, encouraging clean air travel and serving disadvantaged communities with ZEV mobility.

I'm here to support L.A.'s application to be selected as a Green City. As Susana said, we have over half of the disadvantaged communities in California region. But moreover, we have most of the impressions that -- in this program and the goal to make heavy impact with measurable results. We have 25 percent of the state's population, 47 million tourists a year, and 7.8 million vehicles currently registered, larger than 45 of 50 states.

Selecting Los Angeles will positively impact both mobility and health in disadvantaged communities. Granting L.A. the designation of Green City will deliver visible and measurable results in the first 30-month rollout, showing transformational change by leveraging L.A.'s existing ZEV momentum and the investment of Measure M funds toward sustainable travel and improved air quality.

As currently a plug-in EV owner, I'm excited for the proliferation of charging infrastructure and ZEV vehicles so that I can increase my -- reduction in my carbon footprint.

L.A. as a Green City will be California's best amplifier of the power of ZEVs, and we look forward to being supported as a Green City in this round.

Thank you very much.

MR. WRIGHT: Good afternoon, CARB members. My name is Jerard Wright, BizFed's Policy Manager. And BizFed is a grassroots alliance of more than 160 diverse business associations representing 325,000 businesses that employ 3 million people in L.A. County.

BizFed personally is -- not -- is technically technology neutral in -- in its support -- or in its mission on these items. And what we want to bring to the table is that we believe L.A. is well suited for investing in our transportation infrastructure, because BizFed was one of the key members and key supporters of Measure M, because we felt we were in it to win it for our environment, for our economy -- most importantly for our economy, because advancement of transportation infrastructure such as this would infuse our local economy, improve our environment, in making L.A. County a more desirable place to live, work, and grow business.

Thank you so very much.

MR. SWORDS: Good afternoon, Chair Nichols and members of the Board. My name is Michael Swords and I'm the Vice President of Government Relations at the Los Angeles Cleantech Incubator, or LACI.

LACI is a nonprofit public-private partnership that helps support the growth of early-stage cleantech companies. We are currently supporting 44 promising cleantech startups, eight of which are advanced transportation companies.

I am here as a member of the Green City L.A. Coalition to express LACI's strong support for Los Angeles to be selected as one of the two Green Cities under the

Volkswagen settlements.

Los Angeles has made tremendous progress in cleaning its air over the last few decades. However, we still have a lot of work to do. One only needs to take a short drive on our congested freeways to see that the challenge is still significant.

The city has rightfully made the electrification of its fleets a priority. The city has also done a great deal to educate the public about the benefits of the electrification of transportation and has created several programs designed to accelerate the rollout of electric transport.

VW's investment could be truly transformational. VW's investment could help us transform that challenge by getting people out of single-car ridership and into ride-sharing and car-sharing options, especially in disadvantaged communities.

The city of L.A. owns and operates its own airport, port, and utility, allowing the city to move faster in accelerating VW's ZEV investment.

The city also has shown significant commitment and leadership in sustainability and has champions at all levels of government, willing and eager to work with VW to accomplish the ZEV infrastructure and vehicle deployments.

For all these reasons, we urge you to include

L.A. as one of the first two Green Cities as part of this round of ZEV investment.

Thank you.

MS. ANDERSON: Good -- I almost said good morning.

Good afternoon, Madam Chair and members of the Board. I appreciate -- my name is Marco Anderson. I'm with Southern California Association of Governments. And I'm here today to express support for the city of Los Angeles being selected as one of two Green Cities in the State.

I think it's important to note a number of people have already stressed the strengths of Los Angeles as a city. And also I'd like to add the growth of Los Angeles as a regional partner. I don't think seven years ago I would have been authorized by my leadership to come here and advocate for one city over another city. But as we've seen, the region has grown to understand that investments in Los Angeles benefit the region and as well as the diffusion of technology.

I think the Green Cities category is about more than just putting charging stations in the ground. So SCAG very much appreciates the investment in the growth of infrastructure, which will allow us to meet our regional GHG reduction targets as well as ARB's vehicle mandate targets. However, the Green Cities is about the full transformation of the entire mobility ecosystem.

SCAG had looked extensively at vehicle electrification and also about the revolution that's taking place in car sharing and the future of automated vehicles. If we are to ensure that automated vehicles and car sharing and robo-taxis, whatever form they take, are electrified, it'll require an infrastructure and it will require data and technology that adapts to that infrastructure.

The other thing I'd like to highlight is people have mentioned the fact that Los Angeles has its own utility and port. It also is a transit operator and it also owns the curb space that Metro relies on. Adding all those things together, the last thing I'd like to highlight is the city agencies such as LADOT and the LADWP, they've been at the table. Across the state agencies programs are asking for collaboration for team building. There's only so many times you can marshal those teams and come in second. But we keep doing it with federal grants, with statewide grants. And we're hoping to be successful in having a source of funding that that coalition can use to sustain itself.

So thank you very much for your consideration.

CHAIR NICHOLS: It's Bill Magavern. That's you.

MR. MAGAVERN: Thank you. Bill Magavern with the Coalition for Clean Air.

I've been very impressed with ARB's response to Volkswagen's criminal conspiracy. You caught them. You enforced against them. You negotiated a favorable settlement. And I think that the way that you're going to choose to invest the resulting funds will probably follow the same kind of success.

I also saw -- in the last couple weeks saw Ellen Peter testify to two different legislative hearings on this issue, and she did a superb job both times.

If Volkswagen's recovery from its self-inflicted wounds would be to transform itself from a diesel car company into an electric car company, I think that would be an excellent result.

As we look to how they invest these funds, I want to emphasize the importance of investing in disadvantaged communities. I hope that they will exceed the levels that are in your guidance document.

We came together three years ago with a number of allies to start the Charge Ahead California campaign and worked with Senate President Pro Tem de Leon on legislation which has the goal of giving access to the cleanest vehicles to those in the most disadvantaged communities. So we think this source of funds is another additional way to augment that; and not only when it comes to light duty but also to get some of the cleanest heavy-duty vehicles into those communities.

And in addition, we agree with those who have said that we think hydrogen fuel cell infrastructure should also be included in the funding.

Thank you.

MS. KINMAN: Good afternoon. I'm Michelle Kinman with Environment California Research & Policy Center, a statewide environmental organization based in Los Angeles.

I haven't had the opportunity to review the proposals submitted by other cities, but I did want to express my support for the strength of the proposal submitted by Los Angeles.

As we all know, L.A. consistently ranks as having the worst air quality in the nation. And as we all know, L.A. is an incredibly important market for vehicle electrification with a large consumer market.

The city is also the first major city to have an electric vehicle car-share pilot in disadvantaged communities. And I've had the opportunity to work with the city firsthand on the development of this pilot program and I'm greatly impressed by the mayor and the city's demonstrated leadership and commitment to an electrified future.

The city worked with a diverse stakeholder group to develop their Green City proposal, resulting in a transformative proposal that would concentrate investment on shovel-ready projects in communities that need it most: Downtown, South L.A., Boyle Heights, Wilmington, Pacoima, and LAX. These areas are some of the most disproportionately impacted by vehicular pollution and could benefit tremendously from ZEV investments.

For all of these reasons we strongly support L.A.'s application to be selected as a Green City under the Volkswagen settlement.

Thank you.

MR. TEEBAY: Good afternoon, members of the Board. Thank you for allowing me to speak. My name is Richard Teebay. I am employed by the County of Los Angeles. I have worked with members of your staff for almost two decades, and my experience, they have been committed, dedicated, helpful, and open.

Last August I spoke with some of you at the Cleantech Incubator in downtown Los Angeles. I was advocating for EV infrastructure for disadvantaged communities. And I was politely told that ARB doesn't fund EV infrastructure. As of today, you certainly influence the funding of the EV infrastructure.

It's appropriate that you're in Riverside. It serves as a dramatic backdrop for the work that you've done at this meeting. This region of six counties within SCAG are home to 18 million of the State's population, almost half. The region consistently has the worst air quality in the nation, not just the State. There's a significant and obvious need for accelerating the transition to zero-emission vehicles.

The city -- or the county supports the city's application to be the clean city. Think of the world stage for a moment. Think about the Super Bowl in 2019. Think about the Olympics in 2024. You have a really wonderful opportunity to showcase what a zero-emission future looks like.

I'd also like to remind you that in L.A. County alone there were 7.8 million registered vehicles in 2015. That's more vehicles than there are people in the Bay Area.

We are a strong advocate for infrastructure in this region, especially in our disadvantaged communities.

One quick thought, and then I'll shut up, is this has been totally silent about fleet. And I would love to have a question asked about the fleets and the impact that they can have. I've studied two fleets, the County's and Metro's, And I can speak to that.

CHAIR NICHOLS: So just to be clear. Electrify

America will be testifying. They're the last on the entire list. And we're gathering questions. I'm sure we'll have many questions for them.

MR. TEEBAY: That's fine. Thank you.

MR. CAZERAS: Good afternoon, Board members. My name is Fernando Cazeras and I'm the California manager for Climate Smart-Cities at the Trust for Public Land. I'm here to express our strong support for our Climate Smart-Cities partner, the City of L.A., to be selected as a Green City.

I'm also a member of the Green L.A. Coalition. While we believe as an organization that part forests and natural lands are important to climate mitigation and resilience. We also know that Transportation is a latter source of greenhouse gases and air pollution in L.A. As a native Angeleno, I also believe that L.A. is on right path to overcome our transportation, air quality, and land-use challenges. But I believe that we need L.A. and the region to resist transformation much quicker.

Heat waves are expected to significantly increase in the L.A. Basin, significantly worsening the ground-level ozone and air pollution that already caused too many asthma attacks.

Volkswagen's investment presents a unique opportunity to make transformative change in three ways:

Helping Angelenos with limited resources get out of car ownership and into ride sharing and car sharing is transformative in its own way.

Converting gasoline and diesel vehicles into ZEVs and building out the necessary infrastructure to support those vehicles, and accelerating ZEV freight investment is an area that we believe will achieve Volkswag -- will enable Volkswagen and CARB to achieve the most impact for the funding.

I also want to make a note not to get into the weeds, but being in California, I really encourage you to think about this multilingual education and awareness campaign that Volkswagen is able to do, that we make sure that it's culturally and linguistically appropriate. We do have many languages in California.

So for these and many other reasons, I urge you to select L.A. as one of the first Green Cities this first round.

Muchas Gracias.

MS. OHLAND: Good evening, members of the Air Resources Board. My name is Gloria Ohland and I work for Move L.A., and we care deeply about sustainable transportation. I know some of you know our Executive Director, Denny Zane. And we're a very big, broad coalition of civic leaders who were the impetus behind the

Measure R Transportation and Sales Tax measure in 2008. And the Measure M Transportation and Sales Tax won 72 percent of the vote last November.

And I'm here as a member of the Green City L.A. Coalition to urge you to invest that VW settlement money in L.A.

Move L.A. is on a steering committee of L.A.'s brand new low income EV car-share project that's opening for business in two to three months; and we've begun outreach in neighborhoods to drum up interest. And I was at one of the meetings on Wednesday night and I was sitting next to a woman who had been playing around with CalEnviroScreen 3.0. And she had found some numbers that made a very compelling case for why disadvantaged neighborhoods in the pilot project area of our car share need EV car sharing. In her neighborhood, for example, the pollution burden was very high, at 92 percent, which my understanding is that means that only 8 percent of all the census tracts in California have more pollution than her neighborhood.

The diesel index was 98 percent. The PM2.5 index was 80 percent. And the neighborhood is very poor. 96 percent of households are considered housing burdened.

And I don't really know that much about air pollution. But I do know that diesel is a toxic contaminant, it contributes to NOx, and it sticks to particulate matter which gets lodged in people's lungs and it's probably second only to cigarettes as cause of cancer.

And there are a lot of kids in that neighborhood and there's a big community college.

And I know that diesel messes with low income people who live near freeways and heavily traveled transportation corridors with lots of truck traffic. And that's almost all of L.A.'s neighborhoods.

So we at the Green City Coalition believe this is exactly the environment that you should invest the VW settlement money in.

CHAIR NICHOLS: Understood. Thank you.

It's not our money to invest though. Just again, to be clear, we're not investing it. It's their money.

MS. OHLAND: Oh. I wish you were.

CHAIR NICHOLS: Sorry.

Okay. Please, you're done.

MS. OHLAND: Okay. Well,

CHAIR NICHOLS: Other people are waiting.

MS. OHLAND: The only thing I was going to say is we're shovel ready in L.A. with our low-income EV car-sharing --

CHAIR NICHOLS: Move L.A. is a great

organization, and we appreciate your work. Thank you.

MS. BARBERENA: Good afternoon, Chair Nichols and members of the Board. My name is Betty Barberena and I am the outreach manager for the Electric Vehicle Car-share Program coming soon to Los Angeles.

As part of the steering committee comprised of community-based organizations, SALEF, KIWA, TRUST, and South L.A., we are working along with the city and Blue L.A. to make sure that this innovative program benefits disadvantaged communities highly affected by transportation-related pollution.

L.A.'s vehicular pollution comes from two primary factors. The fact that L.A. is the largest vehicle market in the State; and our port, which is the largest in the U.S. VW ZEV Investment presents the unique opportunity to address these primary factors by helping people get out of their single car ridership and into ride share and car share, especially in disadvantaged communities.

The car-share program we are getting ready to implement will provide low income residents of Westlake, Pico-Union, Echo Park, Downtown L.A., and parts of Korea Town with access to clean and reliable transportation because the vehicle fleet will be 100 percent electric with publicly available infrastructure.

The community forums we held recently showed how ready these communities are for ZEVs and the corresponding infrastructure, and to get rid of their diesel vehicles.

Selecting L.A. as one of the first Green Cities will allow VW to maximize its impact by leveraging hundreds of millions in both public and private funding to mitigate diesel emissions in communities that need it the most, to accelerate deployment of ZEVs and the required infrastructure.

So as part of a Green City L.A. Coalition, I urge you to include Los Angeles as a Green City as part of a first round of ZEV investments to achieve maximum impact for transportation electrification and emissions reductions.

Thank you.

CHAIR NICHOLS: Thank you.

MS. HALLS: Good afternoon, Chair Nichols and members of the Board. My name is Cassie Halls and I'm a project associate at the Shared-Use Mobility Center, a technical advisor to the L.A. Department of Transportation. I'm representing the Green City L.A. Coalition.

Volkswagen's ZEV Investment Plan represents an unparalleled opportunity to foster growth of Clean Transit, EV Car Share, and other shared mobility programs. If disadvantaged communities are to be put front and center, it is critical that these programs should be put front and center as well.

Investments in EV and shared mobility go a long way. Each car in an EV car-share program is rented six to seven times per day, maximizing investments in EV infrastructure for the greatest public benefit. It is modeled that one EV car-share car can take 9 to 13 carbon emitting diesel and gasoline cars off the road. Our groundbreaking EV car-share pilot program funded by your agency is now under construction and will launch later this year in L.A.

This program will serve over 7,000 households, over half of which are low income. Volkswagen funding could help scale this program and others like it 10 to 20 times the current size over the next 10 years, maximizing its impact on improving air quality and filling critical mobility gaps in Los Angeles's poorest and most polluted communities.

Our share and mobility action plan for L.A. County calls for growing EV car share to 2,000 vehicles, which could serve over a hundred thousand Angelenos and could help reach our goal of taking a hundred thousand cars off the road.

Los Angeles has made rapid strides around a wide range of public-private investments in shared mobility that have gained national attention.

In addition to the EV car share program, four cities of Los Angeles have launched bike share programs in the last year, and both the city of L.A. and L.A. Metro are planning micro-transit --

CHAIR NICHOLS: Okay. Thank you. Not taking a breath does not extend your time. --

(Laughter.)

MS. HALLS: Can I just say one last thing?

Yeah. I just wanted to say that Los Angeles is the place to look, and we know how to invest in disadvantaged communities.

CHAIR NICHOLS: Yes, you do.

MS. HALLS: Thank you for your time.

CHAIR NICHOLS: All right. And you know something. I just have to say, because I'm a resident of Los Angeles and I love Los Angeles. If the issue was who had organized, you know, the most people to make a pitch, you guys would already have won. Okay.

So just know that. You're doing a great job and you're doing a lot of good work. So this is all good, and I think it will not be a waste no matter what happens.

MR. CORTES: Chair Nichols, Board members, thank you so much for allowing me to address you this afternoon. My name is Carlos Cortes. I'm director of engineering at

Broadband TelCom Power. We are an AC and DC fast charger manufacturer located in Orange County. We build mostly DC fast chargers. We have roughly 500 DC fast chargers nationwide.

I wanted to come in in support -- in strong support of the Volkswagen ZEV Investment Plan, for a lot of reasons. The first one is, every single DC fast charger we have in the state of California is being heavily used. That's item number 1.

We do have a lot of good reasons why we want to install additional DC fast chargers. The first one is because it's really a drop in the bucket as far as the ZEV investment plan. We need so much infrastructure for the one million vehicles that are mandated to be out on the road, that the $800 million investment is really a drop in the bucket as far as what we need for infrastructure. And we can see it in the number of transactions that we get on a per-charger basis in the state of California. So that's number 1.

Number 2. We see that the ZEV Investment Plan is really inclusive of a lot of different parties and a lot of different systems, and we do see it as being a system that can actually be utilized in underserved communities. Okay?

And then last, and I think the critical point in this whole thing is, we really have truly a chicken-and-egg situation. In order to get more cars out on the road, we need charging systems out on the road. Right? But what we do know because we have the experience in actually installing DC fast chargers, we do know that DC fast chargers by themselves to date don't financially pay for themselves. They don't. So we need government intervention. We do need your help to push forward the investment into electric vehicle charging infrastructure and network so that we can get the electric vehicles out on the road.

Thank you so much.

CHAIR NICHOLS: Thank you.

MR. ZHENG: Good afternoon, Chair Nichols and Board members. Thank you for the opportunity to make a statement at this hearing. My name is Kevin Zheng and I work for SemaConnect.

SemaConnect is a leader in developing, manufacturing, and delivering network EV charging solutions for commercial properties in North America.

SemaConnect's statement is as follows:

The Volkswagen settlement decree represents a unique opportunity to accelerate the EV market in California. Expanding this market would create jobs and a new economic opportunity, help California achieve its climate mitigation goals, and protect the health of disadvantaged communities who face the worst effects of tailpipe pollution. With that as context, SemaConnect strongly supports Volkswagen's first California ZEV Investment Plan. We feel it successfully meets the goals of the settlement decree. We urge CARB to approve the plan as soon as possible.

Also we are concerned that the full perspective of the EV charging industry has not been well communicated to the policymakers and other stakeholders so far on this issue.

Our company and our EV industry partners are committed to competition and understand how the Volkswagen California ZEV Investment Plan as it is currently written will be beneficial to the public and the industry.

As you know, Appendix C of the settlement decree establishes a California ZEV investment plan which requires Volkswagen to invest 800 million in California over the next 10 years.

We applaud CARB for securing this requirement as part of the settlement agreement. Along with the rest of the settlement, we believe that Appendix C is an effective mechanism for achieving important public benefits including increasing the rate of adoption of EV cars.

California has always been the global leader in moving automotive market towards a cleaner, more efficient future.

CHAIR NICHOLS: Thank you. Your time is up.

MR. ZHENG: Thank you. Thank you much.

MS. ALI: Good afternoon, Chair Nichols and members of the Board. My name is Fariya Ali and I'm speaking on behalf of Pacific Gas & Electric, the PG&E in California.

We would also like to congratulate the ARB engineers on staff for their important role in actions taken to enforce emission standards.

PG&E supports the increase in electric vehicle infrastructure that the Volkswagen Zero-emissions Vehicle Investment Plan represents and we encourage expediency in approval to allow for a quick start to implementation.

The path to achieve the State's air quality and climate goals will require a major increase in electric vehicle adoption. We believe that some of the proposals in the ZEV Investment Plan will complement actions being taken by PG&E and other utilities to advance the State's EV infrastructure to support this objective.

Another opportunity will be to use greenhouse gas reduction funds for EV and infrastructure incentives in disadvantaged communities.

PG&E's recently approved $130 million EV Charge

Network Program is one of the largest single deployments of EV charging infrastructure in the world. And we recently proposed an additional $250 million to support the deployment of DC fast chargers and non-light-duty electric vehicle charging infrastructure.

Even with these investments, much more is needed to meet the Governor's goal of developing EV infrastructure to support one million vehicles by 2020, and we hope to see more action to support this goal soon.

Thank you.

DR. REICHMUTH: Chair Nichols and members of the Board. Good afternoon. My name is Dave Reichmuth. I'm speaking on behalf of the Union of Concerned Scientists.

The VW cheating scandal is unprecedented, and this settlement is critical to repair the damages done.

I'd like to thank the Board and VW for moving this process forward quickly. We don't want to rush in making these investments, but we definitely want to move expeditiously. These investments need to go forward as soon as possible.

We're still reviewing the document and we'll submit written comments later. But we do agree with the comments that were made in terms of the need for hydrogen infrastructure, especially to achieve the brand neutral ZEV infrastructure requirement of the settlement.

We also agree with the initial focus on DC fast charging in corridors and multi-use dwellings. It makes sense. But we need to make sure that we're actually serving disadvantaged communities with those investments, to make sure they're in the right places.

We'd also want to make sure that these investments coordinate with other actors in this area, especially utilities and charging providers. This investment needs to be complementary to what else is going on in the State. It's a large amount of money, but it's only a fraction of what needs to be invested in terms of the private and public funds. So we want to make sure that this doesn't duplicate or inhibit other programs that are already ongoing.

Thank you.

CHAIR NICHOLS: Thank you. We agree.

MR. SULLIVAN: Good afternoon, Chair Nichols and Board. My name's Joseph Sullivan. I work for the International Brotherhood of Electrical Workers in the National Electrical contractors Association. And than you for the opportunity to comment.

Volkswagen's investment represents a substantial opportunity to support California's climate goals, benefit our hardest-hit communities, and create good middle class jobs.

Unfortunately the Cycle 1 Investment Plan fails to optimize this opportunity fully. There's no description of how the investment in EV infrastructure will create pathways into skilled training in middle-class careers, by leveraging the State's joint labor management electrical apprenticeship network, by creating family-sustaining jobs with good wages and benefits, by hiring workforce from disadvantaged communities, low income households of veterans. We can either use this money for this infrastructure build-out to create temporary jobs or we can create life-long careers with training and family-sustaining wages.

Lastly, the plan doesn't outline how Electrify America will ensure that the ZEV infrastructure will be installed and maintained by qualified electrical personnel and contractors in accordance with State law and industry best practice.

Thank you.

CHAIR NICHOLS: Again, just to be raising the issue here. There is no prohibition in terms of using money over many of these projects towards training of people who would be doing the work on them, as far as I can tell anyway.

CHIEF COUNSEL PETER: Not that I can recall.

CHAIR NICHOLS: Yeah. I think it's an important point though, that the opportunity goes beyond just an investment in hardware or even in jobs but in really multiplication if it's done well.

Thank you.

MR. SHEARS: Good afternoon. John Shears with the Center for Energy Efficiency and Renewable Technologies.

First thing I'd like to share the observation that I think that you've spoiled us, CARB, and the way CARB normally workshops processes. Because I do have a complaint in terms of how top down and relatively opaque the development process has been around these investment -- this investment plan.

And I hope that going forward for the next round we can maybe figure out how to work with Volkswagen to make that a much more transparent process.

What I'd like to recommend in the interim is that there's at least one more, if not two more, public workshops. But given the timeline, we're probably looking at one to air things out more. Because I'm sure all the stakeholders who would want to participate so that we could have a more free back and forth -- or were available in the Senate oversight hearing that Ellen did a masterful job at, that you couldn't watch it live.

So just wanted to share that observation.

Also disappointed -- or we're disappointed about -- over hydrogen and the lack of mention in there.

I want to also point that work -- I work with Peter Cooper at the employment training panel on the employment issue. A letter was submitted, was also shared with CARB staff that we need to incorporate that in as the market grows because we need to have workers who can facili -- work on the vehicles and the infrastructure going forward, and that's got to keep pace.

And then, finally, I work in the Central Valley. The major metropolitan areas are not the only areas that have disadvantaged communities. And the most challenging environment from my take because of the capacity issues that are lacking in the Central Valley is that that's -- that's a real concern. And what I see in this investment plan is it's sort of like, you know, fly over country in terms of how people talk about nationally. I see the valley. And what I see in this investment plan is drive-through or drive-by country.

So if we could deal with that, that would be great.

CHAIR NICHOLS: Thank you.

MR. MUI: Simon Mui, NRDC. First, thank you to your staff and all of you for bringing light to what has been a dark chapter in the auto industry in terms of the scandal here.

We did want to reinforce that we like what you're doing in terms of making sure that the VW investments are complementary and additional to what utilities are going to do. We want to see 1 + 1 = 2 and not 1 + 1 = 1.5.

And we think you are doing a good job and want to encourage ARB to continue doing that to make sure that those investments are complementary to what charging service providers as well as utilities are doing.

Finally, we want to thank you as well for California's role in this -- in uncovering the VW scandal and really putting California in a much better place versus other states. We work in those other states and they are very envious of the special treatment California enjoys under the consent decree terms. We're only about 12 percent of the U.S. market, but the consent decree carves out 40 percent of the Appendix C funds for California. No other state has that kind of certainty. They're all clamoring for VW to come to them.

In sum, this is a good deal for California.

We do think that ARB should make sure to exercise its oversight on VW's investment plan to ensure they're consistent with the guidance ARB has provided in the terms of the consent decree. And this is very critical, because many are asking for changes. And we just want to make sure that you're careful to avoid asking for modifications to the proposal that could reopen this and require the parties to go back to the judge, resulting in potentially many years of delay in opening up this deal.

So in sum, thank you. We like this deal. And we want to prevent it from going back to the Feds.

MR. WHEATLEY: Chair Nichols, members and staff. Thank you very much for this opportunity, and thank you for everything that you do to make California this wonderful leader in terms of making the world a better place to live in.

I am predictably going to harp on about the fact that we need to be using renewable energy as the primary source for our considerations around ZEV infrastructure, not as an afterthought as it so often is.

There is a commercially available and in use today transportable solar-powered electric vehicle charging station which requires no trenching, no foundations, and it is deployed in less than 12 minutes instead of less than 12 months. It was mentioned earlier by Supervisor Serna an by Dr. Sherriffs. Thank you for that.

And you yourself, Chair Nichols, have had the joy of driving on sunshine after charging your own electric vehicle on one of these products. Products which, by the way, was also delivering emergency energy to the city of Los Angeles in the event of a disaster. So that was a wonderful dual use there. Manufactured in California by a team of combat veterans and very worthy of this program.

Now, I arrived here this morning in a pretty filthy mood. In fact, I was imagining all sorts of horrible scenes from Braveheart. Not the romantic ones. And that was because yesterday I received an email which led me to believe that Volkswagen was not intending to use solar in any of their deployments of electric vehicle charging infrastructure.

However, I met with representatives of Electrify America this morning, and they assured me that that's not the case and I was wrong. And unlike William Wallace, I'm prepared to admit it when I'm wrong. So delighted to see that it isn't the case and that we are going to be doing that.

What I would like to see happen is that everything is done to encourage the use of renewable energy, both in this program and anywhere else. And specifically that nothing exists in the language or within the creditable expenses or any of the other parts of the program which might prevent it or discourage it. So please help Electrify America and help everybody else to make sure that we can drive on sunshine because that is, after all, the ultimate promise of this technology.

Thank you.

MS. TUTT: Good evening, Chair, Vice Chair, members of the Board.

CHAIR NICHOLS: It's still afternoon.

MS. TUTT: No, after 5:00 I think that's evening.

So I'm Eileen Tutt with the California Electric Transportation Coalition. We've been around for decades in support of electrifying everything.

(Laughter.)

MS. TUTT: So I do -- you have a handout, hopefully, from the clerk. I just want to say that the handout -- I'm not going to go through it -- it's quite lovely though. I encourage you to read it. But it does show that we -- that our assessment agrees with the CARB staff assessment that the need for charging in this State -- and our assessment was only up to a million vehicles, which by the way is nowhere near where we need to be. So even just getting to a million vehicles, we are woefully underfunded in infrastructure. And we agree, VW and, I would say, NRG together is less 10 percent of the need in California just to make the one million vehicle mark, which is far short of where we need to be.

I also want to say that I'm really excited to see the outreach and education component in the Electrify

America. We keep talking about infrastructure, but that is really, really important. I think that -- I'm really looking forward to seeing what they do.

We're not going to pick a city for Green City. But I did like what they were doing in terms of last mile delivery, shared mobility and taxis. We think it's very important to expedite the -- getting this money out. We don't want to see another NRG.

And then, finally, on Appendix D - I know that's not the topic - but we do want to see electrification of the medium- and heavy-duty vehicle sector with that money. So hope -- you'll consider that one when you're looking at how to spend it.

Thank you.

CHAIR NICHOLS: Thank you.

MR. ASHLEY: I'll say good afternoon, Chair Nichols and members of the Board.

CHAIR NICHOLS: I wasn't ready to face up to it.

(Laughter.)

MR. ASHLEY: So I'm Tom Ashley. I'm Senior Director of Government Affairs and Public Policy with Greenlots. Greenlots is a leading provider of smart and electric vehicle charging software and services, headquartered in the great city of Los Angeles.

I wish to just really emphasize to members of the

Board how much of an infrastructure deficit we have in this State, and really in all communities and all geographies across the State. I just cannot emphasize enough how far behind we are and therefore how important, you know, every dollar of investment is in the space, very much including the proposed ZEV Investment.

And like many of other voices from the industry that you heard before me, we really feel that we're at a stage of the market where what we need to be striving for more than almost anything else is to scale up where we are in the market and provide opportunities across the market for companies like my own and all types of different communities and drivers. We very much look forward to the Board's approval of the ZEV Investment Plan.

Thank you.

CHAIR NICHOLS: Mary Kathryn is next -- Mary Kathryn Campbell and then Anne Smart.

If she's not here, then it's you, Anne.

Hi. Welcome back.

I'm going to save you at least a few seconds, each one of you, by having you not introduce yourself because -- or say good afternoon or good evening, because we already know that. Just plunge right in.

MS. SMART: Thanks. Well, I'm sure you're all happy to see me up here again on this topic.

But there's really only one issue that I would like to discuss today, and that's making sure that the rising VW tide lifts all California's boats.

It is difficult to sell a charging station in the city that doesn't already have EVs on the roads or in their local dealerships, and when a local driver's image of a new EV is a car in an affluent suburb and not in their own driveway.

The unprecedented $800 million could help underserved communities in California reap the benefits of EVs and help drive demand for automakers across the state. But unfortunately, as written, VW's proposal ignores this opportunity. Instead this is a business plan allowing the largest automaker in the world to inject itself in California's EV charging market and profit from its wrongdoing.

Look at where VW's plan investments are going: San Francisco, San Jose, Los Angeles, Sacramento, and San Diego. And which are California's strongest EV markets right now: San Francisco, San Jose, Los Angeles, and San Diego. Where's Fresno in this plan? Where's Stockton, Modesto? Where are those communities that really need ZEV integration in their communities the most?

One of the biggest innovations in EVs is how they can integrate into our community and provide benefits for drivers and site owners alike. EV infrastructure is the most helpful to the most people in the communities themselves, not just as an off-ramp or on-ramp on a highway.

So these highway corridors for those residents, are they for the residents that live there or are they for drivers just passing through on their way to the beach or Tahoe? We really need to make sure that these stations also per -- charge all EVs and not just the most expensive models.

I ask that you please reject the proposal before you and instead ask VW to follow its own guidance and the guidance that you have before you to invest in disadvantaged communities and offer grants or rebates to site hosts to let them choose, not VW, the equipment that they want, the business models they want, and the technology they need to grow us well beyond the limited 10 percent that you are suggesting this market will be.

Thank you for your time.

MS. GALE: I'd like to thank Anne for her comments.

I'll save the niceties. Central Valley Air Quality Coalition.

I'd like to speak today about specifically where this investment is being made in the State. Our biggest concern is that the plan does not prioritize disadvantaged communities. This Board had urged VW to dedicate a significant percentage of the funds, at least 35 percent, to disadvantaged, low income, and disproportionately impacted communities. However, this plan does not make that commitment.

For instance, in the San Joaquin Valley, chargers are only placed alongside the highways, ignoring the opportunity to invest directly into our communities.

Ms. Holmes-Gen from American Lung spoke earlier today about the health benefits of zero-emission vehicles. ZEVs save lives. So it only makes sense that we're investing in the communities that need it most. And as some have already said, this plan treats a lot of the valley cities like drive-by communities.

In addition, the plan also anticipates the launch of the Green City initiative to be Sacramento. And I personally love the city of Sacramento. It's wonderful. But we all know that that is not where the need is.

And I was going to launch into all the statistics on why -- on how the valley is the most -- has the most polluted cities in the nation and has the most disadvantaged communities in the State. But I know this Board knows all of those statistics and knows the need that we have.

So in conclusion, I suggest that this Board mandates a 35 percent commitment of the 45 million for EV chargers to be located in disadvantaged communities. And I also ask CARB to reevaluate the Green City proposals. I know that the plan says that the next Green City will be in a disadvantaged community. But I would hate for that to be an either/or of Bakersfield and Los Angeles or neither.

So I'd really -- I think it's important for ARB not to pass up the opportunity to be investing in the communities that need it most.

Thank you.

And I'd also like to say that I'd love if there were 5, 10, 15 of me here today. But know that I represent the 4 million people who suffer from poor air quality.

Thank you.

CHAIR NICHOLS: Could we please have whoever is doing the timer restart the timer. I don't know what happened. But you need to change it so that Mr. Whiteman gets his full time.

Very good.

MR. WHITEMAN: Shortly after the financial details of Appendix C were announced late last year, rather than stepping back and allowing this funding to take our place, Tesla doubled down on its infrastructure investments announcing a 100 percent increase in the number of superchargers between end of year 2016 and end of year 2017 in order to support the rollout of the Model 3, our $35,000 sedan to be built in Fremont and due on the market later this year.

The value and need for EV infrastructure to support long distance travel can not be overstated. Several scientific and many more nonscientific poles point to the supercharger network as a major reason consumers choose to purchase a Tesla. As the EV market moves from early adopters to mainstream consumers, the need for pervasive and accessible charging stations will continue to grow.

The proposed California Investment Plan offers a robust path forward, bringing EV infrastructure to drivers where they are and taking them where they want to go.

DC fast charging is important for long distance travel and combined with level 2 workplace and community focused DC charging as outlined in the plan, EV adoption can become a reality for those lacking off-street parking or who are transient renters.

Through its own experience, Tesla can affirm the value these investments will have across the EV community. As a company famous for never advertising, we have allowed infrastructure investments to be our voice in communities all across the State and country. When people see EV chargers in their community and, even better, when they see them in use, they are more inclined to consider purchase themselves.

We recommend the Board expeditiously approve the investment plan and allow for Volkswagen to move forward with its plans here in California. Since the settlement funds cannot be spent to operate Volkswagen's charging network, the investment plan provides Volkswagen an ongoing incentive to introduce more diverse EVs into the market to ensure the infrastructure is used and their investment is not wasted.

Thank you.

CHAIR NICHOLS: Thank you.

MR. ELRICK: Thank you, Chair.

Because of the early investment from the Air Resources Board and the Energy Commission, the commercial market for fuel cell electric vehicles began in 2015. This week station number 26 opened here in Riverside, with numbers 27 through 30 opening in the coming weeks.

Retail stations are standardized. Every car can use every station, and every customer can use every point-of-sale system with any credit card.

CEC has proposed funding for 16 additional stations. And if all these funded stations open as planned, California will have 65 hydrogen stations statewide. We've learned a few things from these stations.

First, hydrogen stations mean business in California. We're seeing hydrogen station developer start-ups as well as companies moving from Europe because they believe in this technology and California.

Second, drivers love the cars. They aren't held back by range anxiety and/or cars that are too small for their families. The only thing standing in the way of ZEV development are refueling points.

We need more stations. And ARB's own analysis has found that if we continue at this pace, there will be more demand for fuel than supply. And if that's happens, fuel cell vehicles will slow down coming to the market. Customers won't buy a car if they can't fuel them.

Volkswagen is a member of the California Fuel Cell Partnership and continues to participate in our meetings. They, like most automakers, will bring a fuel cell vehicle to market with -- and will benefit from a growing network of hydrogen stations. They may also benefit from directly investing in the station development start-ups as other automakers have.

California has benefited from ARB's fuel-neutral position and commitment to all forms of alternative transportation. Because of the agency's actions, our State is a world leader in the deployment of fuel cell and battery electric vehicles.

And I want to thank the Board and its staff for continuing to show their strong leadership and initiative for its citizens.

MS. McGHEE: The ZEVs need infrastructure. I suggest we make a requirement for renewable charging. The technology is advanced charging. It is available. It's off the grid. It further reduces emissions and is actually zero-emission charging. It saves ratepayers kilowatt-hour costs. The 150 and 350 kilowatt charging power is not accepted in any car or medium-duty vehicle today. The 50 kilowatt is broadening and it is accepted and it is the future. Transit buses develop charging to accept these levels due to their gross vehicle weight.

Most importantly, over 20 kilowatt triggers kilowatt-hour demand fees, which will greatly increase the cost of charging, which increases the cost of a mile. Imagine this: The cost of a kilowatt-hour is absolutely a benefit when compared to fossil fuels. This will accelerate adoption.

Renewable infrastructure supports this. It saves money to a ratepayer and it saves admissions. I would like to invite a consideration. Demonstrations are needed. We still need to know more and learn more about many fleets and other types of charging patterns and behaviors. That would be some of the barriers that we're experiencing with short-range vehicles. This would be specifically well suited for many of the fleets but the inventory is just not available.

Thank you.

CHAIR NICHOLS: Thank you.

Did you have a comment?

BOARD MEMBER RIORDAN: I just wanted to say to the staff, I think you have a very thoughtful recommendation before us in the resolution that you've provided, and I'm sure that in time we are going to improve. We may have heard some things today we'd like to include. But I think, you know, this is a great beginning and I want to thank you very specifically for acknowledging the part of this resolution that says that we are encouraging and investing in activities that do not unduly interfere with or undermined established or emerging businesses. And I felt, you know, that was a key issue for me, that people had gone out on their own and, you know, had certain things before this whole thing began.

And we need to continue to encourage them and have a whole network of people. So I wanted to thank you.

I guess you have somebody that --

CHAIR NICHOLS: We still have two more witnesses.

BOARD MEMBER RIORDAN: I didn't realize that. I thought we were finished. I wish we were finished.

CHAIR NICHOLS: That's okay. Your comment is still --

(Laughter.)

CHAIR NICHOLS: -- still applicable.

(Laughter.)

CHAIR NICHOLS: All right. We have Mr. Harvey Eder.

BOARD MEMBER RIORDAN: Oh, I didn't know.

CHAIR NICHOLS: And also Brendan Jones from Electrify America.

MR. EDER: Hello.

There shouldn't be money in this that's paid for fines, penalties. That should be something separate. And this money could be used for seed money to leverage in combination with solar for solar electric and solar hydrogen fuel cells. And it could be especially directed towards the low and disadvantaged income.

There -- thank you.

CHAIR NICHOLS: To your point, I don't think there are any monies being spent that should have been penalty money. I know you're going to be back for the public comment because we've already got a card. So we'll hear from you again.

Okay. Mr. Jones. Welcome.

MR. JONES: Thank you. Thank you, Board, Chairman Nichols, to the CARB staff and the members of the audience. I'm Brendan Jones. I'm the newly appointed COO for Electrify America. Previously before that I was the director of electric vehicles and infrastructure for Nissan and also the vice president of OEM Development for EVgo.

I am an EV enthusiast, an infrastructure specialist. I believed in the space. After a 27-year automotive career, I fell in love eight years ago with what I am doing; and until the day I retire, I hope I never stop. I found what I like, and I love what I do.

In regards to Volkswagen and our newly formed company, Electrify America, we'd like to thank the Board and thank the audience for the very valid comments we've heard today. The ones that were very nice, were complimentary; and we listened in particular to the ones that had a little more sharp edges on them and elbows. We're going to take all of those into consideration as we move forward, and we look for the Board's and CARB's advice and guidance as we continue to refine the plan.

The plan in essence seeks to use all aspects of the EV space today: The providers today, the developers today, the charger manufacturers, the installers, the people that are investing their time and lives in this unique opportunity that we have. We are going to continue to advocate, to move forward, to use all the industry players. And we're also going to do it in a very customer-centric way, building stations that are visible, usable, and convenient to the customers that exist today and will buy EVs today, tomorrow, and into the future.

Thank you.

CHAIR NICHOLS: Before you leave, I have a few questions for you --

(Laughter.)

MR. JONES: I almost got there.

CHAIR NICHOLS: -- which I hope you'll treat as friendly, because they're meant to be. They're really meant to give you an opportunity to explain more of your thinking.

MR. JONES: Sure.

CHAIR NICHOLS: Because I've been fortunate enough to read the plan and to read the plan that you -- the additional information that you filed with ARB. And I know there's elements of that that are not public information and that can't be discussed in public.

But I want to give you a chance - and I encourage you to do more of this going forward - to tell us a little bit more of your thinking how you got to where you are.

So, for example, on this issue of other EV infrastructure efforts that are going on, for example, the investor-owned utilities, what have you done or what are you thinking you will be doing in terms of coordinating to making sure that you're not, you know, putting chargers on opposing corners as opposed to spreading them into places that wouldn't -- in theory that would need them the most. That may not be the best example. But I'm thinking of gas stations where...

MR. JONES: Understand. And I'm happy to answer that more particularly because I know the red light's not going to go up in front of me.

CHAIR NICHOLS: It's not. No, no --

MR. JONES: So I feel good about that.

CHAIR NICHOLS: -- you can answer -- you can answer it fully.

No, seriously, you're --

MR. JONES: So there's an ongoing effort with the company right now to reach out and explore opportunities. We heard the 1 point 1 equals 2 -- 1 plus 1 equals 2. Internally we call it 1 plus 1 equals 3, and how do we achieve that.

The effort to reach out to both investor-owned utilities and municipal utilities is underway. So that we don't overlap but yet we complement.

We've heard comments from others in the room such as Pacific Gas & Electric, Southern California Edison, and other utilities across the country. That is a key part of our rollout plan, is how do we extend the dollars they're investing with the dollars we're investing simultaneously.

CHAIR NICHOLS: So you have no reason to want to invest where they are investing if it's already going to happen.

MR. JONES: If it's already going to happen, we need to complement that investment and spread. As we heard, our chief concern is looking at the real data. So this investment is only 400 chargers in the state of California. There's 4,000 chargers already in the state of California, so it is small in comparison.

And also if we look at the 10 percent that says this investment over its span will only hit 10 percent of the goal.

So we have to work with everybody else and make sure that those efforts are complementary, not in conflict.

CHAIR NICHOLS: And how are you approaching this issue of investing in disadvantaged communities? What's your -- at this point what's your thinking about that?

MR. JONES: Well, there's a two-pronged approach to it first. So right now we've been identified between 25 and 35 percent of the investments in disadvantaged communities. There'll be two specific over the life of the investment identified communities. Sacramento is one that is our suggestion. Another a yet to be identified.

I think what we owe back to CARB and to the Board is a better definition of where those chargers are going to go and how they're going to impact the community as a whole.

We also need to work with those communities to take our investment and expand it. It takes more than just what Electrify America is going to bring to the table. We've heard some statements from others who are EV infrastructure partners and are out there. We encourage them to also work with us in those communities.

It's one thing for us to do it. But if we have all the players doing it, we're going to have a better impact. And we want to work with them, not against them, to create this. And I've done that before in a previous job. I think we can do it here once we get past all the details, et cetera. I see a collaborative effort as the best effort for the State.

CHAIR NICHOLS: Do you have a response to the suggestion that you should be investing in hydrogen infrastructure as well?

MR. JONES: Oh, I'll admit at first I'm not the expert on hydrogen infrastructure. It hasn't been a focus of mine. I'm primarily an electric vehicle infrastructure evangelist.

We are looking at it, as my boss has explained to you, I think, several times. It has not been ruled out. But we don't have any firm definition or commitment or how we're going to do that yet. So it would behoove me not to say anything other than that at this time.

CHAIR NICHOLS: Okay. And I guess maybe a last question. Others may have more too. But I want to ask you -- this is obviously a first of its kind -- the first plan of its kind that I'm aware of that anyone has ever done. And it's -- so it's a little bit of a work in progress.

But how do you anticipate that future plans will be different, either in terms of the process or what they can take?

MR. JONES: Well, first I'm hoping I'm less stressed about the future plans, because this one has been very compact. I think, number one, we can learn from the planning cycle we've gone through today. We'll have more time.

We are building a strategy team. And the strategy team's sole purpose is to begin planning for the second cycle as soon as we get into the implement phase of the first cycle. So that strategy team is going to reach out and say first let's analyze everything we didn't like about how it happened with the approval of Cycle 1. Then second, we understand that more transparency -- someone made the comment about opaqueness. We have to eliminate both those perceptions and the reality of it both with the public, with CARB, and with the CARB staff and the Board, et cetera. And that doesn't mean just for California. That's across the United States.

Then we really have to do a good job looking at what all of our partners are doing, what type of technology is going into the ground today. The first investment takes care of a lot of EV infrastructure, Green Cities. And then we have to look at what more do we need. Demand charges within this State and demand charges across the United States make driving an electric vehicle if those demand charges were passed on to a consumer way more expensive - double, triple, quadruple the price of gasoline.

So we have to look at the investment and analyze where does this opportunity allow us to mitigate demand charges? Is it battery backups at each station? Is it demand mitigation software? Is it working with the utilities on a collaborative effort to lower demand charges for consumers who drive EVs?

So that planning, along with doing a gap analysis and looking at other investments, needs to happen early so by the time we get to the Board and to CARB, that plan is almost bulletproof and might need only minor modifications over time.

CHAIR NICHOLS: How long have you been with the company

MR. JONES: Six months.

CHAIR NICHOLS: Six months. Okay.

MR. JONES: Six months. And I had a full head of hair.

(Laughter.)

CHAIR NICHOLS: How many people are there?

MR. JONES: So right now there's a staff of 13 hired from organizations such as Nissan, Greenlots, BMW North America, EVgo and Nissan, G.E. -- I won't go -- give you all their names. So we're bringing in EV professionals who this is what they like. One thing I've learned, that if you're going to be successful in this space, you better like it. And while you can't make that a hard hiring criteria, it is one that we are strongly evaluating. You better like this space, because you'e not going to get anything accomplished. And you better learn to listen; because if you don't listen, it's going to be much harder.

CHAIR NICHOLS: So before I let you go or let you answer any other questions, one more question that I was going to ask you, which I found just -- oh.

What would you say to my friends and neighbors in Los Angeles who obviously feel very strongly that they're doing tremendous things with EVs and they, you know, would like to do more and would like to be designated by you as a Green City?

I need to go visit the people in Los Angeles. I need to get them in a room. I need to explain in detail what we plan on doing and see where there's opportunities to improve upon that plan. I got that as a very clear message. We took notes on that. So we have to plan a meeting and we have to bring all those groups together; because it's about communication. There's some things frankly we will not be able to do in the plan and we're not going to be able to please everybody. But with -- still the onus on us is to communicate what we can do and find ways to extend our reach. And that very much is something we'll do after the great folks of the city of Los Angeles brought out the horses, the bandwagon. Not much ammunition in terms of weapons, but everything else.

CHAIR NICHOLS: Oh, yeah. It was very positive, I thought.

Okay. Just a couple of Board members have raised their hand. So it was -- Alex Sherriffs was first and then it was Senator Florez.

So, Dr. Sherriffs, if you want to go first.

BOARD MEMBER SHERRIFFS: Sure. Thank you.

This is $300 million; and, you're right, this is very fast. And I think -- and, you know, in a sense the transparency, the opacity of the process, I think about what this Board goes through to think about managing $300 million and the length of the process. It's daunting what you've been working with.

You know, I guess one thing I'm concerned, we've heard about hydrogen and we have tried to be very fuel neutral and, you know, you say it hasn't been ruled out. I think we would like to hear it's in.

And if -- you know, it's great that you have surrounded yourself with people that have passion about EV and about electrification. But hydrogen is not going to be on the radar if there aren't people -- their passion about that as well.

So that's -- that's -- that's a concern.

This is very minor but kind of -- and then I don't know if this is probably in the settlement and so it's neither here nor there, and maybe it's a little bit negative. But, you know, rather than saying "sponsored by," I think what it should say is "Funded by VW Settlement Decree," which carries I think an important message. And I'm happy to see that spread everywhere.

The comments have been made about our valley, the Central Valley. And we're only 10 percent of the population. But similar to California getting 40 percent of the settlement, well, in part that's because where the most damage was done was in California when we look at South Coast, Central Valley, the biggest impact of every pollution molecule in terms of how that reverberated. And so, likewise, the Central Valley may be only 10 percent. But I hope in future plans there's a lot more attention to the Valley. And in part, you know, the Valley, they weren't here, L.A. was here. That's great. L.A. had some wonderful ideas. And I hope, I hope Bakersfield, Fresno are here with some wonderful ideas for the second plan.

You know, we want this plan to succeed. We want this plan to succeed. We want this to work. You know, I suppose one concern I have is it may pick off a lot of the low-hanging fruit in terms of what other people have been working on, what other groups have been struggling with. So, again, we want it to succeed. There's -- we want it to work.

But the complementarity is so important, so critical, to be partnering with the organizations that have been committed and doing so much in the past.

So again, you know, one of my major concerns is to be sure that the Central Valley is very much on the radar in subsequent plans.

There was an earlier comment, "Yeah, we need to move forward, we need success." So, maybe not doing very much with this first proposal. But, boy, we sure need to look at these issues for the subsequent spending plans.

CHAIR NICHOLS: Okay. Senator Florez, followed by Ms. Mitchell.

BOARD MEMBER FLOREZ: Mr. Jones, thank you for joining us.

So you've been doing this for about six months; correct?

MR. JONES: For Electrify America, that's correct.

BOARD MEMBER FLOREZ: Yeah. So I guess my question is, were you at our ARB meeting when we went over our criteria in December?

MR. JONES: The original criteria meeting, no, I was not in attendance for that meeting.

BOARD MEMBER FLOREZ: And were you able to attend the legislative hearing that Ms. Peter went through the other day at the Capitol?

MR. JONES: No. I received all the notes on the legislative hearing though and read over them.

BOARD MEMBER FLOREZ: Okay. Well, thank you for joining us today.

The reason I asked the question is, obviously you heard a lot today about the 35 percent for disadvantaged communities. In your comments you mentioned 35 percent and 25 percent. And I could see you have a little confusion. In our original PowerPoint presentation in December there was a 25 percent number there. It has been the Board's policy I believe to try to be at 35 percent for disadvantaged communities.

So I'm wondering, where does that criteria specifically fall within the way you made your decisions on this plan?

MR. JONES: So the criteria for --

BOARD MEMBER FLOREZ: 35 percent.

MR. JONES: -- the 35 percent came first as a -- from the guidance document. And when we saw the guidance document, it was the first time we have seen that. We have been working backwards since that date to ensure that where the infrastructure's going to go there's a degree of compliance if not outright compliance with that. We're in the process right now of continuing to refine that. And we have new documentation that further defines, but it's not available to the Board yet.

BOARD MEMBER FLOREZ: Got it.

MR. JONES: So I think on that topic, we have to have a continuation of a dialogue.

BOARD MEMBER FLOREZ: Okay.

MR. JONES: I can't commit today of where we'll be on a percentage, because, frankly, it's in flux and it's in motion right now.

BOARD MEMBER FLOREZ: Well, that's my -- let me just follow your train of thought then.

So you mentioned three words when you gave your opening comment. You said, "Advice, guidance, and refinement," and you just said the same thing again now. So is it safe to say that the document that we have before us today is not complete?

MR. JONES: No, it's -- the document is complete in terms of where the investments are going to go. In terms of what those investments --

BOARD MEMBER FLOREZ: So how does the 35 percent fit in that then?

MR. JONES: Because the analysis wasn't 100 percent complete and did all of those chargers fit in if you use the CalEnviroScreen, how much impact, where was the -- when -- there's a geospatial analysis --

BOARD MEMBER FLOREZ: No, I get it.

MR. JONES: -- that goes in --

BOARD MEMBER FLOREZ: I get it.

MR. JONES: -- as well. We've just completed our first round on the geospatial analysis, and that even refines it further to say whether it was in. If this particular charging station is in or without, and that refinement is happening right now.

BOARD MEMBER FLOREZ: Okay. So when the refinement occurs, will it be for this plan before us -- because we say yes or no to it. We don't like write out what we'd like you to do. We simply say yes or no.

So I guess my questions is, so if I was looking at 35 percent -- let's just use one of your metrics in your plan. So 75 million for the highway. 25 percent is what you utilized. But if you look at 25 percent of 75 million, which is of 200 million, it's about 9 percent that actually go to the lowest quartile of disadvantaged communities. 9 percent. Our standard here has always been 35 percent. So we are severely behind in that metric. And if I were to double it to go to 50th quartile, we'd be at 18 percent.

If I were to take the highest number, 75 percent, obviously we'd be at 36 percent.

I mean, I guess the point is we -- the way that you have given us your rendition of our guidance leads me to the conclusion that we are not close to the 35 percent at all, which would leave me against the plan, quite frankly; because I think the goal of it is to try to maximize the 35 percent.

So let me just go a step further on timing from your perspective. So let's say that Dr. Sherriffs is correct -- and I think you would agree, we just kind of rushed through this, right? I mean, we've had -- we put our plan out. You replied in 10 days or so. And then we are now seeing your plan for 10 days. And then staff told us in their presentation somewhere about the end of April we're supposed to say yes or no. That gives another 20 days.

So the way I look at it, it's a very fast process for a lot of money, as Dr. Sherriffs said. Normally the Board on that amount of money we'd take a little more time to really kind of think about the metrics. But what's interesting about it is in the next tier, the second decree, are things I really like. So we have our EJ -- assistant EJ director involved. We have a target. We're specifically pointing to a disadvantaged community in totality, not as some sort of subsidiary off-highway thing. We are pointing specifically to the CalEnviroScreen. So there's some really like cool stuff as we start to work out this second decree that I guess we may have learned moving through the first.

So I guess my question is, are we slowing you down or are we slowing ourselves down to just put both together with the same criteria?

MR. JONES: Wow. There was a lot of great content in what you said, and I don't know that I can provide you at this point in time with an adequate response. I mean, I'm not trying to brush off at all.

I think from our perspective, we have to look at the consent decree and the mandates of the consent decree, look at the guidance which we are taking seriously in looking at the guidance, and look at the plan. And that actively is taking place right now, and we're committed to that.

I can't commit to you there's going to be a hundred percent matchup to what the guidance was and what the consent decree mandates. I can commit to you that we're going to take measures to make sure that where possible the chargers will be in those areas. And there's going be no effort on behalf of Electrify America to modernize or not place them there if it meets the plan.

So there's business considerations afoot and also there is social and policy questions afoot, and we're taking all those into consideration.

BOARD MEMBER FLOREZ: Okay.

MR. JONES: And I'm not trying to be evasive.

BOARD MEMBER FLOREZ: No, no.

MR. JONES: It's a difficult question.

BOARD MEMBER FLOREZ: That's fine.

Just a last question just in terms of the timing as you see it. This is a very fast process. We -- the staff took us to the timeline. If you do the days, it's like every note is 6 or 7 or 10 days, and maybe there's a 30-day public participation.

The reason you saw Genevieve here from the Central Valley as being one of the only EJ folks here is because, when you talk to EJ folks and you tell them about the settlement, they go, "What's going on?" And that tells me there's not enough input, there's not enough discussion, there's not enough dialogue, there's not enough meetings. That means the EJ community should be front and center. I can definitely tell you this room would be filled with outrage if they knew somehow they were part of a, you know, the one I-5 stop off of Harris Ranch, and you had to drive there from Avenal for 30 minutes or you had to drive there from Hanford for 30 minutes, or you had to drive from Buttonwillow down to the Bakersfield -- I mean.

So those are questions that EJ groups I know will have very serious -- want to have some serious discussions on.

But I guess to the point of the timeline, the last question I was going to ask you is -- you mentioned the word "complement." And we have heard a lot in our discussions here in the Board, even at the first presentation about, you know, giving you some sort of competitive advantage in terms of the other companies that are operating in this space. And I was very happy to hear you say complement, because I think that's exactly what the Board would like to do. But I think sometimes when we complement, we kind of pile on in areas where there's a lot of competition and where some of those areas are rather well served, even though they need to grow. Sacramento needs to grow. San Francisco needs to grow, L.A. needs to grow. San Diego needs to grow. They're all big urban centers where all of you folks are going to rush in and hopefully do great jobs of getting the EVs connected.

But when I think of the VW issue, I think about sending you to places what you normally wouldn't go, you know, places where you might want to think about interconnective -- interconnecting some communities that might be ignored.

So that's just kind of my thought process. So as you start to think about that in the second tier or the second consent decree, I think that's probably what I'd be interested in hearing some of VW's thoughts.

The last point is, on the complement side, are you coordinating with PUC in the short process? I mean, it seems like we a had a lot of directive to you in our own directive we put out to -- that you coordinated with PUC, CEC. A lot of folks are putting infrastructure in.

How has that conversation gone thus far in these 30 days that you've seen the plan?

MR. JONES: So there is coordination on the utility level, the depth and nature of it. I have another senior director who handles that specifically. I get the higher level feedback. And if I could recite all the emails and the depth of those emails, I -- I wish I could. And 10 years ago I might have been able to do better than I can do today as well.

But I can tell you that I'm confident where it is today, but I'm also cautious of the fact that it needs to get much better.

BOARD MEMBER FLOREZ: Got it.

MR. JONES: There is newer meetings on the calendar that are coming with the CPUC. I just read one today; and myself and my colleague sitting back were commenting on it.

So those efforts are ongoing, and they're also in California and across the United States simultaneously.

BOARD MEMBER FLOREZ: Since I have you here, the last -- the last question, I promise.

Is there a problem with combining the approach that we're taking in the second decree as opposed to what we're doing with the first? In other words, does it slow you down if you feel that somehow you kind of got it right a little more so on the second decree in terms of disadvantaged communities, of involvement of our assistant EJ director, involvement of CalEnviroScreen, of targeting of both large and small communities where you have urban centers and urban -- metropolitan centers combined with communities, as you put, at least we have, you know, 500,000 and below as one of the criteria for you. I'm just -- does that -- I guess the question is, what's the drop deadline for VW for this plan? When does it not work for you?

MR. JONES: For Cycle 1?

BOARD MEMBER FLOREZ: No, Cycle 1 and 2.

MR. JONES: Well, Cycle 1 I believe based on where we're at, the consent decree was signed on October 26th, I believe. The clock started on January 1st. We're already behind before we began.

BOARD MEMBER FLOREZ: And when you say we're behind, why are we behind?

MR. JONES: There's a level of synchronicity between the EPA plan and between the CARB plan.

BOARD MEMBER FLOREZ: Uh-huh.

MR. JONES: We have confidence that the CARB plan is moving forward on time. We have concerns because we're all still having a lot of debate that we're going to be a little bit more delayed.

As the comment relates to the second cycle, I think the second cycle gives us an opportunity to be more clear and more up front in the early stages of planning on what the differences are; and the differences are in expectations. I can't sit here and commit to everything that you're outlining. We have to look at what the marketplace first yields from the first investment plan when it is approved and then begins the implementation phase. And we'll look at where the unmet expectations were and can under the consent decree and the way its established, written and the way we have to adhere to it, do we have the ability to do everything that everyone wants, the entire constituency group, under Cycle 2. We're clearly not going to do everything. But there are three more cycles to go.

BOARD MEMBER FLOREZ: Correct. And I just hope you look at the 35 percent. That's really critical.

Thank you.

VICE CHAIR BERG: Senator Florez, I thought it would be helpful too. Staff has a couple of comments on the timing as well.

And so Ellen Peter.

CHIEF COUNSEL PETER: Thank you, Vice Chair Berg.

So, Senator Florez, just to give a little bit of the timelines. You're talking about the second agreement -- the first agreement and the second agreement.

So the one that was first signed by the -- that we negotiated and was already approved by the Court, which was the 2 liter deal. So all of the 800 million is in that agreement. And that was negotiated in the spring of 2016 and signed and filed with the Court at the end of June.

So at that point we had built in the disadvantaged community as a concept as one of the agreements. At that point, the figure that we used for the CalEnviroScreen was the -- connected with the Greenhouse Gas Reduction Fund. So that was SB 535. So in the spring of 2016 that was set at 25 percent.

And so that was the second 2 liter deal that was filed.

Then when you referring to the second decree when we started negotiating it in the summer and fall of 2016, at that point the legislature did two things that were significant in terms of my looking at this, is they had put in a lot of money into the budget for the EFMP Plus Up, specifically for low income people getting ZEVs. And so we -- we're in the negotiations for the next deal. And so the 25 million was basically reflecting that signal from the legislature for that program.

No more money was added into the investment. That was still at 800 million from the beginning.

The other thing, what happened that summer was AB 1555 came in, which for the Greenhouse Gas Reduction Fund went up to 35 percent. So we reflected that percentage in the ARB guidance; but just in terms of the order, they were happening at different times.

And also in that 3 liter agreement, that's when we added the second Green City, with the emphasize that it would be a disadvantaged city. So I think -- you're right. Those concepts change between the 2 liter agreement and the 3 liter agreement, and partially it was reflecting what was happening in the legislature.

BOARD MEMBER FLOREZ: Right. And if the Board liked the second part better than the first, could we not just not approve this plan and have that plan 1 and 2 re-reflective of what you just said?

CHIEF COUNSEL PETER: So they're under an obligation, which was, you know, set in October of 2016, to start moving. And they submitted the plan and they're following all of the deadlines. In terms of that's a 30-month cycle.

And so we can look at it. And what the plan is in light of the concept decree and our guidance, if they chose to, you know, add more in, they could do that. But there's a tension I think in terms of timing and get the money out the door.

Also the 30-month cyc -- the 30-month plan has six-month check-ins and annual reports. So I think Mr. Jones indicated that he was -- they were continuing to look at it. So perhaps there's a process that's already built in the consent decree for touch basis back where you can -- we can -- the issues that you raise, which are from the 3 liter decree, those concepts could be put in. But the investment comes out of the 2 liter deal --

BOARD MEMBER FLOREZ: Thank you.

CHIEF COUNSEL PETER: -- if that's helpful.

MR. JONES: And, Senator, my colleague handed me a document that is outlining some of new work and analysis, and we'll make sure the Board gets it.

But the round-up is -- over 35 percent of the investment will fall in areas in the bottom 2 quartile.

Now, we owe you more definition on that and we'll work to get it. I want to make it more than just a statement on a piece of paper, and rather something that's meaningful for the staff and for the Board.

BOARD MEMBER FLOREZ: Uh-huh. 35 percent in the bottom 2 quartile?

MR. JONES: That is correct.

BOARD MEMBER FLOREZ On the first --

MR. JONES: First investment.

BOARD MEMBER FLOREZ: On the first investment?

MR. JONES: Yeah, based on the initial analysis, yeah.

BOARD MEMBER FLOREZ: But 75 million of 200 million total is 35 percent. So you're saying all the 75 million is going to the bottom 2 percent quartile?

MR. JONES: No, it's specifically on the type of investment instead of the total investment. So an infrastructure investment, so it --

BOARD MEMBER FLOREZ: Now you'd do it, it's going to have to add up to 75 million, just so you know. There's no other way around it. It's 35 percent. Okay.

MR. JONES: We'll definitely have to allow a line on math, on, you know, what -- is it out of the pure total or the percent that is infrastructure only versus awareness versus Green City? Yes, agreed.

CHAIR NICHOLS: Okay. So can we hear from Ms. Mitchell now please.

BOARD MEMBER MITCHELL: I'll try make this shorter than Senator Florez.

But first thing was, and some of my colleagues I think agree on this, that no hydrogen fueling is in the plan. And I'd certainly like to see some of that. The hydrogen cars are just now coming out, and we need to give a boost to that market. So I think that would be important for you to consider including that. I mean, it is an electric motor and run by hydrogen.

So That would be an important component.

The other thing I want to mention is that I represent the South Coast Air District, and that's a nonattainment air district. And it would be my conclusion that the VW diesel cars probably contributed a lot to the NOx problem that we suffer in the South Coast District. And to that degree, I think you could consider that some of the funds that you have in this pot should be going to mitigate that damage.

And I'll give a shout out to L.A. as the next Green City you choose. And that would be one of the reasons that I think it would be a good choice. But it certainly also has a lot of disadvantaged communities where you could find ways to spend that money.

But, anyway, NOx is a big problem for us. And VW actually exacerbated that. So we would hope you would pay attention to that district.

Thank you.

CHAIR NICHOLS: Okay. Supervisor Serna.

BOARD MEMBER SERNA: Thank you, Chair.

So I certainly appreciate the fact that you've been up here now for probably 30 minutes asking some important -- addressing some important questions, especially those that come from my colleague, Senator Florez.

But I do feel like it's important at this point to note the fact that the designation as the -- of the first Green City deployment and, you know, obviously, as the Sacramento Valley member of this Board, I'm delighted to see that VW is proposing Sacramento for its first deployment. But I think it's important to realize that it's not just one aspect of a particular candidate Green City that you're looking at.

I think it's pretty clear, especially in the guidance document, that there are several different contributing factors that will, you know, go into the mix of making that determination. And as was stated by Assistant City Manager John Dangberg, who was here on behalf of Mayor Darrell Steinberg, the fact that Sacramento is diverse -- extremely diverse - in fact, for the last 20 years it's been noted in national media as being one of the top 10 diverse municipalities anywhere in the country.

Certainly we have some very, very disadvantaged communities ourselves in not just the city but the county of Sacramento. In fact, the district I represent has some of the poorest census tracts anywhere in Northern California.

So, I do appreciate that.

And let's not forget too that one of the most important aspects of making a determination of the first deployment is also the likelihood for success. And when you look at what Sacramento has achieved, and has actually achieved years ago - not just recently but years ago, especially as it relates to our Take Charge initiative to be EV ready, that was actually adopted by our Council of Governments -- in fact, I was on the Board in 2013 when that was adopted. And certainly as a county supervisor enjoyed the deployment of that particular directive as it reflects how we've actually incorporated EV readiness into our county building codes and parking codes. So I think complement of all these considerations, all these aspects of what Sacramento has done to really prepare to be successful, I think I have to believe that that is what has really led Electrify America and the Green Cities deployment determination to the conclusion it has in terms of the proposal that Sacramento be that first Green City deployment candidate.

So again, while I appreciate the fact that -- certainly appreciate the fact that disadvantaged communities has to be, must be a consideration here and how EV deployment and infrastructure to accommodate deployment of EVs is an important factor, it's not the only one.

CHAIR NICHOLS: Thank you.

Okay. Mr. De La Torre, you are next.

BOARD MEMBER DE LA TORRE: You've heard from two of my colleagues about hydrogen infrastructure, and you talk about electric vehicles, we talk about ZEV. We want zero-emission vehicles. So whether it's battery electric or hydrogen fuel cell, we want them both. We want to see this play out. We don't know, you don't know. Maybe you're betting on VHS, maybe you're betting on Beta. We don't know. And so we want to play this out in both marketplaces. My gut tells me they will both be out there and they will be successful. Diesel and gasoline maybe.

So it is very important that we see a benefit from this. And we're not Blanche DuBois here. We're not relying on the kindness of strangers. We are here as a party to a settlement for something that was done that was terrible.

And so we need to have a commitment from you, Electrify America, VW, whatever entity it is, that is going to deliver what we're expecting -- what the people of California are expecting, which is zero-emission vehicles.

So that I think cannot be overstated. Because it's been said by a couple of us, but I want to make it really clear. Does that mean we're going to run to court? Maybe. Does it mean we're going to run to the people of California? Oh, yeah. We can do that.

So you will understand that in light of why we're here, the only Ronald Reagan quote that I ever use, is trust but verify. And so I will expect to see in the fairly near future something that incorporates some hydrogen infrastructure into this plan. That's a lot of money, and the bulk of it can be BEV, but we need to see something a little different as well.

Thank you.

CHAIR NICHOLS: I think "Trust but verify," it was one of Ronald Reagan's made-up Russian proverbs he liked to use, as I recall.

But, you know, I think you've heard from some of our Board members. Not everybody has spoken, but I think you can tell that there's a huge amount of interest in this program going forward.

I just want to say that I appreciate your commitment to the partnership concept. I believe based on what I've read that you want this investment to be a success. I don't usually -- I'm not usually modest about ARB's ability to do absolutely anything, but I don't know that we are the experts on how best to invest ZEV money, to be quite clear here.

I think your need as a company to succeed in this area is at least the equal of our need for you to be successful from a policy perspective. And so I really want to be open to hearing from you, you know, why you make the decisions that you make. I think that is -- if there's one thing that really emerges is there's a need for that ability for all of the interested stakeholders to be able to buy into the thinking that you have.

And so maybe we could just leave it at that for the moment. And since it is now 6 o'clock and really is evening, I'll ask if people are ready to move the resolution that we have in front of us.

BOARD MEMBER SERNA: I'd like to move the resolution.

BOARD MEMBER RIORDAN: I'll second the motion.

CHAIR NICHOLS: Okay. Without any further discussion, all in favor please say aye.

(Unanimous Aye vote.)

(Board Member Eisenhut not present.)

CHAIR NICHOLS: Opposed?

None.

And no abstentions on this one.

So you have a resolution from us, which basically is saying staff, you go, you know, work on the details here within the parameters that I think we've laid out pretty clearly. Keep us posted. And be well and prosper.

MR. JONES: Thank you, Chairman. Thank you, Board. Thank you, CARB staff.

CHAIR NICHOLS: Thank you.

VICE CHAIR BERG: Mary, we do have --

CHAIR NICHOLS: We have one public commenter. We're required by the Bagley-Keene Act to hear from any member of the public who wishes to address us on a topic that was not on the agenda.

And we have one speaker who has signed up. He's spoken on every other occasion, on every other item, and in public comment.

I don't see him at this moment.

Okay. He's coming. He's making his way down.

VICE CHAIR BERG: Could we please just sit down for one moment. That'd be really great. We have two minutes.

CHAIR NICHOLS: You are the last speaker of the day.

MR. EDER: Okay. I want you -- when I was cut off when you were talking to each other, that there was $153 million in civil penalties that was included in that 800 million. They don't need that money. It should go for low income solar electric where they can get some equity in co-ops or to actually finance public transportation systems, which is used by other cities -- companies that need tax shelter. And been working on models of that.

Anyway, everybody's going, so you can -- But I don't think that 153 million -- I think that's in there. It was in the sheet you were hanging up there. It was the second "whereas" on page 4. The first above it was 41 million and then it said 153 million to pay civil penalties.

And they can pay their own damn civil penalties and do whatever time that they've got coming like anybody else.

CHAIR NICHOLS: Right.

MR. EDER: Thank you.

CHAIR NICHOLS: Okay. Thank you.

I think we are adjourned.

(Thereupon the Air Resources Board adjourned at 6:02 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 10th day of April, 2017.

JAMES F. PETERS, CSR
Certified Shorthand Reporter
License No. 10063