MEETING

STATE OF CALIFORNIA

AIR RESOURCES BOARD

JOE SERNA, JR. BUILDING

CALIFORNIA ENVIRONMENTAL PROTECTION AGENCY

BYRON SHER AUDITORIUM, SECOND FLOOR

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THURSDAY, DECEMBER 10, 2009

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APPEARANCES

BOARD MEMBERS

Ms. Mary Nichols, Chairperson

Dr. John R. Balmes

Ms. Sandra Berg

Ms. Doreene D'Adamo

Mr. Ronald O. Loveridge

Mr. Ron Roberts

Dr. Daniel Sperling

Mr. Ken Yeager

STAFF

Mr. James Goldstene, Executive Officer

Mr. Tom Cackette, Chief Deputy Executive Officer

Ms. Ellen Peter, Chief Counsel

Mr. Michael Scheible, Deputy Executive Officer

Ms. Lynn Terry, Deputy Executive Officer

Ms. Lori Andreoni, Board Clerk

Ms. Anna Gromis, Staff, Zero Emission Vehicle Implementation Section, Mobile Source Control Division

Ms. Elise Keddie, Manager, Zero Emission Vehicle Implementation Section, Mobile Source Control Division

APPEARANCES CONTINUED

ALSO PRESENT

Mr. Robert Bienenfeld, Honda

Mr. David Case, Chrysler Group

Mr. Robert Cassidy, Nissan

Mr. Daniel Davids, Plug In America

Ms. Catherine Dunwoody, California Fuel Cell Partnership

Mr. Tyson Eckerle, Energy Independence Now

Mr. Jim Ehlmann, GM

Mr. Jerry Frost, Kern Oil and Refining Company

Ms. Danielle Fuger, Friends of the Earth

Mr. Eloy Garcia, KP Public Affairs

Mr. Sigmund Gronich, Charisma Gronich

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

Ms. Azita Khalili, BMV

Ms. Julee, Malinowski-Ball, California Electric Transportation Coalition

Ms. Marianne McInevney, Smith Electric Vehicles

Ms. Patricia Monahan, UCS

Mr. Simon Mui, NRDC

Ms. Megan Norris, Sierra Club California

Mr. Michael Lord, Toyota

Mr. John Paliwoda, CMDA

Mr. Shankar Prasad, Coalition for Clean Air

APPEARANCES CONTINUED

ALSO PRESENT

Mr. Robert Richards, Kern Oil Refining Company

Ms. Sara Rudy, Ford

Mr. John Shears, CEERT

Ms. Donna Wilson, CERT

INDEX

PROCEEDINGS

CHAIRPERSON NICHOLS: I want to call the December 10th, 2009, public meeting of the Air Resources Board to order. And in a minute, we will begin with the Pledge of Allegiance. This is a really interesting meeting we have today, and I'm looking forward to it.

Okay. We customarily begin our meeting by saying the Pledge of Allegiance, so would you all please stand and face the flag.

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

CHAIRPERSON NICHOLS: The Clerk will please call the roll.

BOARD CLERK ANDREONI: Dr. Balmes?

BOARD MEMBER BALMES: Here.

BOARD CLERK ANDREONI: Ms. Berg?

BOARD MEMBER BERG: Here.

BOARD CLERK ANDREONI: Ms. D'Adamo?

BOARD MEMBER D'ADAMO: Here.

BOARD CLERK ANDREONI: Ms. Kennard?

Mayor Loveridge?

Ms. Riordan?

Supervisor Roberts?

Professor Sperling?

BOARD MEMBER SPERLING: Here.

BOARD CLERK ANDREONI: Dr. Telles?

Supervisor Yeager?

BOARD MEMBER YEAGER: Here.

BOARD CLERK ANDREONI: And Chairman Nichols?

CHAIRPERSON NICHOLS: Here.

BOARD CLERK ANDREONI: Madam Chair, we have a quorum.

CHAIRPERSON NICHOLS: Thank you very much.

As I'm sure you all know, this morning's session is devoted to a discussion about the zero emission vehicle program and its future. And in light of other automotive and fuels programs, it's going to be an interesting discussion I think for the Board members and staff.

We are going to be receiving testimony, of course, from the audience with our usual three-minute rule. And I think you all know the drill in terms of signing the cards and stating your points as quickly as possible.

I also have to point out the exits at the rear of the room, which we're to use in the event of a fire alarm or any other kind of alarm going off. Exit the building through the rear and down the stairs and across the street.

I think that's actually it as far as the preliminaries are concerned.

We had a long meeting yesterday, which in many ways was an example of some of the best I think of California state government when you have a group of political appointees who can really listen and engage and work together collaboratively on tough, tough decisions. We're not making any decisions today. But I'm hoping that the discussion among the Board members will give staff and the public a better sense of where we're headed with this program.

And we're here because we asked our staff in March of 2008 to review and re-design the zero emission vehicle regulation with a number of specific objectives in mind. We wanted to try to simplify the program which has gotten extremely difficult for even those who participate in it to keep track of all the various categories and credits and crediting rules, et cetera.

It's also important I think that we acknowledge that we are in a new world where zero emission is not zero emission of criteria pollutants alone, that in a world where carbon dioxide and greenhouse gas emissions are overwhelmingly important to the global future that we need to have a program which takes that into account as well as the health-harming criteria pollutants that we focused so much on over the years.

We also know that this program is more crucial

than it's ever been, not only for pointing us towards our 2020 goals, but also getting us to the 2050 climate change goal of an 80 percent reduction over business as usual.

So we need to consider the analysis that the staff has gone through and their recommendations about how to think about these issues. I'm hoping at the end to draw it together with a few key messages that we want to give as a Board to the staff.

And at this point, I'd like to ask Mr. Goldstene to introduce the item.

EXECUTIVE OFFICER GOLDSTENE: Thank you, Chairman Nichols.

The purpose of today's item is to update the Board on the status of current zero emission vehicle technology and discuss how the ZEV program can be revised to help meet the California's 2050 climate change emission reduction goals.

No regulatory action is proposed today. Staff plans to return with a regulatory proposal by the end of next year.

During the upcoming year, we will seek further public input on the findings and ideas we will share with you today.

We will also reflect on any decision you should make on more stringent greenhouse gas standards, the

so-called Pavley II standards, we will present to you next summer.

We believe these two programs must be carefully coordinated so they work together to reduce emissions and meet the 2050 goal.

Anna Gromis of the Mobile Source Control Division will now begin the staff presentation.

Anna.

(Thereupon an overhead presentation was presented as follows.)

MS. GROMIS: Thank you, James.

Good morning, Madam Chairman Nichols and members of the Board.

Staff brings you an informational update on the zero emission vehicle, or ZEV, regulation.

We bring this update to the Board from your direction during the March 2008 Board hearing, when the Board directed staff to consider revising the regulation through focusing on greenhouse gas reductions, as well as criteria pollutants.

Staff has undertaken a year-long assessment of the need for revisions. We believe our update will provide the foundation and reason for future regulatory modifications.

EXECUTIVE OFFICER GOLDSTENE: We're having some

technical difficulties.

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MS. GROMIS: My presentation this morning will review the history and status of the current regulation, provide information on staff's passenger vehicle sector greenhouse gas analysis, describe the current status of ZEV technology, briefly review staff's preliminary thoughts on policy alternatives for the regulation, present various complementary policies that might be needed in addition to the regulation, and finally summarize staff's update and shed light on steps staff will take in preparation for a regulatory proposal next year.

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MS. GROMIS: Staff's assessments have concluded that all ZEV technologies, those being battery electric vehicles and fuel cell vehicles, are needed to successfully achieve Governor Schwarzenegger's 2050 greenhouse gas emission reduction goal.

In order to achieve these necessarily low fleet emissions in 2050, ZEV markets will need to be launched in the tens of thousands by model year 2020. Because natural market forces alone may not be sufficient to meet this goal, we believe a continuation of an improved ZEV mandate is essential. To ensure that this goal is met, staff

believes that further policies are needed to overcome market barriers unique to ZEVs.

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MS. GROMIS: If we look at ZEV commercialization as a pie, the ZEV mandate solves a substantial and essential part of this puzzle. We will be focusing mostly today on this red piece of pie.

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MS. GROMIS: Given its lengthy history and numerous modifications, it is important to reflect on why we originally had the ZEV mandate. The Board adopted the ZEV regulation as part of the low emission vehicle, or LEV, regulation in 1990. The regulation envisioned one in every ten new cars sold would be a ZEV. ZEVs were needed to achieve significant air quality benefits that improvements in conventional vehicle technology would not be able to realize.

Since that time, the percentage requirement has increased and the regulation has been revised several times to respond to technology readiness challenges as well as opportunities. These amendments have incorporated new vehicle categories that have both maximized emission performance from combustion engines and commercialized ZEV-enabling technologies.

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MS. GROMIS: A number of achievements have taken place since 1990 that staff believes would not have happened had the ZEV regulation not been established.

First, the program has advanced the development of battery electric and fuel cell vehicles. Demonstration, preparation of the marketplace, and infrastructure deployment have all taken place in California as a result of the ZEV mandate and have made the state ready for the ZEV commercialization.

Second, California saw introduction of hybrid electric vehicles, also referred to as AT PZEVs. In 2001, by recognizing the role that enabling technologies could play in advancing zero emission vehicle development, California became a leader in the placement of hybrid vehicles. Now, three percent of new passenger vehicles sold in California are hybrids.

Third, in 1998, with the introduction of partial zero emission vehicles, or PZEVs, auto manufacturers showed that near zero emissions could be achieved with combustion engines. To be a part of the ZEV program, these PZEVs not only had near zero emissions at the tailpipe, but also demonstrated two other factors: Zero evaporative emissions and lifetime durability. About one-third of new vehicles sold in California are PZEVs.

Also presented in this slide are the numbers of

vehicles we have seen placed in California as a result of the two programs. More than one million PZEVs, over 200,000 hybrids and compressed natural gas vehicles and the largest demonstration of battery electric and fuel cell vehicles in the world have been placed.

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MS. GROMIS: As adopted by the Board in March 2008, the regulation currently requires large volume manufacturers in the 2012 to 2014 time frame to produce and deliver for sale at least 7500 fuel cell vehicles, or 15,000 battery electric vehicles, in combination with more than 60,000 plug-in hybrids, also known as enhanced AT PZEVs. These requirements are appropriate for the time being, as manufacturers have started to make public commitments to meeting requirements with fuel cell vehicles and battery electric vehicles. However, the regulation will need to be modified to achieve ZEV commercialization success. Staff plans to re-visit the model year 2015 and beyond requirements, shown in this slide, in preparation for proposed modifications to the regulation next year.

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MS. GROMIS: The Board adopted modifications to the ZEV regulation in Resolution 08-24. The adopted resolution directed staff to review the LEV, Pavley, and

ZEV regulations, keeping in mind the need to reduce criteria pollutant emissions, climate change emissions, and dependant on petroleum.

Staff was also directed to strengthen the requirements and focus the program on ZEVs and enhanced AT PZEVs to ensure California continues to be the center of ZEV commercialization development. Lastly, staff was to return to the Board by the end of 2009.

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MS. GROMIS: Resolution 08-24 essentially called for a redesign of the ZEV regulation and integration with other ARB policies.

First, greenhouse gas emission reductions need to be added to the ZEV regulation goals. ZEVs and enhanced AT PZEVs have the potential to achieve very low greenhouse gas emissions, and thus contribute to meeting the Governor's 2050 greenhouse gas emission reduction target.

Second, we intend to shift to focusing on ZEVs and enhanced AT PZEVs. PZEVs and AT PZEVs no longer need to be part of a ZEV regulation whose goal is achieving commercialization of zero and near zero emitting technologies, because these two technologies are now commercial.

Commercial PZEV technology can be considered when setting new LEV criteria pollutant standards. AT PZEV

technology, specifically hybrids, also have lower greenhouse gas emissions. This technology can be considered in establishing more stringent greenhouse gas emission standards which we plan to integrate into the LEV greenhouse gas regulation.

What remains in the ZEV regulation are pre-commercial technologies, many of which have the potential to achieve very low greenhouse gas emissions. The goal of the revised ZEV program should be to help move these demonstration technologies to commercialization. Once ZEV commercialization is achieved, the regulation would no longer be needed. And like the PZEVs and AT PZEV technology, ZEVs and enhanced AT PZEVs could be considered in setting future LEV performance-based emission standards.

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MS. GROMIS: In response to the Board's direction in 2008, staff conducted various assessments to determine the best course for regulation redesign.

First, to answer the question of how many ZEVs might be needed, staff analyzed numerous pathways to illustrate how the passenger vehicle sub-sector can contribute to meeting California's long-term greenhouse gas reduction goals.

Second, to answer the question of the current

status of ZEV technologies, staff surveyed and met with auto manufacturers, battery suppliers, and fuel cell suppliers to gain information on ZEV developments, breakthroughs, barriers, and future plans.

Lastly, staff reviewed a suite of complimentary policies that may be needed to address market barriers unique to ZEVs. Staff released a white paper with attachments specific to these three topics for public comment.

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MS. GROMIS: First, let us take a look at California's 2050 greenhouse gas emission reduction goal. This graph shows the California greenhouse gas inventory and future policy targets. Assembly Bill 23 requires reductions in greenhouse gas emissions back to 1990 levels by the year 2020. However, the more dramatic goal is Executive Order S-3-05, which aims to reduce 2050 emissions to 80 percent below 1990 levels.

Given that the passenger vehicles sector currently accounts for 28 percent of California's greenhouse gas emission inventory, the 2050 goal will require significant changes to the passenger vehicle technology and travel behavior. ZEVs and enhanced AT PZEVs will be required in large volumes in order to achieve this goal.

To evaluate the role of the passenger vehicle sector in meeting the 2050 greenhouse gas goal, staff conducted a detailed scenario-based analysis. Our analysis assumed the passenger vehicle sector needs to achieve its fair share of the 2050 greenhouse gas goal. To address this, we framed two specific policy questions related to the ZEV regulation. First, what are the cumulative ZEVs necessary by 2050 to help the passenger vehicle sector achieve an 80 percent reduction? And second, what annual ZEV sales are necessary between 2015 and 2025 to initiate these fleet volumes?

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MS. GROMIS: To address these policy questions, two scenarios were developed, both of which assume ZEVs reach commercial production by 2020.

A hypothetical business-as-usual trajectory was developed for reference, but does not reflect ARB's greenhouse gas projections in other policy development.

Scenario 1 represents a very aggressive and plausible pathway, but only achieves a 66 greenhouse gas emission reduction, falling short of the 2050 goal. To explore what would be necessary to meet the 80 percent reduction level, Scenario 2 was developed and changes two key parameters, that being ZEV sales are more aggressive and additional low carbon biofuels were used.

Scenario 1 assumes ZEVs are commercialized by 2020 and grow to 100 percent of the new vehicle sales by 2050.

Scenario 2 assumes the same ZEV commercialization point, but sales grow at a steeper rate, reaching 100 percent ten years earlier by 2040.

There are challenges and uncertainties with any ZEV trajectory. Aggressive early ZEV sales risk forcing technology onto the market before it is fully ready. Aggressive later ZEV sales risk relying on unrealistic fleet turnover and new vehicle sales rates.

Our take-away message from this analysis is that achieving the 2050 goal will be extremely challenging and that the ZEVs and PHEVs will need to be commercialized by 2020 to be successful.

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MS. GROMIS: Now that we have shown the big picture for the passenger vehicle sector, let's look at new vehicle sales. This graph shows a hypothetical new vehicle grams of carbon dioxide per mile fleet average all the way to 2050. This trajectory corresponds to where the passenger vehicle sector needs to be in our scenario that achieves the 80 percent goal.

Our scenario shows that if ZEVs are not commercialized and the best we can do is Prius-like

hybrids indicated here by the blue line, there will be a significant gap towards achieving the 2050 goal.

Another way to look at this is hybrids could be considered vehicles that get us to 50 percent of our goal, but ZEVs get us all the way to our goal. The large greenhouse gas reductions possible from ZEVs coupled with low-carbon fuels are required.

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MS. GROMIS: To show that all vehicle alternatives will play a role in our scenarios, this graph depicts the sales trajectory for all vehicle technologies in Scenario 2.

Conventional vehicle sales, the green line, decline over time as various other options expand. Hybrid vehicles, the blue line, will play a very large role in the next few decades. And plug-in hybrids, the red line, play a significant role as well.

In this scenario, ZEVs, the black line, become 100 percent of the new vehicle auto sales by 2040, a very aggressive sales trajectory.

To emphasize the challenge in achieving these market trends, we note that the current hybrid sales in California are only at 3 percent of new vehicle sales. This scenario shows that they need to expand to 40 percent in the next ten years, an order of magnitude faster than

current rates.

It is worth noting that this graph shows the sales assumed for this passenger car sector only. A separate graph in our report shows the trends for light-duty trucks. The truck sector also has aggressive sales for advanced technology, but relies less on battery electric vehicles and more on plug-in hybrids and fuel cell vehicles given the compounding challenge of putting batteries on larger vehicle platforms.

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MS. GROMIS: Let us take a minute to compare Scenario 1 and 2 with the current ZEV regulation requirements.

The ZEV regulation, as currently written, will not launch us onto a path to 2050. The current mandate maxes out at 6 percent of a manufacturer's annual fleet sales must be ZEVs beginning in model year 2018.

Our scenarios show we need to continue growing past tens of thousands of ZEVs per year in a very short time frame to hundreds of thousands of vehicles per year. Requirements for model years 2018 and beyond could be rewritten to appropriately reflect the number of ZEVs needed to meet the 2050 goal.

To summarize the 2050 greenhouse gas analysis, there are broad implications for near-term policy

divisions. They are categorized in what are commonly called the three-legged stool for the transportation sector: Vehicles, fuels, and vehicle miles traveled.

First, ZEVs need to sustain rapid sales growth over three decades in order for California to achieve the 80 percent greenhouse gas reduction goal. In the near term, this implies ZEV sales on the order of the tens of thousands annually by 2020, consistent with the current ZEV regulation, but needs to expand to the hundreds of thousands annually by 2050.

Second, greenhouse gas reductions from ZEVs in the fleet require that the carbon intensity of fuels is dramatically reduced from today's levels. This includes electricity, hydrogen, and biofuels.

Policies that can influence this include the renewable electricity standard, the low-carbon fuel standard, Senate Bill 1505, and Assembly Bill 118.

And third, although we are not discussing this today, travel behavior needs to change, and specifically, vehicle miles traveled per capita needs to be reduced in California.

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MS. GROMIS: Now that we have identified that a large number of ZEVs are needed to reach the 2050 goal, the question is now: Is the technology ready?

In conjunction with staff's 2050 passenger vehicle analysis, we reviewed the current status of technologies. Staff sent technology surveys to 45 organizations and met with numerous manufacturers to obtain the desired information.

Most interesting, manufacturers emphasized the theme of technology stratification. When the goal is to reach 80 percent greenhouse gas reductions, the battery versus fuel cell debate is irrelevant, as all technologies are needed in order to achieve success.

Most manufacturers believe battery electric vehicles will be limited to short- to mid-range small vehicles used for city commuting, while fuel cell vehicles and plug-in hybrids will be able to replace mid- to long-range vehicles where range and refueling time restrictions cannot be accommodated by battery electric vehicles.

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MS. GROMIS: Long-term cost reductions are essential for any new advanced technology to succeed. A recent study by researchers at the Massachusetts Institute of Technology estimated that incremental price of advanced vehicles over conventional spark ignition engine technology when produced at high volumes.

This table compares vehicle prices of future

propulsion technology to future hybrid prices. Compared to a future 2035 hybrid vehicle, both plug-in hybrids and fuel cell vehicles will be between 2,000 and 4,000 more, whereas a battery electric vehicle will be over 5,000 more in price.

Although there are a number of assumptions included in the MIT analysis, the general trends are echoed by other experts and studies.

First, fuel cell vehicles are expected to continue down current cost reduction trajectories and could be cost competitive with future plug-in hybrids.

Second, both fuel cell vehicles and plug-in hybrids may still have a higher purchase price than future hybrids, but future fuel prices may result in lifetime operating costs lower than conventional hybrids.

Third, lithium ion battery costs will decline over time, but only to a level where battery electric vehicles with 100-mile range are expected to remain 5,000 to 6,000 higher than hybrid vehicles and 2,000 to 3,000 more than fuel cell vehicles. Very low operating costs can recoup some of this difference.

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MS. GROMIS: Fuel cell technology has come a long way. Cost and durability are the remaining challenges, cost being the largest challenge.

Despite the remaining challenges, manufacturers are committed to fuel cell vehicle technology. As stated previously, most manufacturers plan to have fuel cells in their future vehicle portfolios. Major manufacturers in a joint letter of agreement announced commercial roll-out of fuel cell vehicles in the 2015 time frame. Several major manufacturers have stated their fuel cell vehicle technology could be ready for early commercialization by 2015, given continued cost reduction by that point.

Program development for a 2015 production date would need to begin by 2011. The ZEV regulation and hydrogen infrastructure policies will affect OEM decisions to launch programs.

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MS. GROMIS: This status of automotive traction battery technology has advanced considerable since the inception of the ZEV regulation. After nearly 20 years of mandate, manufacturers are moving beyond prototype ZEVs toward deployment of larger volume production. This planning could not occur without similar production preparations at major battery suppliers.

Staff has found that lithium ion battery production capacity is on track to support the demonstration and pre-commercial battery electric vehicles and plug-in hybrids required in the 2012 through 2014 time

frame.

Many auto manufacturers have entered into joint partnerships with battery suppliers, and several battery manufacturers have received the Department of Energy administered stimulus funding to assist with plant construction.

Battery performance continues to improve, but staff believes that current technology is sufficiently advanced for near-term demonstration and pre-commercial vehicle production. Durability and cost challenges remain, but lithium ion batteries and battery electric vehicles and plug-in hybrids now have the potential to become commercially viable and profitable within the next ten years.

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MS. GROMIS: All major auto manufacturers believe a technology portfolio approach is necessary. Vehicles may require different technology solutions depending on size and performance. For example, battery electric vehicle technology may be more suitable for urban compact vehicles. For larger vehicles and longer range applications, fuel cells and plug-in hybrid technology may dominate.

Most auto manufacturers have committed to battery electric vehicle and plug-in hybrid pre-commercialization

to meet ZEV regulatory requirements. Several major auto manufacturers are prepared to commit to fuel cell vehicle pre-commercialization, provided fueling infrastructure is available.

For the first time in the history of the ZEV regulation, some large auto manufacturers plan to significantly exceed the ZEV production requirements of the regulation and move from regulatory motivation towards a market-driven ZEV program. This is an extraordinary milestone, and staff is now engaged in removing potential barriers to these ZEV introductions.

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MS. GROMIS: A number of vehicle manufacturers are currently participating in ZEV demonstration programs. Many have also announced production vehicle introduction dates.

This chart displays current and future programs, indicating technology type with blue diamonds for battery electric vehicles, green diamonds for plug-in hybrid vehicle electrics, and red diamonds for fuel cell electric vehicles.

Eight different battery electric and plug-in hybrid electric vehicles will be introduced in the 2010 through 2012 time frame. Three vehicle manufacturers participating in the joint letter of agreement will

introduce fuel cell vehicles in 2015.

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MS. GROMIS: The challenge facing the Board is determining when ZEV technologies can be ready for commercialization, what is their likely rate of uptake into the fleet, and deciding if this is consistent with achieving the Governor's 2050 greenhouse gas reduction target.

Based on staff's analysis, it appears likely that market forces alone will not be sufficient. In the absence of a regulation, it is likely that the conversion from conventional models to ZEV technologies will be slower than needed, which will also slow the uptake of these technologies into the fleet.

Staff believes that some version of a ZEV mandate should be maintained. A mandate helps reduce market barriers unique to ZEVs through the use of specific regulatory mechanisms. Once the technology is well established in the marketplace and many models are available, performance standards can be used to accelerate and increase the use of the technology. This has historically been the mechanism used in nearly all ARB regulations.

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MS. GROMIS: This slide shows visually the future

of the ZEV regulation. The left axis shows the number of ZEVs required, while the right axis shows a declining fleet average.

As portrayed by the red, orange, and green lines, the ZEV regulation has gone from a demonstration requirement to a much larger demonstration requirement necessary for successful commercialization.

Staff is considering revising the regulation in model year 2015 and beyond to move past demonstration through pre-commercialization into full commercialization, as shown by the green dashed line.

Notice that staff sees the ZEV regulation as a limited time frame policy that will simply launch ZEV markets. The performance standard regulations, like LEV and Pavley, as shown by the blue line, will be the continuing regulatory mechanisms for fully achieving the Governor's 2050 greenhouse gas emission reduction goals.

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MS. GROMIS: Staff has developed a couple of different ways to approach modifying the ZEV regulation over the next year. The first policy alternative is to maintain the current regulation structure. The program will simplify itself, a stated desire of the Board. As early credit multipliers, PZEVs and AT PZEV allowances and other early incentive allowance cease between model years

2011 and 2015. By trimming down and focusing the regulation on ZEVs and enhanced AT PZEVs, the regulation could work as originally conceived: That is, some percentage of a manufacturer's fleet must be ZEVs.

Many manufacturers, including Toyota, Nissan, and General Motors, have announced plans to deploy plug-in hybrids and battery electric vehicles between 2010 and 2014. This is an indication that the ZEV mandate is achieving its objective.

Also, the current regulatory structure guarantees a diverse mix of vehicle technologies needed to reach California's 2050 greenhouse gas reduction target.

Some stakeholders have been concerned about historical controversial provisions in the regulation and have inquired to how they might be changed. Staff would consider modifying credit values and structures, the travel provision, credit banking provisions, as well as other provisions during the regulatory process next year.

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MS. GROMIS: In staff's second policy alternative, manufacturers would have a choice of a higher or lower volume ZEV mandate. If electing a higher ZEV mandate, meaning larger production requirements, the manufacturers would need to comply with the normal LEV III greenhouse gas performance standard. If electing the

lesser ZEV mandate, the manufacturers would need to comply with a stricter LEV III greenhouse gas performance standard. These two options are illustrated in this graph.

The dashed blue line illustrates the requirements for manufacturers that choose a higher volume mandate. And the corresponding solid blue line would be the required fleet average greenhouse gas standards for all vehicles sold.

The lower volume ZEV mandate represented by the red lines may be attractive to manufacturers that believe additional battery or fuel cell development for their vehicles is needed or by vehicle manufacturers with exceptionally low emission conventional vehicles.

The advantage of policy alternative two is that manufacturers can choose when and where to spend resources, knowing that they will be required to have substantial numbers of ZEVs in their 2050 fleet. However, though policy alternative one does not contain the same flexibility, it would provide better assurance as to the type and quality of vehicles placed on the road and would guarantee the passenger vehicle sector stays on track to 2050.

Staff will continue to weigh these pros and cons and assess these policy alternatives over the next year in

preparation for a regulatory proposal next year.

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MS. GROMIS: ZEV commercialization could be greatly enhanced with supporting complimentary policies. Specifically, market pull and infrastructure policies would help to reduce and eliminate market barriers to ZEV commercialization. Today, we will be focusing on infrastructure, the green slice of this pie.

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MS. GROMIS: One of the barriers for which additional support is needed is electric charging infrastructure. Today, minimal charging infrastructure exists for battery electric vehicles, and the existing public infrastructure will need to be upgraded to ensure that connectors are compatible with the vehicles planned for introduction in the next two years.

While public charging is important, most vehicle charging will occur at home. The California Public Utility Commission has begun a rulemaking to address the many barriers to developing charging infrastructure in California. The intent of this rulemaking is to develop consistent statewide policies and standards to guide and encourage the development of electric vehicle metering, home electric vehicle charging infrastructure, commercial and public charging infrastructure, tariff schedules, and

if advisable, incentive programs.

Concurrently, ARB staff will be conducting a review of electric infrastructure policies and will provide a California-specific infrastructure plan to the Board in the first half of 2010.

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MS. GROMIS: While both battery electric and fuel cell vehicles face infrastructure challenges, lack of sufficient hydrogen fueling infrastructure presents the biggest barrier to fuel cell vehicle technology development.

At the March 2008 Board hearing, Board members recognized this challenge and instructed staff to evaluate options for hydrogen infrastructure. The table illustrates auto manufacturers fuel cell vehicle deployment projections through 2017 which are based on the assumption that infrastructure would not be a limiting factor. The hydrogen station numbers represent the total number of stations needed to support vehicle deployments through 2015. Unfortunately, when vehicle volumes are low, infrastructure may not be profitable. Therefore, government policy may be necessary to ensure that infrastructure is in place to support emerging fuel cell vehicle markets.

Developing hydrogen infrastructure calls for a

cohesive approach, which could involve financial incentives, modifying existing fuel performance regulations, and mandating infrastructure. ARB staff believes all three may be needed to effectively support hydrogen infrastructure. Let's start by discussing financial incentives.

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MS. GROMIS: In previous years, ARB relied on the State budget for hydrogen highway funding. Since 2005, ARB allocated $14.9 million to build these seven new hydrogen stations. Along with the existing stations, these stations will provide enough infrastructure to support projected growth through 2011.

To continue expanding infrastructure beyond 2011, the State has allocated a limited amount of additional funding through AB 118. This one-time funding helps out, but it is not enough to support fuel cell vehicle growth beyond 2014.

In addition to financial support, it may be necessary to encourage hydrogen infrastructure through regulation. One approach could be to build incentives into existing ARB regulations.

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MS. GROMIS: One such regulation, the low-carbon fuel standard, approved by the Board last April, could be

applied to incentivize a limited set of low-carbon fuels such as hydrogen and electricity. The concept of targeted LCFS credit incentives is motivated by the fact that these fuels have larger market entry barriers compared to other fuels, but also have the long-term potential for truly low-carbon transportation.

Staff recognizes that this concept deviates from the intent of the current LCFS to evaluate fuels based solely on life cycle greenhouse gas emissions. However, such incentives may have the benefit of encouraging growth of a wider suite of alternative fuels and infrastructure that are needed to support the expected advanced vehicle mix. Staff will evaluate a variety of program change options and potential impacts with a focus on ways to maintain the benefits of the LCFS program.

Unfortunately, this approach may not ensure that industry would deliver specific fuel types. One way to do this would be to modify existing clean fuels regulations.

First let me provide some background.

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MS. GROMIS: The clean fuels outlet regulation was chaptered in 1990 and last updated in 2000 during the methanol fuel days. It targets all alternative fuel vehicle technologies that can achieve LEV emissions standards, but specifically excludes charging

infrastructure for electric vehicles. The regulation requires the installation of alternative outlets when a dedicated fuel vehicle reaches 20,000 cars.

Like the ZEV regulation, staff believes that the priority of the clean fuels outlet regulation should be shifted to vehicle and fuel technologies that can achieve the greatest greenhouse gas benefits. The regulation should ensure that energy providers supply these types and volumes of fuels that match the auto manufacturer's ZEV deployments.

In coming months, staff will evaluate the need for revising this regulation. The evaluation will be based on how well infrastructure is progressing as a result of financial incentives, possible regulatory incentives, and other factors. Staff will explore these and other possible regulatory changes as part of the public process occurring with modifications to the ZEV regulation.

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MS. GROMIS: To conclude, this program has been a success. Look at the million PZEVs and over 200,000 hybrid vehicles commercialized to date. California has forged the way in the demonstration and commercialization of the world's cleanest cars and is the home of the most ambitious demonstrations of advanced near and zero

emission vehicle technologies. We are making progress.

Staff believes the regulation can continue to be a successful and useful tool to guarantee that ZEVs succeed in the California marketplace. This will require that the regulation be modified by increasing the number of ZEVs required and establishing appropriate regulatory mechanisms to ensure all ZEV technologies are produced.

Lastly, the Board must continue to support the complementary policies that help eliminate market barriers to consumer demand and acceptance and see to the successful placement of ZEV infrastructure.

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MS. GROMIS: Here is staff's time line for a regulatory proposal by the end of 2010.

First, ZEV staff will hold regulatory workshops in conjunction with LEV during the first and second quarter of 2010. We feel it is important to maintain a similar schedule with the LEV regulation modifications, since many of the same stakeholders are involved and policies themselves are dependent on one another.

In spring of 2010, staff will provide an update to the Board on electric infrastructure needs in California. Currently, amendments to the LEV regulation will be presented to the Board in summer or early fall of 2010. ZEV staff plan to bring a regulatory proposal to

the Board after the LEV regulation proposal, more than likely in the fourth quarter of 2010.

This concludes staff's presentation.

CHAIRPERSON NICHOLS: Thank you.

I know that this presentation is a summary of a lot of work that exists. And in particular, I think Board members who want to delve more deeply into this may want to explore with the staff -- probably not at this hearing -- but some of the sensitivities between VMT reduction, for example, and numbers of sales of vehicles to look at some of the assumptions about turnover of the fleet and what's going to happen with that. And those are just a couple of examples that come the mind.

But having had a chance to participate a little bit in the development of this paper, I just really want to underscore that this is the most comprehensive analysis that I've ever seen done of how you get from where we are today to where we need to get. And, obviously, there is a lot of variables to be balanced here.

But I do want to underscore that the big breakthrough here in my opinion is that the Air Board staff is really thinking in a comprehensive way and connected way about the interrelationship between the vehicles and fuels and the kind of incentives that are going to be needed to make this transportation happen and

not just looking at the mandate in a vacuum. Obviously, the focus of the ZEV mandate has always been on the numbers and how they're calculated. And the numbers are certainly relevant, because they are a metric that you can look to and they're key to having a mandate. But they don't exist all by themselves.

So if there are any questions of the staff before we begin -- yes.

BOARD MEMBER YEAGER: Yes, thank you.

Maybe this information will come to us on the update to the Board on the electric infrastructure. But will there be funds available for municipalities and I suppose private companies to help them pay for the charging stations that are going to be needed? I'm not even sure how much it generally will cost for one of those. But I would hope there are going to be some dollars to help cover those charges.

ZERO EMISSION VEHICLE IMPLEMENTATION SECTION MANAGER KEDDIE: This is Elise Keddie.

Currently, ARB does not have funds for that. However, CEC does, the California Energy Commission, through their AB 118 funds. And in fact, there is a solicitation currently available for -- I don't remember the exact amount, but it's in the millions, specifically for electric charging infrastructure, both new

installation and retrofits of existing stations.

BOARD MEMBER YEAGER: Do we think that's going to be enough to partially cover the cost that the whole state is going to need for these charging stations?

CHIEF DEPUTY EXECUTIVE OFFICER CACKETTE: Let me jump in on that for a second.

BOARD MEMBER YEAGER: Because I'm not even sure what percent of the funds might be able to cover it. But I think it's something we're going to need to know.

CHIEF DEPUTY EXECUTIVE OFFICER CACKETTE: I think for infrastructure there is a number of challenges. First of all, every vehicle needs a home charger for a battery electric vehicle. And some of them might be able to squeak by with a 110, but most of them will need a 220 charger. And that has a cost per household of -- based on our experience, maybe 1- to $3,000 typical. And so how exactly that's going to be paid when we're talking about sales of tens of thousands or more vehicles right away is not clear. Whether the consumers will pay that, whether it will be in the price of the car, whether there will be some money through AB 118.

The next level of concern the utilities are worried about is, what happens if you and your three neighbors all do this at the same time? Is the electric supply for your neighborhood going to be able to take the

charging or not, combined with that. So they're working on that to try to provide the necessary reliability of the charging.

And then part of the market will be dependant on longer commutes, and that will mean probably work charging will be the next priority. And, again, 118 might be able to help with some of that. And it's not essential, but I think it's very useful. And then a lot of other people, there's a debate about whether public charging is really needed. Public being the shopping mall, at McDonalds, places like that. And at least in staff's view, that's probably the lowest priority of these four things that have to be addressed for infrastructure.

But our report back to you in the spring will try to provide more information on this. And there is a PUC hearing going now which might determine in part whether rate payers end up all contributing a little bit so that infrastructure can be supplied for those who buy vehicles. And I don't know when that's going to be resolved or if we know. But it's underway now.

BOARD MEMBER YEAGER: Thank you.

CHAIRPERSON NICHOLS: Mayor Loveridge.

BOARD MEMBER LOVERIDGE: In perhaps less than one minute, tell me what AB 118 -- give me a quick -- profile that for me.

CHIEF DEPUTY EXECUTIVE OFFICER CACKETTE: AB 118 was a bill passed by the Legislature. It provides the Energy Commission with around $120 million a year. I think it's a little less now in these economic times. And they can spend that money encouraging alternative fuels and alternative fuel infrastructure to be developed in the state.

And so part of their investment plan is to encourage infrastructure development. And that's both on the hydrogen side would be one, and second would be electric. And third might be production of biofuels. That's kind of where they're looking at spending their money, including natural gas and a few other.

CHAIRPERSON NICHOLS: The funding comes from the vehicle license fee.

CHIEF DEPUTY EXECUTIVE OFFICER CACKETTE: Yeah.

CHAIRPERSON NICHOLS: Which means that the amount is somewhat dependent on the state of the economy. And also it's potentially at least subject to being rated for other purposes.

CHIEF DEPUTY EXECUTIVE OFFICER CACKETTE: We get $50 million a year roughly out of that same funding source, but ours is more focused on sort of achieving air quality benefits related to alternative fuels. So we've so far focused it on a loan program guarantee, on

incentives for the very earliest electric vehicles. But on the infrastructure side, that's specifically set aside for the Energy Commission to deal with.

CHAIRPERSON NICHOLS: Other -- yes, DeeDee.

BOARD MEMBER D'ADAMO: I'm curious about upstream emissions. When we had the ZEV regulations come to us in the past, of course, the focus was criteria pollutants. And I know that was always accounted for. But now with greenhouse gas emissions, we're talking about perhaps a significant increase in magnitude of upstream emissions. Is that something that staff has looked at yet?

CHIEF DEPUTY EXECUTIVE OFFICER CACKETTE: Well, the answer is yes. Having a ZEV, whether it be hydrogen or electric battery type of vehicle, does not achieve these goals. It may have zero tailpipe emissions, but it uses a fuel. So the emissions come from how the fuel is produced. And right now on electricity, for example, the worst case would be it's done by some kind of coal plant. So in the Midwest, they may not be quite as attractive from a greenhouse gas standpoint. When you have some renewables doing it, the fuel could be essentially almost zero upstream emissions.

For hydrogen, most of it's made from natural gas now. And the GHG reduction associated with that is maybe about half, 50 percent or so. But the target again needs

to be something that's more strenuous than that and means that there will be a move in this 2050 time frame towards trying to find renewable sources that can be made into hydrogen and renewable sources that make electricity. So the whole electric grid has to clean up as part of the bigger AB 32 bigger greenhouse gas program. And for other fuels, we have to learn how to make them with very minimal licensing carbon emissions. And that will be true for the biofuels. We've seen before in the low-carbon fuel standard making biofuels from corn has a marginal, if any, GHG benefit. If you can take it from switch grass cellulitic -- technologies or algae, you know, maybe then the reduction is something on the order of 80 percent.

But the point is that the vehicle has to be paired with the fuel, and we have to clean up both sides. And the fuel is as big a challenge as the vehicles I think.

BOARD MEMBER D'ADAMO: I think I need to take you up on your recommendation and have a separate discussion.

But I would just say that my focus in the past has always been getting the vehicles on the road. And I see that some of the options here, especially on the fuel cell side, wouldn't get there in the earlier years. But I think I need to be more open to the comparison between battery electric and fuel cells.

So if we can just -- I know we don't have the time to go into this detail, but the one slide that caught my attention was slide 18 on the incremental increase. And I see here on 2035, fuel cells, pretty significant. It's an increase, but not as much as plug-in hybrids and battery electric at 55. Could you go into that?

CHIEF DEPUTY EXECUTIVE OFFICER CACKETTE: Is this the one you're talking about?

CHAIRPERSON NICHOLS: The incremental retail.

BOARD MEMBER D'ADAMO: I would have expected fuel cells to be blown off the chart, but you're expecting something is going to -- we'll see significant advancement by 2035. Just like a little more information.

CHIEF DEPUTY EXECUTIVE OFFICER CACKETTE: We relied on these assumptions -- says MIT assumptions. There was a major study done by MIT Sloan automotive laboratory and John Hayward, who's a recognized international expert in this area. And they came up with these numbers. We just adjusted it so that it compared -- they were all compared to a hybrid vehicle, because we think that the Pavley II program will result in widespread Prius-type vehicles being on the market.

And the difference in prices is that no one is predicting at this point in time very low costs for batteries. There's sort of inherent amount of material in

a battery that seems to be a floor for the cost. So when you look at vehicles that need -- that are big and have to go far distances, it means big batteries. For example, in their study, they showed the battery electric vehicle at 200 miles out of something around -- would be about $12,000 incremental price.

So that's why we think the battery vehicles will most likely be used in smaller cars where the battery pack can be smaller and the range can be adequate but not long. And then batteries will be used in smaller quantities in the plug hybrids -- smaller sizes in the plug hybrids and fuel cell vehicles.

Whether the fuel cells can get down that low or not is not clear. But the people that have done the studies have a pathway. Says if these things happen, you can get down to this incremental cost. Whereas, batteries, the incremental costs kind of has a higher floor. That's why it's a higher cost shown in this slide.

CHAIRPERSON NICHOLS: Okay.

CHIEF DEPUTY EXECUTIVE OFFICER CACKETTE: I think the challenge is we're looking at $2500 to get to the hybrid one, the first line, from the conventional vehicles that we have today, which would be the Pavley I type vehicles.

And then we're looking at another 2500 to $5,000

above that to get in volume these advanced technology vehicles. That's what the consumer's facing.

We brought this out, because I think lots of people think if we can provide a purchase incentive or a tax credit, that would be good. But when you want all the vehicles to look like that, it's probably not possible for government to be subsidizing it for very long. The market is going to have to shift to the higher costs of these vehicles. And as was pointed out with batteries, it may be a higher capital cost. But they're the ones with the cheap fuel. Electricity is like a dollar a gallon equivalent. That could be used to offset it on a life cycle basis some of the higher costs.

CHAIRPERSON NICHOLS: If there are no other immediate questions, why don't we begin to hear from the participants here. We have a number signed up. Our usual format isn't terribly helpful here, because people are broken down whether they're in favor, neutral, or opposed. I'm happy to note there's nobody signed up to say they are opposed. That's a good sign.

We'll start with Robert Bienenfeld from Honda and then hear from GM and Ford.

MR. BIENENFELD: Thank you very much. Appreciate the chance to present Honda's views on the ZEV policy white paper.

Honda is making aggressive efforts and taking positive steps toward the successful launch of ZEV technologies. Our most significant efforts are well known with the Honda Clarity, a purpose-built fuel cell electric vehicle. We're working hard to solve the tremendous challenges, even while actively participating in market participation efforts including consumer leases, partnering with infrastructure providers, training dealers, et cetera.

Fuel cells can play an important role in addressing 2050 goals of 80 percent reduction. Today, Clarity nearly achieves the intensity goal with a 74 percent reduction in greenhouse gas emissions based on California's early hydrogen station upstream emissions.

Together, with its compact design, spacious interior, and full functionality, including range and fill time, fuel cell electric vehicles are the only potential technology to completely replace ICEs.

We agree with the proposed change to the ZEV program from the concern over air quality to a concern over climate change and radicle CO2 reduction.

As you know, ZEVs are only as clean as the grid. And at this point, BEVs are marginally cleaner than hybrids in the US generally.

Secondly, the volume of ZEVs under consideration

are not significant to greenhouse gas reductions. Therefore, it is better to use the ZEV program to advance technological progress than it is to increase volume.

We agree with staff's assessment that ZEVs, especially fuel cell and electric vehicles, are in a pre-commercial phase and not yet ready for mass production. There is sufficient technical and commercial uncertainties, such as durability and cost challenges, that must be solved before even slight increases in volume can be considered. Solving these technical and commercial challenges may not conveniently follow a rigid regulatory time line.

Honda appreciates and endorses the staff's recommendation to create additional flexibility for the ZEV regulation. We believe the conceptual framework outlined in the white paper for two options is an important step forward. Honda believes different auto makers may take different paths toward a common goal. This diversity of approach can increase the likelihood of successful ZEV introduction into the marketplace. A one-size-fits-all approach may not be broad enough to encourage the riskiest and most promising technologies.

Thank you again for the opportunity to share Honda's initial assessment of the white paper, and we look forward to working closely with staff during the upcoming

regulatory process.

CHAIRPERSON NICHOLS: Thank you very much.

I want to thank you for bringing the Clarity to Sacramento and bringing it back to Sacramento and giving us a chance to drive it. It's a beautiful car.

I also want to ask you a question, which I think I'm going to ask all the companies to address if you would. And maybe you can't right now.

But one of the things that you know very well is that after a lengthy period where everybody was suing everybody else, we ended up with I think a pretty good resolution -- in fact, an excellent resolution this past spring when the president announced that EPA would grant California our waiver for the Pavley rules and that the federal EPA would proceed as they now are to adopt that program nationwide. And it provided some relief for everybody I think, but in a very positive way that helped reduce emissions for the country as a whole. And we're proud to have played a part in it.

Now we're embarking on the next stage of that effort obviously, and we want to do this in a way that does not lead us to the kind of battles that we've had in the past.

So I know we're here today to focus on the technical aspects of it, but I'd be interested if you're

prepared to comment at all on whether you think there is a process by which we can do this that will work for the industry so that you feel that you have a chance to think about these issues on the national scale as well. We really want to, as we've said in the report, have California take the lead in being the place where these technologies come to market. We think that's an historic role that we've played well. But we also understand that we're part of a larger initiative here. And so just be interested if you have any comments from a procedural point of view about that.

MR. BIENENFELD: Those are excellent questions. And I think that taking this from a political process and making it more of a closer working relationship with staff is important and helpful.

The auto companies I think generally are very concerned about having separate regulations for California and the nation. And as you indicate, this single national standard is a huge step forward.

One thing I think that's missing in the big picture view of the ZEV regulation, as staff shared with you, is the impact of the states that have adopted California regulations. So the numbers are even significantly greater and more challenging than shown here because of the lack of travel in later years.

That being said, the staff's request to us to look at 2050 and work backwards as they have done I think was very good process and a learning process for the auto companies. And I think that it helped us focus on the goals in a way that was a little bit more consistent with ARB. So I think those kinds of quiet discussion with staff are helpful as we move forward.

The sense in which we need a kind of safe harbor with which to develop the riskiest and most radicle technologies I think is something that the staff recognizes and has identified as important to this modified -- or modifying the ZEV regulation moving forward.

So I think this is not just a step of ramping up as we have in other regulations, but creating some protected area where we really can develop these radically low CO2 emission technologies with the fuels in a careful manner here in California is something that we support and we would like to see move forward.

CHAIRPERSON NICHOLS: Thank you. Thank you very much. I appreciate your taking that question out of the blue.

Any additional questions?

Dr. Sperling.

BOARD MEMBER SPERLING: I think some of those

comments lead back to one of the key points staff was making.

And, you know, I would echo what Chairman Nichols said is that this proposal looks at the whole program in a very broad systematic way and long range way, which is very welcome. And this whole proposal I think is a huge step forward. We're focusing back on the ZEVs. We've declared victory with the hybrids and the PZEVs.

But Mr. Bienenfeld is talking about here I think one of the ideas we want to pursue is both for fuel cells and for electric vehicles connecting the infrastructure side with the vehicles is absolutely critical. And I think somehow we'd like to see some way that as we move forward there is some kind of direct linkage. And I think you were hinting at it. But I think that's something we want to be talking about is how to make sure that fuel cell vehicles that they're linked together with the roll out of fuel cells with the hydrogen station, with electric vehicles, there is the electric infrastructure there that makes its possible.

Nissan is showing how much effort needs to go into making that happen with their early program with talking and working with utilities and cities. So I think some idea is whether we can make that a little more formal as part of this program, that linkage. And maybe it's

conditions for the credits or something like that as we go forward.

MR. BIENENFELD: I think that's right. And one thing that we also believe in is that infrastructure needs to grow carefully with the vehicles. It's obviously a failure if the vehicles come out and there is not infrastructure. But it's also another kind of failure: If the infrastructure gets too far ahead of the vehicles, that will create stranded assets and so forth. They need to grow carefully.

And I think on the fuel cell side, the California Fuel Cell Partnership has worked with industry and come up with a cluster model for carefully growing infrastructure in communities where the vehicles are going to be marketed. We can learn from that. We can enhance the infrastructure as vehicles come on line.

And I think also what's really important to note here -- and I think it was brought out earlier by Mr. Cackette -- is that, in some respects, we really need both ends of the emissions reduced for the infrastructure, the fuel side, and the vehicle side. And certainly where we are today is not adequate.

CHAIRPERSON NICHOLS: Okay. Thank you.

Jim Ehlmann from General Motors and then Sara Rudy from Ford.

MR. EHLMANN: Thank you, Chairman Nichols and members of the Board.

These are exciting times at GM as we work to develop the electric drive technologies of the future. These include the Chevy Volt extended range electric vehicle. We continue to be on schedule to introduce the Volt in late 2010. And as announced just last week, California will be one of the initial Volt launch markets.

We are also developing plug-in hybrid technology and plan to introduce a PHEV cross-over vehicle in late 2011. We are investing significant resources into making battery technology a core competency, including the recent opening of our advanced battery lab and the opening of our own facility to manufacture lithium ion battery packs for the Volt. And we continue to make progress on fuel cell technology.

With all of this activity going on at GM, we really do appreciate the time and efforts that the ARB staff has put into understanding where we are at on these various technologies. And we are committed to continuing this open dialogue with the staff as it develops regulations next year. It is only through this type of partnership approach that can result in a successful ZEV program.

But this partnership needs to expand beyond auto

makers and the ARB. It must include energy providers and others needed to make sure the infrastructure is there for the vehicles.

We're very encouraged that staff is focusing increased attention on infrastructure, including ways to assure that hydrogen refueling stations will be in place as fuel cell vehicles are introduced.

The staff also recognize the importance of working with other government agencies, including the CPUC and CEC, to develop EV charging infrastructure. And we are encouraged by staff's recognition that incentives, both monetary and non-monetary, will be needed in the early years of these technologies to help bring costs more in line with conventional vehicles and make them more attractive to potential customers.

Finally, when looking at the overall goal of achieving greenhouse gas emissions, we appreciate staff's recognition that the desired reductions can only be accomplished through all parties working together: Auto makers providing the vehicles that operate on the low-carbon fuels, energy companies substantially reducing the carbon intensity of those fuels, and government reducing the VMT growth.

Thank you.

CHAIRPERSON NICHOLS: Okay. Thank you.

Sara Rudy.

MS. RUDY: Good morning.

I'm Sara Rudy from Ford Motor Company. And we welcome the opportunity to share our perspective on the zero emission vehicle mandate.

Before I talk about the ZEV regulations, I would like to spend a moment telling you about the progress Ford is making in executing our long-term sustainability plan.

All of the investments that we are putting into our plan are contributing to improving fuel economy and reducing greenhouse gas emissions for our fleet. This includes converting three truck and sport utility vehicle plants to build small cars; retooling our power train facilities to manufacture eco-boost engines and more advanced six-speed transmissions; leveraging our global platforms; increasing our hybrid offerings; and moving forward with an aggressive electrification strategy.

While there are significant costs in making this transformation, it is the right thing to do for our customers. You will continue to see us offer more great products with advanced innovative technologies to improve the fuel economy of our vehicles and deliver outstanding quality and features that our customers desire.

With respect to the ZEV regulation, Ford is looking forward to working with staff over the next year

to develop a program that will allow for the successful commercialization of ZEVs. Successful commercialization will require a profitable vehicle that our customers desire. To change the buying habits of customers, a multi-stakeholder effort is needed. All parties, including auto manufacturers, technology suppliers, and engine providers, research laboratories, the government, and the consumer need to work collaboratively and be fully committed to achieving the aggressive ZEV goals that the ARB sets.

Ford has accelerated our electrification strategy, and we are looking forward to introducing these vehicles to the market. However, the market for these technologies is still very uncertain. The cost is high, and customer acceptability is a huge risk. That is why complimentary measures, including incentive and infrastructure development, are needed to ensure the success of ZEV commercialization.

Any regulatory revision will need to consider the status of technology, cost, market acceptability, and lead time. The ARB has set very aggressive volume mandates. Ford is prepared to meet the requirements, but is concerned if more aggressive targets are set, considering the cost of technology, the current economic conditions, and the lack of any real data on customer acceptance.

We appreciate the flexibility that the ARB is considering with allowing a performance-based alternative. We believe performance-based approaches allow more market-driven and cost effective ways to achieve long-term greenhouse gas goals.

Finally, we support efforts to achieve the long-term greenhouse gas goals. However, we feel strongly that a single national program is needed to address vehicle greenhouse gas emissions.

In May, there was a historic agreement reflective of California's leadership to have one national program to control automotive greenhouse gas emissions. Ford supports this program and believes that EPA, NTSB, the ARB need to work together to ensure the standards for 2017 and beyond follow this one national roadmap.

CHAIRPERSON NICHOLS: Thank you. We do have your testimony.

MS. RUDY: That's it.

CHAIRPERSON NICHOLS: Thank you very much.

David Case from Chrysler, and then Robert Cassidy from Nissan.

MR. CASE: Chairman Nichols and member of the Board, Chrysler would like to commend the staff for their thorough evaluation of the state of ZEV technologies and for reporting the realities to achieving successful ZEV

commercialization. We are extremely encouraged that the staff recognizes the importance of and need for complimentary policies to reduce market barriers that are essential for the successful implementation and commercialization of ZEV technologies.

Chrysler generally supports the concepts under consideration, but would also propose that the staff consider other alternatives, including an approach that better equalizes the task among all manufacturers by acknowledging the differing starting points of individual manufacturers. Such an approach could compliment the aggressive national greenhouse gas program and continue to drive the introduction of low-carbon and carbon-free vehicle technologies as policies promoting infrastructure and incentivizing technologies are implemented.

Perpetuating the carrot approach for infrastructure development will not result in sufficient quantities of low-carbon and carbon-free fuels to power the significant number of vehicles being considered. Equivalent policies to those placed on automobile manufacturers should be placed on energy and fuel providers.

The objective should be to assure that the fuel will be available in the market at the same time as the vehicle that requires it.

Financial incentives needed to bridge the incremental cost of the new vehicle technologies are anticipated to be significant based on the ARB's previous estimates. Unless significant new streams of revenue are anticipated, ARB should consider ways of promoting collaboration among stakeholders to reach economies of scale so the new vehicle technologies are affordable to a much greater customer base.

Chrysler sees additional value in working collaboratively with all stakeholders that have a vested interest in achieving the 2050 greenhouse gas reduction goals. This group of stakeholders would judge the rate of technical and economic progress of advanced vehicle technologies and the complimentary policies needed to reduce the market barriers to ensure they are aligned to deliver expected benefits for complete transparency.

Chrysler Group, LLC, looks forward to working with the staff in developing the next ZEV regulation. The ARB must remain cognizant of the remaining challenges of ZEV technologies while addressing market barriers that must be overcome to achieve successful commercialization.

Chrysler shares ARB's vision and goals of reduced greenhouse gas emissions that can only be achieved through the implementation of coordinated and complimentary policies that create a market pole for low-carbon and

carbon-free vehicles and fuel alternatives.

Thank you.

CHAIRPERSON NICHOLS: Thank you.

Any questions?

BOARD MEMBER SPERLING: There is a statement in here recommending an approach that better equalizes the task among all manufacturers by acknowledging the differing starting points of individual manufacturers. What does that mean? Or what are you proposing or suggesting?

MR. CASE: Similar to the national standard, there is an industry target in which the automotive industry must meet and each manufacturer, based on their own fleet, has an individual starting point as well as a target to help the industry meet the overall target.

BOARD MEMBER SPERLING: Okay.

CHAIRPERSON NICHOLS: Thanks.

Robert Cassidy.

MR. CASSIDY: Good morning, Madam Chairman, members of the Board. I'm Bob Cassidy. I am representing the Nissan Technical Center and Nissan North America and Nissan Motor Cap.

I'd like to talk briefly about the white paper, the Nissan Leaf, and how they mix.

First of all, Nissan has reviewed the white

paper, completed its analysis. And as the Chairman noted, this is an incredibly complex task, very thorough project. Nissan commends the staff on its effort to pull all these various pieces together.

We are equally pleased to have been one of the stakeholders to provide input into that document. And we look forward to moving ahead with the rulemaking. I'd like to switch --

CHAIRPERSON NICHOLS: Could you speak a little closer to the mike?

MR. CASSIDY: Sure.

We'd now like to touch on the Nissan Leaf. We presented this material at the Technology Symposium some time ago, and the slides are simply some picture to give you a visual, yes, this is the car.

Nissan is introducing the all-electric Nissan Leaf, as many of you probably know. This is a four-door hatch-back, seating for five, 100-mile range in UDDS, which makes it a Type II ZEV in our nomenclature, have premium amenities. It will be affordably priced.

This is a real product. It will be introduced, manufactured, and start of sales in late calendar year 2010. That will occur in both Japan and the United States, including California. We plan on commercial introduction in 2012.

There's currently one battery manufacturing plant operating. There are plans for four others throughout the world.

Where does the Nissan Leaf meet the white paper? It meets it, as staff has noted, in complimentary policies. The Nissan Leaf will meet incentives initially to help buyers with the initial purchase price. But probably more important for the long-term, not only of the Leaf but the electric drive infrastructure, is the need for infrastructure. We've talked somewhat today about that already.

Certainly, home infrastructure is key. There may be a need for some incentives on that well. Certainly, the PUC is taking a lead on that. We commend those activities. We see workplace charging as being important.

However, perhaps Nissan has a little bit more of an emphasis on public charging, not only stage two, but fast charging. There's multiple reasons for this. One, the obvious one, that you can charge your car. But, two, it helps with the range anxiety conditions that exist with current buyers or current users of the car. But more importantly, it sends a message to everyone and to future buyers that this technology is here to stay as a main stream one at that.

In conclusion, then we look forward to working with the staff as we move forward with the ZEV regulations. We especially look forward to the complementary policy discussions, how those can be developed, and the infrastructure report due the middle of the year.

Thank you.

CHAIRPERSON NICHOLS: Thanks.

Question here.

BOARD MEMBER LOVERIDGE: Roughly, is there a price point for the Nissan Leaf?

MR. CASSIDY: I can see my career being terminated on the spot.

CHAIRPERSON NICHOLS: Well, you could just offer him a price right here.

MR. CASSIDY: Affordable is the official stance, comparable to sedans. I'm sorry. That's about all I can say.

CHAIRPERSON NICHOLS: Could you talk about the strategy with respect to the battery and the vehicle itself? It was announced at the launch a couple weeks ago.

MR. CASSIDY: I'm sorry? Specifically how it would be packaged?

CHAIRPERSON NICHOLS: The idea of the separate

treatment for the battery.

MR. CASSIDY: Well, there is consideration -- again, all of these things are subject to change. But there's consideration to separate the battery from the car in that you could in a sense be a subscriber to a battery service. And this lets you reduce the up-front price of the vehicle. People are also a little bit more used to paying their internet bill or their cable bill, so it becomes something like that.

It also allows us not to inconvenience or punish our early adopters so we can upgrade the batteries as they come along and that becomes transparent to the early buyers.

CHAIRPERSON NICHOLS: Maybe I'm doing a better job of selling this vehicle than you are, but let me say what I thought was so exciting, which was that, at least as it was presented at the event at Dodgers Stadium in Los Angeles, that you were going to lease the batteries to people but sell the car. And so in the pricing of the lease, people would be able to compare the price of driving a gasoline car against the price of driving an electric battery car. And Nissan was essentially going to take on the responsibility for the fuel. They would give it to you or lease it to you. They would take care of it. They would take it back and dispose of it at the end.

And I just thought that was a really innovative approach to this whole problem. It sounds like it's not completely worked out yet. And maybe I shouldn't be making announcements for you.

MR. CASSIDY: We'll move forward with this. Very good thank you.

CHAIRPERSON NICHOLS: Ms. D'Adamo.

BOARD MEMBER D'ADAMO: Charge time? Quick charge? Regular charge?

MR. CASSIDY: Well, quick charge you can do, say, from a zero operating range to 80 percent in something like 20 minutes. So the quick charge has a great attraction to people. We're talking with a 220 30-amp service the four to six-hour type of charge.

So you clearly want the 220 service. Again, I think we've touched on that. 110 becomes not so useful to you.

BOARD MEMBER D'ADAMO: And it sounds like you have an innovative approach on dealing with the batteries issues as far as leasing and all that. But in the initial round, what do you anticipate the life of the battery to be?

MR. CASSIDY: The life of a battery is expected to exceed a ten-year horizon. There is some degradation with that battery.

And again, all of this is very fluid. We're trying to judge how to address that again to be very square with our consumers. Depending on your needs for that vehicle, that may or may not become an issue for you. So I'm sorry I'm kind of dodging your question, but I really can't be more specific. I simply don't know.

BOARD MEMBER D'ADAMO: Thanks.

BOARD MEMBER SPERLING: Along the lines of helping you sell your product here --

MR. CASSIDY: I didn't pay you guys.

BOARD MEMBER SPERLING: -- you said that the vehicles were going to be brought out in Japan and the U.S. I thought there is a major effort in Denmark and Israel as well.

MR. CASSIDY: Yes. The initial vehicles will certainly be in Japan the U.S. And there are many other programs. I think all of those details are being resolved.

Sort of initially, everybody wants some vehicles, and we can only produce so many vehicles at one time. So I think there will have to be a strategic rolling out.

BOARD MEMBER SPERLING: But isn't there a formal agreement and program in those two countries?

MR. CASSIDY: There's some formal agreements and programs, yes.

BOARD MEMBER SPERLING: He really needs help.

BOARD MEMBER LOVERIDGE: Just a question. There will be traces on the Nissan Leaf or will in fact there will be large numbers?

MR. CASSIDY: Oh, certainly large numbers.

BOARD MEMBER LOVERIDGE: Can you estimate what are we talking about? An illustration or are they really store ready?

MR. CASSIDY: Store ready?

CHAIRPERSON NICHOLS: People will be able to buy them.

MR. CASSIDY: In 2010, it's not going to be store ready. By 2012, it will certainly be store ready. The ZEVs symposium material, we showed the Tennessee program. And some funding we've gotten from DOE, we'll have a capacity for 150,000 cars and 200,000 batteries.

CHAIRPERSON NICHOLS: Okay. Yes.

BOARD MEMBER ROBERTS: I'm disappointed Mr. Cassidy didn't bring all the colors for us to look at so we can make our selection here.

They do have a partnership with San Diego Gas and Electric and a launch. So that the issue of infrastructure as well as the sales all kind of being taken care of sort of in a sense one-stop shop so you'd be able to get in a reasonable way the changes made so you

can accommodate this in your garage or wherever else.

MR. CASSIDY: Certainly, our partners are helping us. We have a cluster network, if you will, people signing MOUs or signing us to help us implement infrastructure needs, try to make this a smooth process.

I think, much like fuel cells, we decided this needs to be a localized regional approach in order to be successful.

MR. ROBERTS: I think those kinds of strategic partnerships are important.

CHAIRPERSON NICHOLS: Yes. I believe they indicated both San Diego County and Sonoma County were going to be the kind of hubs of their initial --

MR. CASSIDY: Yes. We'll be working with San Francisco as well. We've talked about that.

BOARD MEMBER ROBERTS: But I'm looking forward to seeing these on the road. I think there is a vast improvement at least that's being predicted at this point. We haven't seen the kick the tires and road tests yet, but over what we saw in the led acid batteries years ago. And hopefully we'll actually see something approaching or exceeding the 100-mile range, which I think for California drivers is a standard, almost a minimum.

But I want to compliment Nissan on the way they're going about this. And without over-promising, I

think they're maybe controlling expectations, but I think we have discussed price and everything. I'm not going to say anything about it. But I think it's a very attractive package they're putting together, and I'm excited about the fact they're going to have a major introduction in San Diego.

MR. CASSIDY: Definitely under promise, over deliver.

BOARD MEMBER D'ADAMO: Quick question. What was the size of the grant from DOE? This is for the battery facility.

MR. CASSIDY: $1.6 billion.

CHAIRPERSON NICHOLS: Okay. Thank you very much.

Michael Lord from Toyota.

MR. LORD: That's a tough act to follow.

Good morning, Chairman Nichols and Board members.

My name is Michael Lord. I'm the Manager of the Los Angeles Regulatory Group, Toyota Technical Center, the R&D arm of Toyota engineering and manufacturing in North America.

Toyota fully supports the written comments of the large volume manufactures. In particular, we appreciate the ARB is looking more closely at infrastructure and incentives to support the ZEV commercialization.

We also look to you and staff to continue to

consider current economic conditions as well as special challenges of marketing advanced technology vehicles.

As you may be aware, in the coming months, Toyota will start a two-year world-wide evaluation of 600 plug-in electric vehicles, with approximately 150 coming to the U.S., large portion of them deployed in California.

The purpose of this program is to evaluate how customers will use these vehicles and provide feedback to the development and marketing process in preparation to market introduction.

For plug-in and battery electric vehicles, Toyota would like to emphasize the sustained success of these vehicles in the market will depend upon the initial customer experience and the recognition of value by the customers for the vehicles. Monetary and non-monetary incentives will be key, especially in the early years to help offset the additional costs of these technologies. Incentives, such as HOV lane access, preferential parking, and such are examples of non-monetary incentives that have worked in the past.

Regarding fuel cell electric vehicles, Toyota is very optimistic on the potential for them becoming a commercial product based upon the tremendous technical progress made to date. Toyota is aiming to start initial fuel cell market around 2015. However, our main concern

is the development of an inexpensive hydrogen refueling infrastructure convenient to these initial potential users.

At this time, however, there are no assurances that the infrastructure will be developed with vehicle technology. And we fully support the staff's multi-pronged approach consisting of financial and regulatory incentives, as well as some sort of back stop to assure hydrogen availability in case the incentives do not work.

In summary, Toyota believes the staff has done an excellent job in laying out some initial policy alternatives and mapping out a more holistic approach. And we look forward to working with you to develop a successful ZEV program for the future.

While we can address the technology challenges, we look to ARB and government to help pave a smooth road to commercialization through infrastructure, incentives, and other complementary policies. We hope you can do this with the voice of the consumer firmly in mind.

In the end, it will be the new car customer who ultimately defines the success of the ZEV program. Thank you for your time.

CHAIRPERSON NICHOLS: Yes, question.

BOARD MEMBER LOVERIDGE: Just a quick word on the

plug-in. Where is it?

MR. LORD: The program -- actually, we can talk a little bit later more about the details. This is a program that we will lend vehicles out to a wide variety of users to see how the vehicles will be used, if you're talking about the 600 vehicle.

CHAIRPERSON NICHOLS: Associated demonstration phase. Yeah

MR. LORD: And there will be announcement on the market vehicle in the next couple of days.

CHAIRPERSON NICHOLS: Thank you.

Marianne McInevney from Smith Electric Vehicles.

MS. MC INEVNEY: Good morning.

Smith Electric Vehicles is pleased to be here this morning to provide comments to the proposed revisions to the ARB zero emissions vehicle regulation rule.

Smith is an all-electric zero emissions commercial truck manufacturer who licensed its technology from Smith Electric Vehicles in the U.K., the world's oldest manufacturer of commercial electric vehicles.

In the U.S. and particularly for the California market, Smith U.S. will sell all-electric medium-duty class five and six commercial trucks for a variety of applications encompassing route delivery and service fleets.

Smith vehicles feature the latest in lithium ion battery technology, power manager, and directive trains. Our Newton, the model for class five and six, is in full production in our facility in Kansas City, Missouri. Eighteen Newton models have been approved for sale in California by ARB.

Currently, under the California law, only light-duty ZEV vehicles less than 14,000 GVW can be formally certified by ARB for sale in California. Medium- and heavy-duties ZEVs with GVWs in excess of 14,000 pounds cannot be formally certified since no protocol exists in the California statute.

To rectify the situation, Smith is petitioning the ARB to consider inclusion of a process that would lead to a formal official ARB certification for commercial ZEV vehicles greater than or equal to 14,000 GVW.

At present, other commercially available alternative fuels and power train platforms that compete in the same place as commercial ZEVs benefit from a prescribed test protocol that results in a formalized ARB certification.

Manufacturers of medium- and heavy-duty ZEVs have no such certification process. Rather, we rely on an extrapolation of ARB light-duty certification process to receive not a formal certification but indeed an approval.

While an approval provides some measure of assurance that competitive technologies are equally evaluated, it lacks the same rigorous attention a formal certification would provide. This puts manufacturers of medium and heavy-duty ZEVs at a competitive disadvantage in demonstrating to prospective customers that we have undergone the same rigorous certification program that other power train providers are able to demonstrate.

Now I know this is a strange concept, because I'm coming to you and asking for you to regulate us. So I beg your patience here.

But the concept in seeking a formal certification affects the commercial consumer as well who really does need to be assured the advertised claims of a vehicle's performance are valid.

As recently as a few short years ago, I may not have been able to make this request. However, our product, as is probably the case with some of our competitors, is not in advanced development or R&D stage. Indeed, it's fully commercialize and will be placed in California along with other states in the coming months.

In May of this year, Smith did receive an ARB approval for no less than 18 models that I previously referenced, in the class five and class six.

CHAIRPERSON NICHOLS: Thank you.

Just ask the staff maybe if you want to comment on this process that Smith is involved in. I don't know how much you can say about it.

ZERO EMISSIONS IMPLEMENTATION SECTION MANAGER KEDDIE: We've met with them and are well aware the current procedures only require to the medium-duty vehicle class.

And it's my understanding that this may be addressed in the next couple of years. Staff is looking at amending and updating the test procedures for heavy-duty hybrids. And it seems like that would be an appropriate spot to also look at certification procedures for heavy-duty electric vehicles.

CHAIRPERSON NICHOLS: It seems like a category that we would want to try to encourage, if we can. Okay.

BOARD MEMBER SPERLING: Could I ask how many vehicles -- you say you have a production facility going into full production. How many vehicles are you going to be producing or hoping to produce?

MS. MC INEVNEY: In FY 2010, we intend to produce over 350 vehicles for sale in the U.S. And I expect that number will go up but perhaps not exceed 500 in 2010.

BOARD MEMBER SPERLING: Thank you.

CHAIRPERSON NICHOLS: Okay. Thanks for coming.

Daniel Davids from Plug In America.

MR. DAVIDS: Thank you, Madam Chairman and Board members and staff.

My name is Daniel Davids with Plug In America. And I also want to echo the remarks of just about everyone else about their remarkable job that the staff has done. And your research is clearly not an easy task to pull together a paper like that.

We have also filed written testimony earlier this week, so I won't repeat all of that.

My statements today are mostly concerned with just expressing Plug In America's concern over whether CARB is actually starting off on the right foot in updating the ZEV regulation.

Our concern is based, for example, on remarks in the white paper characterizing recent electric vehicle developments as "extraordinary and remarkable." Of course, those of us at Plug In America, we don't think these are extraordinary or remarkable at all. We feel we've kept our finger on the pulse of what's happening in battery development, and it's not a surprise.

For instance, historically, we repeatedly cautioned the Air Resources Board about over reliance on the last expert panel report, which we felt was outdated the moment it was printed. It was with regard to battery information. We hope we're not in a similar situation

today.

In short, we think this is an extraordinary opportunity for CARB, perhaps the last, for it to return to a leadership role similar to the one taken in 1990 that created the ZEV program in the first place.

Like Ms. D'Adamo, Plug In America is all about getting cars on the road. That's where we'd like to see the focus.

In conclusion, I'll just share with you an e-mail I received from one of our supporters last night who said -- probably some discussion about CARB -- he said, "CARB's position and potentially much of the power and influence they may now wield in the mobile source arena is at risk of being left behind by a 50 state market for BEVs driven and shaped more by demand, innovation, and profit and less by regulators."

I think staff had some recognition of that in the paper.

Plug In America stands ready to assist the Board by providing more current information and studies. We believe there are some flaws in that MIT study. And would be happy to advise on consumer incentives and infrastructure needs.

Thank you.

CHAIRPERSON NICHOLS: Thank you.

Before you leave, I did have a chance to read the written submission. And I was curious, to put it mildly, about the information that was alleged there about ARB having a disproportionate amount of staff and attention put into fuel cells versus electric. And I wondered where you got that from, because it is so contrary to the facts that I just don't know where you were pulling that.

MR. DAVIDS: Well, I would defer to our legislative coordinator, Jay Friedland, who drilled down and compiled that information. Before letting that information go out and transmitting it to you, I did ask the hard question, as president of him, "Can you back this data up and assure me that it's correct?" And he did. So I would have to defer to him.

CHAIRPERSON NICHOLS: Okay. Well, it's not.

ZERO EMISSIONS IMPLEMENTATION SECTION MANAGER KEDDIE: I actually spoke with Jay after he submitted the comments. He now acknowledges the information he submitted was not correct.

CHAIRPERSON NICHOLS: Okay. It's good to have that.

The other thing I would just say, I had to smile when you said we might be overtaken by events and the market would lead to a transportation. I think we would be so happy -- exactly -- from yesterday's meeting. We

would be thrilled.

MR. DAVIDS: Great. Well, I just drove the Nissan Leaf yesterday on its tour in Seattle similar to the L.A. and San Francisco events, and it is a remarkable vehicle. Thank you.

CHAIRPERSON NICHOLS: All right.

Catherine Dunwoody and then Patricia.

MS. DUNWOODY: Thank you, Chairman Nichols, members of the Board.

I'm Catherine Dunwoody, Executive Director of the California Fuel Cell Partnership, a public/private collaboration working together to commercialize hydrogen fuel cell vehicles in California.

Fuel cell vehicles have made steady and significant progress. The staff report notes some achievements, with 300-mile range, on-road durability of over 50,000 miles, and over 75 percent cost reduction since 2002.

My personal experience as a fuel cell vehicle driver, the vehicles are reliable and high-performing comfortable cars that truly have the potential to replace gasoline cars as a primary family vehicle.

In February of this year, the California Fuel Cell Partnership published an action plan laying out a coordinated deployment of fuel cell vehicles and hydrogen

stations in early market communities in California. Through a confidential survey process, our auto maker members told us where, when, and how many fuel cell vehicles they plan collectively to place in California. We use this information to determine where, when, and how many hydrogen stations will be needed.

And, last week, we received the results of our second annual survey confirming auto maker plans to enter the commercial market in phases, moving from hundreds to thousands and then tens of thousands of fuel cell vehicles.

Now, the success of fuel cell vehicle deployment is inextricably linked to the availability of hydrogen. That's the green part of the staff's pie. We are on target today. But we won't meet the needs of tens of thousands of customers by 2015 to '17 time frame if we keep funding stations one at a time.

CARB has put forth several policy options to ensure hydrogen is available in advance of the fuel cell vehicles coming to market. And all of these should be carefully considered over the coming year to ensure the State uses the most effective approaches.

Why does the government need to be involved? Because the business case for any alternative fuel is difficult in the early years when vehicle volumes are low.

Early stations with low through-put are inherently unprofitable. Hydrogen can be cost competitive with gasoline once more vehicles are on the road and station equipment is built in volume, yet customers won't buy or lease a fuel cell vehicle or any vehicle they can't fuel. Government plays an essential role in getting this market started.

At this point, as we know, no zero emission vehicle technology has been proven in the marketplace. Fuel cell vehicles have demonstrated very good progress and are poised to enter the early market. All ZEV technologies, whether they use batteries or fuel cells or both, need support in order to get to the point where they can compete with conventional vehicles and fuels.

And as CARB staff has noted, it takes decades to make a transition to these clean low-carbon fuels. And I lock forward to working with staff to take the next step in the transition for fuel cell vehicles.

BOARD MEMBER LOVERIDGE: Catherine, thank you.

Questions?

BOARD MEMBER SPERLING: In the staff slides, slides 31 and 32 talked about different approaches to supporting the introduction of hydrogen infrastructure, talking about -- the first one is financial incentives. But what I wanted to ask you about is the fuel performance

regulation approach and the clean fuels outlet mandate. Are you able to say anything from your organization or are there any insights or responses you have?

MS. DUNWOODY: Our organization doesn't have an official position on those two approaches. I think there's broad recognition among all the parties, including auto companies, energy companies, academia, as you know, and other government agencies that we do need to fully explore all the options.

BOARD MEMBER SPERLING: Okay. Be good for you to participate in that process.

MS. DUNWOODY: I look forward to that.

BOARD MEMBER LOVERIDGE: Thank you.

Other questions?

Thanks.

Patricia Monahan.

MS. FUGER: Hi. I'm actually not Patricia Monahan. My name is Danielle Fuger.

Good morning.

I'm Regional Program Director for Friends of the Earth.

First, I wanted to say we greatly appreciate all the work staff has done on this white paper. We know that an immense amount of work has gone into it.

We are meeting again today to set a final course

for achieving the goals of the ZEV program, commercialization of zero and near-zero emission vehicles. As Chair Nichols noted, this goal has recently been given greater urgency by the need to reduce greenhouse gas emissions. And our leaders are in Copenhagen trying to work on that. Fortunately, California has had the insight to address this and has laid the ground work for reducing greenhouse gas emissions from vehicles. ZEV is a fundamental component of this program.

As staff noted, there is much work that needs to be done. Staff's analysis shows that ZEVs will need to reach 100 percent of new vehicle sales between 2040 and 2050 to meet the state's greenhouse gas reduction targets of 80 percent.

Further, the production ramp-up must occur early, between 2015 and 2020. Fortunately, zero emission vehicle technology has reached a point where this goal is achievable and possible, but market forces alone will not drive it quickly enough. And that's why we believe that a strong regulation is necessary with clearly articulated vehicle production requirements tied to these greenhouse gas reduction goals is absolutely necessary to ensure conversion of non-conventional models to ZEV technologies.

The challenge of ZEV has always been achieving the earliest commercialization of ZEVs while working

within existing technological and market constraints. We recognize the need to provide a degree of flexibility to auto makers, but that flexibility must not come at the expense of the goals of this program.

We strongly believe that policy Option 2 at least as currently set forth in the white paper fails to achieve our ZEV goals and, in fact, might undermine progress.

Our specific concerns are set out in coalition comments. And my colleagues today will address this more specifically.

Given the recent dramatic progress of ZEV vehicles, we believe that now is the time to strengthen the requirements in the goals and to actually strengthen them and not to weaken them or draw them out.

So we look forward to working with you on this, to working to put numbers to paper and to address the need for flexibility while still driving technology development.

And, finally, I want to say, although he's left the room, we wanted to acknowledge Mike Scheible's longstanding commitment to clean air.

EXECUTIVE OFFICER GOLDSTENE: He's listening.

MS. FUGER: And while we hope that his retirement will be wonderful, we will miss his thoughtful and innovative contribution to ARB's work.

Thank you.

BOARD MEMBER LOVERIDGE: Thank you.

Questions?

Is it Tyson Eckerle, is that who's next? Then Eloy Garcia.

MR. ECKERLE: All right. Thank you.

My name is Tyson Eckerle. I work with Energy Independence Now.

And I just want to thank you for the opportunity to speak and thank the staff for the tremendous work and framing issues for the zero ZEV revisioning.

So basically I wanted to talk about two things today: One, the infrastructure; and the other, the flexibility mechanism built into the ZEV program.

Our concern with Option 2, as Danielle alluded to earlier, is that while we recognize the value of providing flexibility, it potentially could direct -- as Option 2 laid out -- resources to the wrong place. And so potentially if you look at the curve, trading ZEV development for LEV improvements could divert OEM resources away from ZEV and into LEV. So we want to make sure that all those resources are going towards ZEV.

So we'd like to propose an idea. And it's basically that the ZEV trade for the flexibility would be trading ZEVs for ZEVs. So if an OEM has to delay

development of the ZEV, they would in the future have to ramp up more quickly or cross greater platforms. This is an idea we'd like to explore with the Board and staff.

On the infrastructure side, there's two points. Option 2 with the small commercialization potential has the potential to strand infrastructure assets. We need vehicles out there fueling to pay for the operation and maintenance of the stations that the State's invested in. So if the vehicles don't get out there, potentially the State's investments would be stranded until we get those additional deployments.

On the other side, we don't want the State to have to pay for all the infrastructure. We highly agree with the three-pronged approach laid out in the ZEV white paper.

We'd like to commend the staff for suggesting a more aggressive look at the clean fuels outlet. We think that's very important strategy to bring fuel providers in to amplify what can be achieved with AB 118 funds.

So in closing, I'd like to respectfully request the Board and the staff to look more in detail at the clean fuels outlet infrastructure and also potential other flexibility options for getting ZEV out of the marketplace.

Thank you.

BOARD MEMBER LOVERIDGE: Thank you.

Questions?

Eloy Garcia.

MR. GARCIA: Good morning.

Eloy Garcia here for Daimler and Mercedes-Benz USA.

Thank you, Mayor Loveridge and Board members. Appreciate the opportunity to be here today and to just share a few words and comments on the staff white paper.

First of all, Daimler very much appreciates the opportunity and the continued work effort with the state of California, with the Air Resources Board, and very much applauds Governor Schwarzenegger's leadership in the areas of vehicle technology and some of the very important issues you're working on here today.

Events like last week's press conference at the L.A. Auto Show underscores the State's true commitment to fostering innovation in the automotive sector, and Daimler very much appreciates that effort. California's paving the road for other states and the country as a whole. So we appreciate the opportunity to work with California to ensure that our joint efforts are successful. We thank you for your vision in this regard.

There are a couple of points I would like to highlight today again related to the staff white paper.

The first in the area of complementary measures is the need for significant and compelling customer incentives to get ZEV on the road. We agree with the comments of I believe one of the previous speakers in terms of the need and the importance of the goals. Consumers need to want to buy these advanced technology vehicles. Hundreds of hydrogen fuel cells, battery electric vehicles, and plug-in hybrids sitting on the lot, however, will not achieve these goals.

So, again, keeping a focus on the incentives necessary to get consumer acceptance of the vehicles is critically important. Both monetary and non-monetary incentives are critical to the success of the ZEV mandates. Customers respond to significant tax rebates as well as non-monetary incentives, such as free city parking, HOV lane access, and other creative programs meant to set ZEV owners apart from other drivers.

In Paris, for instance, there is a steep daily fee for driving into the city. However, owners of electric vehicles are exempt from this fee, which amounts to hundreds of euros a month for the average commuter. This is again important in the area of customer incentives.

We also believe for customers to buy in to the benefits of ZEV cars, the government must lead the way.

Incentives in purchasing advanced technologies for public fleets of cars, trucks, and buses demonstrates this commitment to these technologies.

Daimler, for example, is a pioneer in the fuel cell bus market. And, in fact, this week at the historic discussions in Copenhagen, all public transport surrounding the event is being provided by Mercedes-Benz hydrogen fuel cell buses and vans, and Daimler is very proud of that.

In addition to consumer incentives, significant investment and commitment to expanding infrastructure is necessary to realize the potential of the ZEV mandate.

Here is another area where Daimler is very proud and was very happy to work with Air Board staff, with many of the stakeholders in the room here just this year in gaining support for AB 118 funding for fuel cell infrastructure. We thought that was important.

So in closing, thank you very much. And happy to answer any questions.

BOARD MEMBER LOVERIDGE: No questions. Thank you very much.

Patricia Monahan and Simon Mui.

MS. MONAHAN: Good morning. And I'm the real Patricia Monahan.

So I just want to say that whenever I come to the

California Air Resources Board building, I park across the street at that lot. And often, I'm late, so I have to go to one of the upper decks. On the upper decks are the electric vehicle charging stations that were installed, I'm sure, over a decade ago. And for many years, every time I saw those charging stations, it was like a thorn in my side, because it symbolized the failure to commercialize zero emission vehicles. But now when I see those charging stations, I feel optimistic. I feel that for the first time that we have significant reasons to feel hopeful.

The world of zero emission vehicles is changing rapidly. Just two years ago, when ARB convened the expert panel to review the prospects for ZEV technology, there was some pessimism particularly around pure battery electric vehicles.

I want to quote, "It is the panel's opinion that full performance of BEVs are not likely to become mass market ZEVs in the foreseeable future due to the high cost of the battery not being recoverable with fuel cost savings and limited customer acceptance."

But Nissan, or at least its president, Carlos Ghosn, is saying there is a business case for full performance BEVs. Nissan is expecting to have 20,000 pre-sold vehicles when it releases its Leaf next year.

And it's betting that the Leaf is going to be a commercial success. In fact, Carlos Ghosn has predicted that electric vehicles will make up ten percent of global sales in 2020. That's a public statement he's made. And we can take that with a grain of salt, because there have been public statements in the past that have not been realized. By we hope the Nissan Leaf is leading the way for full battery electric vehicles.

We're seeing tremendous progress in lithium ion technology that we couldn't have predicted two years ago. Soon, the National Academy of Sciences is going to be releasing its study on the potential for fuel cell vehicles, and we are expecting that the report is going to support CARB's staff's finding that fuel cell vehicles will be eventually cost competitive with BEVs, albeit on a longer time line.

I think we should also feel happy that infrastructure is becoming the biggest obstacle to ZEV commercialization. Auto makers are basically saying, "Here's our chicken; where's your egg?" I think that's a good place for us to be.

There is a strong case for increasing the stringency of the ZEV mandate. As our coalition letter as signed by eight other groups states, "Battery and fuel cell technology readiness can no longer be used to justify

ZEV implementation delays." We're very concerned that policy alternative two weakens the ZEV regulation by diluting support for pure ZEV technology.

We appreciate staff's hard work on this regulation and on the white paper. And we congratulate staff and the Board for your long-term commitment to zero emission vehicle technologies.

We urge staff to continue to explore strategies that will ensure continued commitment by auto makers to develop not just plug-in hybrid electrics, but also fuel cell technologies.

Thank you for the opportunity to speak.

BOARD MEMBER LOVERIDGE: Thank you for your testimony and the illustration of the parking lot.

Any other questions?

Mr. MUI: I just want to mention I have a little slide show for you.

Good morning, members of the Board.

My name is Simon Mui, and I'm a scientist with Natural Resources Defense Council. Thank you for the opportunity to speak on the revisions.

NRDC also, like my peers, would like to thank staff for all their hard work on the white paper, on the proposals, as well as the analysis. I think a lot of hard work went into it, and we look forward to working further

on the proposal over the coming year. I'd like to acknowledge that what they showed was a very significant trajectory to be on track for the 80 percent reduction goals.

And I'd also like to note that three other studies by U.C. Davis, by the Department of Energy, as well as by NRDC showed similar findings that namely you really do need rapid deployment of ZEVs in order to reach the 80 percent goals.

So while we agree with the staff findings, we do have deep concerns with the white paper's option for policy alternative two, which would essentially allow only ZEV demonstration programs and allow for trading off of emissions between two critical programs. This proposal removes the technology-forcing teeth of the ZEV program and shifts all the responsibility to a future LEV GHG program.

We feel the timing for this isn't right now. And our understanding is that to develop this option was based on auto makers' plans to commercialize fuel cell vehicles. The rationale provided for this option is that compliance with ZEV requirements in the near term would divert resources in the longer term for investment in fuel cell vehicles.

Next slide please.

--o0o--

MR. MUI: But we've heard this argument before. And I'd like to turn back the clock, so to speak, to 2001's ZEV auto maker comments. Unfortunately, it's not showing very well. But I'll read you a couple of the comments from there.

First was auto makers argue the ZEV mandate has caused and is causing limited resources to be diverted to wayful uses, namely to the development of plug-in electric vehicle technology for which there is no reasonable prospect or market success.

The proposed amendments should be modified to allow for development and implementation of promising technologies. Back in 2001, industry made an argument that fuel cells were just around the corner. Plug-in electric vehicles were a dead-end and that the program should be delayed or eliminated. I'd like to just say that these arguments were soundly rejected by ARB in 2001, that nearly a decade later we hear the same proposal on the table.

CHAIRPERSON NICHOLS: Thanks, Simon.

MR. MUI: Thank you very much.

CHAIRPERSON NICHOLS: Bonnie Holmes-Gen.

BOARD MEMBER D'ADAMO: I have a question.

CHAIRPERSON NICHOLS: Sorry. We have a question

for you.

BOARD MEMBER D'ADAMO: I'm curious about your response to the suggestion by Energy Independence about -- I think it's on Option 2, taking the early year vehicles out of the LEV III and moving it into future year on ZEV fuel cells.

MR. MUI: So I didn't get to show it, but the following slides basically show that given the auto maker ramps and proposed production plans over the next five years, our estimates are that you will generate enough ZEV credits to comply for the whole industry well into the 2020 time frame.

So in this case, we don't feel that within the ZEV structure there is a failure. We're trying to solve a problem that really isn't there, in essence.

So in terms of the proposal that EIN proposed, that is one option in terms of flexibility. I think there is a variety of options that we can work with staff I think over the time frame next year in order to develop different ways to provide flexibility without jeopardizing the technology-forcing function of the ZEV program and sending the wrong signal. We don't need to snatch defeat from the jaws of victory. We have ZEVs coming. They're going to be enough to have compliance with the ZEV program.

CHAIRPERSON NICHOLS: Okay. Thank you.

Bonnie Holmes-Gen.

MS. HOLMES-GEN: Good morning, Chairman Nichols and members.

On behalf of the American Lung Association of California, I'm pleased to say that we're very proud of what we've accomplished in California with the zero emission vehicle program. We've been a strong supporter of this program since its beginning, and the many accomplishments that have been reported today are very exciting. And we appreciate your Board's commitment to strengthening the ZEV program and focusing it on the 2050 greenhouse gas targets as well as our pollution reduction goals. And we support this bigger vision.

And we believe that we are at a more promising time than ever before in terms of ZEV development and commercialization.

And appreciate the staff presentation noting that we will for the first time see auto makers actually exceeding ZEV requirements. And we want to make sure that the Board as we move forward is going to build on this momentum.

We applaud the goal in the white paper of moving to 100 percent zero emission vehicles in the 2040 to 2050 time frame, because we strongly believe that we cannot

achieve our greenhouse gas targets without that major shift. And we know that ZEVs can provide a tremendous payback in global warming benefits. So I just want to mention our study we released last year that found we could gain 142 billion over 20-year period in benefits from zero emission vehicles, a complete transition.

The question is how do we get to these higher volumes, especially in the short term? We share the concerns that have been expressed by our colleagues in the environmental community about Option 2. I won't repeat them. And we do believe that Option 1, requiring a specific percentage of a manufacturer's fleet to be pure ZEVs, is the best course of action. And that that requirement for a set number of ZEVs, rather than just a demonstration phase -- a continuing demonstration phase, would provide the best chance for success.

We want to continue our dialogue with you about this and the dialogue about how we incorporate flexibility in the program, while continuing to drive these large ZEV volumes that we need in the near term.

As we move forward, want to make sure that the ZEV program does four things at least.

Number one, that we expand and accelerate the ZEV programs that we achieve.

Commercial volumes by 2020, that we send a strong

signal to the world on California's intent to move forward with these large volumes in the near term and the full transition in the 2040 time frame. And that we provide additional air quality benefits through early introduction of BEVs, and we provide a strong mechanism for bringing infrastructure on -- bringing on line the infrastructure we need to facilitate ZEV deployment.

And we definitely want to work with you on all of these and especially in getting these complementary policies on-line. Public health requires continued strong leadership. We look forward to working with you.

And I do want to acknowledge before I leave that we will miss greatly our tremendous colleague at the Air Board, Mike Scheible. And we'll look for him driving around in his red MINI Cooper with a little bit of jealousy.

CHAIRPERSON NICHOLS: All right. Thanks.

Shankar Prasad and then John Shears

MR. PRASAD: Good morning, Chairman Nichols and members of the Board.

It's always a pleasure to come before this Board and offer some comments.

And congratulations to Mike Scheible for his esteemed service, and we will dearly miss in years to come.

Chairman Nichols, you, many of the members of this Board, and your predecessors, as well as many of the staff, senior staff and the staff, this ZEV regulation has been the flagship of this agency. If you recall how it has gone through, it has gone through pains but certainly it has made tremendous progress for the whole state of California as well as the world.

The success of this program will depend not just on the numbers that are mandated are to be in a demonstration process, but more on commercializing those technologies as soon as possible.

At the same time, while we want to improve upon the commercialization, the consumer acceptance becomes important. And we are glad to see that in the staff's report this complementary policy has been highlighted. We think it should be highlighted more.

When we come to the question of consumer acceptance, quite often it is mislead or sometimes it is also viewed by many people that it is rich man's dream or it is a program that is going to live for the early adopters in the demonstration programs who get the benefit of the incentives and get to drive these vehicles. So it is equally important in order to improve its acceptability the common man has to have an access should he desire to have one.

So we suggest that the staff explore options to make this happen. In our coalition paper, we have suggested loan guarantees are some additional credits to the manufacturers of the future providers who can move towards this direction. So we seriously ask Board to direct the staff. And we'll be happy to work with them as we move forward in this.

Thank you.

CHAIRPERSON NICHOLS: Thank you.

Any questions?

John Shears.

MR. SHEARS: Good morning.

I'm John Shears, Research Coordinator and Program Lead for clean transportation and alternative fuels for CEERT, the Center for Energy Efficiency and Renewable Technologies.

Just want to raise a clerical issue in the draft resolution language. It's probably a typo. But on page 3 enhanced AT PZEVs seems to be missing from the resolution language.

Also just wondering if it might not also be good as part of the resolution to have the Board reaffirm its March 2008 resolution which directs staff to strengthen the program.

CEERT would like to thank the staff for their

great work on preparing the initial conceptual scope for the development of the ZEV regulations. We understand that the white paper serves to propose the conceptual framework through which the various stakeholders can engage with the ARB in developing the next generation of ZEV regulations.

We have many concerns about policy alternative two or Option 2 which we previously shared with the Board and the comments submitted by the Clean Cars Coalition earlier this week.

As the work of ARB staff and other researchers indicate, we are entering a critical window for both technological and climate progress during an economically sensitive time. We understand that policy alternative two is an attempt to encapsulate these concerns. While at first blush policy alternative two is conceptually elegant, we're concerned about how this approach would establish effective sign posts that would enable the ARB to monitor the technological progress of the individual OEMs in a transparent manner.

Moreover, we think it will still be necessary for the Board when considering any approach for the ZEV regulation to contain robust backstop measures in order to ensure the OEMs are making a concerted effort to comply with California's targets.

With regards to the consideration of the full life cycle of transportation fuels, the ARB has or is proceeding with the development of other regulations seeking to address that issue through the low-carbon fuel standard, renewable electricity standard, and the cap and trade program. There are likely to be more innovative transportation policies to come.

CEERT looks forward to working closely with the ARB and other stakeholders in helping to fashion a robust set of regulations that will help to set California's personal transportation on the path to meeting the state's -- indeed the world's -- 2050 climate goals.

Finally, and last but not least, we understand that we, too, also understand that we are losing and ARB will soon be losing Mike Scheible, at least in some fashion to civilian life. Retirement I guess is a matter of definition. On behalf of CEERT, I would like to express our deep appreciation for all of his fantastic work over the years, not only for the ARB, but on behalf of all Californians. Thanks, Mike.

CHAIRPERSON NICHOLS: Thank you, John. I think Mike is enjoying this so much this he may keep coming back for months.

DEPUTY EXECUTIVE OFFICER SCHEIBLE: Perhaps we should suspend the three-minute rule.

CHAIRPERSON NICHOLS: Never. Not even for you.

(Laughter)

CHAIRPERSON NICHOLS: All right. Bill Magavern and then Azita Khalili. That's all I have on my list.

MS. NORRIS: Hi. Megan Norris with Sierra Club of California speaking on behalf of Bill, who had to be to a meeting.

Wanted to thank you, Madam Chairman, and members of the Board, for the opportunity to speak here about the importance of the zero emission vehicle program. Sierra Club California strongly agree with the ZEV mandate and feels it is necessary to continue in the foreseeable future. We need strong and clear regulatory standards to drive the market.

Sierra Club California would like to thank the Board and staff for all your hard work on the ZEV program. We would like to speak to some specific points regarding policy Option 2 of the ZEV white paper on behalf of the Clean Car Coalition.

We are concerned the second policy option for the ZEV program fails to establish a target number for the number of zero emissions vehicles sales needed to reach 2050 air pollution reduction goals of 80 percent.

Option 2 also fails to provide a pathway to meet such targets that would improve the quality of air by

reducing greenhouse gas emissions. Option 2 would make it possible for bad actors to continue conducting demonstration after demonstration without producing any real advancement in zero emission vehicle technology.

Sierra Club California's second point speaks to the advancement in technology. We feel strongly that the technology exists to make zero emission vehicles market ready. We have seen auto makers like Nissan moving forward on a mass scale and introducing battery electric vehicles and see evidence other auto makers are doing so as well. We need the regulatory push from CARB to make sure that they are ready for deployment.

Sierra Club California urges the Board to continue being the innovator and leading the nation when it comes to fostering the growth of new technology that will provide Californians with opportunities to purchase and drive greener vehicles, reduce our dependence on foreign oil, and provides clean air for our children by reducing vehicle emitting pollutants.

Thank you for your time today.

CHAIRPERSON NICHOLS: Thank you.

Azita Khalili.

MS. AZITA: Good morning. My name is Azita Khalili with BMW.

I was not planning to comment, so I have the

honor of being the last commenter.

Like other manufacturers, we support and appreciate the effort of the staff in preparing this program review.

There was one slide that I would like to make an addition to. It was the outlook of mass production vehicles until 2015. And BMW has announced the mega city vehicle, which is going to be a purely electric vehicle. And the date, we have not given yet exact date of market introduction, but it is going to be in the first half of next decade. So latest by 2015 we will have this vehicle on the market. And the Mini E is a vehicle that you are familiar with, which findings we are obviously using to implement in the next program.

Thank you.

CHAIRPERSON NICHOLS: Thank you.

Questions?

BOARD MEMBER D'ADAMO: I'm not familiar with the vehicle. Could you describe it?

MS. KHALILI: With the one coming up? Yes.

We have announced a Project I, which is a special program that we have started couple years ago. The aim of the program is to define a vehicle that is needed for high density population areas worldwide. This is going to be a worldwide program. And we already have made announcement

on some of the framework of that.

For example, we have a joint venture for components for the body of the vehicle. We also have announced the ion batteries to be supplied by a joint venture from Bosch and Samsung.

So we have not announced the numbers, but this is definitely going to be a lot more than the 600 Mini E's that we currently have out there as trial.

BOARD MEMBER D'ADAMO: Thank you.

CHAIRPERSON NICHOLS: Thank you.

It's an interesting program. I think there is a lot of good thinking going on inside the auto industry these days to come up with comprehensive approaches, similar to the thinking that we're doing and people taking very different paths actually.

Okay. That concludes the list of witnesses. So it's time for us to conclude.

We don't have to officially close the record, because this is not a regulatory item.

We do have a resolution in front of us, but before I call for that, maybe I'll ask if the staff has any concluding comments that you all would like to make.

EXECUTIVE OFFICER GOLDSTENE: No. We just look forward to the Board direction on this and look forward to coming back and working with all the stakeholders who have

been working so closely with us over the past year developing this.

CHAIRPERSON NICHOLS: Okay. Well --

EXECUTIVE OFFICER GOLDSTENE: The resolution has some specific suggestions.

CHAIRPERSON NICHOLS: Yes. The resolution which has a yellow -- oh, I missed someone. I apologize. I've been informed -- I was working from the old list. Julie Malinowski-Ball from the California Electric Transportation Coalition. I'm sorry.

MS. MALINOWSKI-BALL: Thank you, Madam Chair and Board members. I know I'm short, but I didn't realize I was that short.

My name is Julie Malinowski-Ball. I'm the Interim Executive Director of the California Electric Transportation Coalition.

I want to thank staff for all their hard work and analysis that went into that. Cal ETC, as always, will continue to provide staff and Board with comments and insight as the utilities continue to work with you on this program.

I actually wanted to share the comments from John Shears about the resolution you're just about to go through. We think for clarification purposes the reiterating definition of a ZEV is important. Just as a

reminder, an enhanced AT PZEV is a plug-in hybrid electric vehicle.

I also want to add a point that was in the presentation about the California Public Utility proceeding that's going on on many of the issues that ARB will be deciding or developing over the next year, in particular, infrastructure issues, there are going to be very significant implications that come out of that PUC proceeding. And it's incredibly important for the ARB staff to be there and participating in that process. Both agencies need to be working in cooperation as we move forward on those issues.

And we look forward to working with you. And thank you so much for your time.

CHAIRPERSON NICHOLS: Thank you.

Julie, before you depart --

BOARD MEMBER SPERLING: So I've heard about these PUC proceedings, but I haven't heard many details. So how does that effect -- the staff laid out some thoughts on electric charging infrastructure and strategies and mentioned the rulemaking. Is there something more that should be here?

MS. MALINOWSKI-BALL: The PUC proceeding started with an order instituting rule making. There was 42 questions that they asked of stakeholders. The questions

added up into sub-questions, and there were literally over 200 questions related to alternative fuel vehicles, primarily electric vehicles, and the role of the utilities in California, third-party providers, the auto makers themselves, what the ARB -- what they can advise the ARB on changes in the low-carbon fuel standard regulation, you know, what the role for a utility is and maybe installing the infrastructure, servicing the infrastructure. It really is a whole holistic look at the role of the utilities today or in the future on this issue.

BOARD MEMBER SPERLING: So it's very preliminary then?

MS. MALINOWSKI-BALL: I'm not sure I would call it preliminary. It's well underway. They're diving very deep into many of these issues. They're clearly going to prioritize what they're going to make decisions on soon and what might have to be a long-term answer.

But clearly there's some high priority issues that we need to address very soon.

CHAIRPERSON NICHOLS: Well, just to be clear, the constituency for the PUC, other than the general public and rate payers, is, in fact, the utilities. That's who they regulate.

MS. MALINOWSKI-BALL: Well, investor-owned utilities are participating in the process.

CHAIRPERSON NICHOLS: Even more specific. And they're going to decide how much and how they're going to allow these companies to invest in the charging structure and what the way they're going to pay for it will be.

It's very important that we be in alignment with them on overall policy. We're not a stakeholder. We are a co-regulator. We regulate in a different way and regulate different things. And if the State doesn't get its act together, we will be missing a major opportunity here.

So unlike the sort of normal procedures where each agency defers to the other on its area of expertise and we all go on our way, even though we generally think alike, this is one where we really need to get the messages straight and be delivering them effectively.

So I think -- I hope I'm not stepping on your testimony.

MS. MALINOWSKI-BALL: No. In fact, it's not just the utilities that are going to be impacted by this. It's the third-party providers who are going to be impacted and, frankly, the rate payers of California.

CHAIRPERSON NICHOLS: Exactly. Okay. Thank you.

John, did you need to chime in there? You can have another second.

MR. SHEARS: We've been talking with ARB staff,

but we're one of the parties to both the smart grid and the PUC proceeding.

I'd also like to raise the fact that Senator Kehoe had a bill last session, SB 626, that is now law that directed the PUC to develop a EV deployment plan. And as part of that, I know the PUC is looking for input from relevant sibling agencies. And we're working to make sure that everyone is talking to each other.

CHAIRPERSON NICHOLS: Good. Thank you for that.

Okay. So we have a resolution in front of us. The key language in terms of what we're directing the staff to do is on page 3, the other whereas's are not boilerplate, but I think they're not going to be very controversial.

So folks want to take a second to look at this and see if there are any comments or concerns? Maybe I should just read it aloud. Would that be helpful?

BOARD MEMBER LOVERIDGE: Before that, can I make one quick observation?

One often hears in testimony that thanks to the staff and the cooperation and so forth. It seemed to be of a different tenor today. I just want to acknowledge what I think has been the good work of the big table and the serious discussions taking place. So my thanks.

CHAIRPERSON NICHOLS: Thank you. Good.

BOARD MEMBER D'ADAMO: Would you like a motion and then have discussion?

CHAIRPERSON NICHOLS: Sure.

BOARD MEMBER D'ADAMO: So I move adoption of the resolution.

CHAIRPERSON NICHOLS: Very good.

BOARD MEMBER SPERLING: I'll second.

CHAIRPERSON NICHOLS: Dr. Sperling seconds.

Okay. Any discussion then?

We, I think, are all in agreement we want to shift from criteria pollutant emissions only to include GHGs; that a new goal should be to help assure the transformation to low carbon emitting vehicles in the time frame necessary to meet the target. It's the Governor's target. It's also I think a generally recognized target that needs to be achieved if we're going to stabilize emissions at two degrees or so.

The ZEV regulation should help assure the successful launch of commercial ZEVs. PZEVs are commercially available and can be removed as ZEVs. I think that's established. AT PZEVs are commercially available and should be removed slightly later.

BOARD MEMBER SPERLING: These are hybrids for the --

CHAIRPERSON NICHOLS: Those are hybrids -- ARB

code -- and talks about the consideration that should go into the structure and the stringency based on what we do in 2010 with the next round of the Pavley standards. Yes. I think those two things are very directly interrelated certainly. And there is some further resolutions here on complementary policies, on infrastructure, and offers and specifically directs the staff to look at financial incentives, regulatory incentives, and a potential mandate for hydrogen transportation development.

Does anybody want to make any changes in this or additions?

BOARD MEMBER BERG: The main addition I would be interested in is along with the infrastructure study that's going to come back to us is also to add a customer pull-through. I think we've heard from several of the car companies what incentives and what are we going to need in order to gain the market acceptance.

And especially with the new generation of drivers that are coming up, I think there is a tremendous willingness. But, again, how are we going to make it affordable for the ones that really want to get into these cars to get into the cars quickly and then as we ramp up to 100 percent for 2050.

So I think it would be interesting for staff to come back by the end of 2010 along with the infrastructure

and the customer pull-through.

CHAIRPERSON NICHOLS: Any objection to that addition?

Okay. Let's make that change.

I was concerned, although we talk about it in the report -- and I realize these things are handled in different places within the organization -- that the resolution itself doesn't talk at all about the very low-carbon fuels issues and how those interrelate, especially when we're talking about the transition to the new generation vehicles. I'm not quite sure where or how I want this to be recognized, but I just want to be sure --

EXECUTIVE OFFICER GOLDSTENE: Do you want to recognize it in the whereas?

CHAIRPERSON NICHOLS: At least in the whereas that this is a piece of the puzzle that we're continuing to pursue as well.

Dr. Sperling.

BOARD MEMBER SPERLING: One other thing.

I don't want this to be in the resolution, but some discussion at some point about the credits issue. And I think it was Danielle Fuger that brought it up. If not, she brought it up many times in the past. But what that's going to mean for 2015 and beyond in terms of what

happens the next few years. I know --

CHAIRPERSON NICHOLS: I think that does need to be addressed.

EXECUTIVE OFFICER GOLDSTENE: You could direct us to do it in the resolution, or we'll just do it. Either way.

ZERO EMISSION VEHICLE IMPLEMENTATION SECTION KEDDIE: We will be doing that.

BOARD MEMBER SPERLING: Put it in the resolution then?

CHAIRPERSON NICHOLS: Put it in the resolution.

Ms. D'Adamo.

BOARD MEMBER D'ADAMO: I read slide 32 on the issue of clean fuels mandate to be rather broad with regard to electric infrastructure and hydrogen.

As I read the resolution, it looks like the "be it resolved" paragraphs on page 4, we're directing staff to consider bringing us a new regulation for hydrogen infrastructure, but with regard to electric, just recommend appropriate infrastructure implementation. I think we need to look at everything, not just hydrogen, on a possible regulation.

BOARD MEMBER BALMES: I would support that.

CHAIRPERSON NICHOLS: So can we make that less hydrogen-centric and just actually probably just eliminate

hydrogen and substitute fueling?

BOARD MEMBER D'ADAMO: And then getting back to slide 32, it just references suppliers. I think we need to be looking at everyone that's not right now playing: Suppliers, manufacturers, producers, the variety of different businesses that could assist us in meeting these goals.

And then I just wanted to mention -- I think that it's just too early to really get into this. But I did want to mention that I am having a little bit of angst with regard to that Option 2 that I know a lot of NGOs brought up. So the slide to reference that is on slide 26.

I asked a question about Energy Independence Now. They raised the concern about going from one system, the ZEV, into LEV III with regard to that policy alternative two. And of course, it needs further discussion, and staff obviously is going to be looking at all kinds of creative alternatives. But I do think we need to get the vehicles on the road. And so I feel that we need to be looking at some actual target numbers. And in the event there is any trading going on, I just get nervous about trading outside of ZEV and into LEV, because potentially we're going to create another credit scheme that creates problems for us in the long run. So I think it's

important to keep the two separate.

CHIEF DEPUTY EXECUTIVE OFFICER CACKETTE: I could add one comment.

I think the slide does have sort of a misleading aspect to it in that -- I don't know if we can get a clean version up again. It went fuzzy.

See the red line down at the bottom is showing us kind of a straight line. But the dashed red line for the Pavley curve at the top comes back in 2025 to where it was.

To make that consistent, the lower line, called the lower ZEV requirement, has got to tick up so that in 2025 it kind of catches up with the higher ZEV requirement. So what it would reflect is not an ongoing delay, but a temporary delay, which is sort of picked up as a blue payment in the end, like we were talking about yesterday. I think that makes it consistent and then gets you to the point where after 2025, regardless of which technologies are out there, it provides for the commercial launch at that point.

CHAIRPERSON NICHOLS: I suppose you could say that that addresses the concern that we heard from several of the companies about the different starting points and whether we give them any consideration for the fact that they are in different places today or whether we decide

everybody has to be treated equal. When we end up trying to treat everybody as equal, we usually end up giving those in need concessions of one kind or another, delays or credits.

So this is a way of explicitly recognizing up front that people start not equal and getting them all to the same point on a fairly rapid time frame. It's obviously caused some consternation among the people who have been the strongest advocates of the ZEV program over the years. And certainly we need to continue to have the discussion about whether there is a better way to do it. But I think it's good to express explicitly up front that the motivation here is to distinguish among the different types of auto manufacturers and allow for different paths if they end up at the same point and if we don't sacrifice, if we don't go below a certain minimum number of pure ZEVs and we get compensation in terms of better Pavley performance. So we would be getting better emissions performance on CO2, and we would continue to require a minimum, but we would allow them some flexibility in terms of how fast they would be have to ramp up at the beginning of the program.

And it may be that we end up deciding that's just too far -- you know, too far to go from where we've been. But I think the alternative is not as pure as it may seem,

because when you end up -- you either pick a number which is not as aggressive as it should be for some who can do better or you end up giving special dispensation to those that can't make it.

I'm sorry. You've been trying to be recognized for quite a while.

BOARD MEMBER ROBERTS: I didn't mean to interrupt your comment. I was enjoying what you were saying.

I want to make an observation. And I don't know it has to be reflected in any changes or anything.

But right now there's something really exciting going on, and it's a competition. And we don't know who's going to win this. We don't know which of these technology -- trying to project from now to the year 2050 is like three centuries into the future in terms of technological development. I don't think any of us, in all due respect to staff and all my colleagues up here, have a clear picture of what's going to happen. And that's reflected by the fact that we are seeing major investments in so many different areas in alternative fuels and renewables.

And each of these has its own problems. The comments that we were making about even electricity when you get too many people on one block -- well, the fact of the matter, we're heading towards an urban plan that has

too many people in one building to supply the electrical needs that might be required to push all those cars around. So it's going to -- each of these has its own major infrastructures to deal with, and it's got ecological issues. I think what's most important is that we remain as flexible as we can to allow this competition to take place in every way, shape, or form, allow it to sort itself out. We shouldn't care how we get there so much as that we do get there.

And I get concerned sometimes, and I've spoken about it before. Don't get overly prescriptive. The reason why we've had success to this point has really been relying primarily if not totally on performance standards. So I hope that that remains. And to the extent that we have policy alternatives here that nurture that, I think we want to ensure that's a part of the plan.

CHAIRPERSON NICHOLS: I think you've sounded the melody and now Dr. Sperling will provide the harmony.

BOARD MEMBER ROBERTS: I didn't mean to set him off.

BOARD MEMBER SPERLING: I confess my musical talents are limited.

But just to follow up on exactly that point and I think to make people more comfortable, you know, a key issue coming up is the Pavley II merge into LEV III. If

that's a continuingly steep curve, continues the trajectory we're on, then this concern about flexibility should become much more mute, because most of the car companies already feel the pressure to be reducing their greenhouse gases and improving their fuel economy. And if we continue on that path, the pressure is going to be tremendous. And I can't imagine any credible company not investing in the advanced technologies in a major way.

So, you know, I'm glad that we're doing the progression here the way we're doing it, because after we make those decisions on the Pavley II, the ZEV program I think will be much easier. And I think a lot of the angst about the concept of flexibility will become much less and we'll understand it better ourselves I think.

CHAIRPERSON NICHOLS: Okay. Without further ado, I think I'm going to call the question then.

All those in favor of the Resolution 09-10-4, please say aye.

(Ayes)

CHAIRPERSON NICHOLS: Any opposed?

Any abstentions?

Thank you. You have some direction here.

Before we depart, we do have a public comment period at every meeting, and we have two people who have signed up to give public comment. They appear to be part

of the same group that's using the public comment period on a regular basis to press their concerns about enforcement. And so we will hear from John Paliwoda and Donna Wilson.

MS. WILSON: Good morning.

My name is Donna Wilson. I'm here today on behalf of the CERT Coalition and its members.

We all have heard over the last few months, and particularly over the last 24 hours, about the need for greater transparency surrounding enforcement efforts by ARB.

And in that same vain, during the last hearing in November, one of CERT's members, Mr. Kit Enger, requested that ARB discord settlement moneys that in his view it had received through the unlawful retroactive application of certain underground regulations.

In response to Mr. Enger's comments, Dr. Telles had asked the Chief Counsel to explain what Mr. Enger meant in his remarks. Staff assured the Board that Mr. Enger's concerns were really nothing more than buyer's remorse, and nothing more.

No mention, however, was made about an opinion that had been issued the month before by the California Legislative Council. What that opinion said -- and it was directly on point with respect to Mr. Enger's comments --

was that "as a matter of law" -- and that is a quote -- CARB could not apply and therefore cannot enforce retroactively proposed off-highway recreational vehicle regulations.

Senator Harmon has summarized this final opinion in a letter, a copy of which has been provided to you.

At that same Board hearing last month, counsel also stated that with respect to CERT's recommendation that ARB adopt a penalty policy that is similar to EPA's that the U.S. EPA had said, "We're not exactly sure that that policy would work for you."

Well, in our view, that's a far cry from saying it absolutely won't work for you or you can't take something from it or it can't be modified to work for you.

But in any event, we ask that you consider the opinion of George Lawrence, the former head of EPA's Mobile Source Enforcement Office, who developed that EPA policy. And we think that that will address staff's comments from the last hearing as well as any questions you may have.

In sum, the CERT Coalition is looking forward to receiving a written report in January, as the staff had promised the Board last month, on the CARB staff's recommendations on our requested reforms.

Thank you for taking the time to listen to us.

Thank you.

CHAIRPERSON NICHOLS: Thank you very much.

Please come forward.

MR. PALIWODA: Good morning, Madam Chairman and members of the Board.

My name is John Paliwoda. I'm Executive Director of the California Motorcycle Dealers Association, or CMDA.

I last testified before you on July 23rd. At that time, I informed you that the CMDA regrettably had no choice but to file a petition with Office of Administrative Law. In that petition, the CMDA documented that CARB was basing planned enforcement activity against our members and a manufacturer on an illegal underground regulation by retroactively applying a proposed but not yet final 2006 amendments to the current off-road recreational vehicle regulations.

Additionally, largely in response to the CMDA's OAL petition, a State Senator sought an opinion from the Legislature's Legislative Council if the CMDA's contention that CARB cannot enforce its recreational vehicle amendments to any vehicles that were manufactured before the effective date of the regulation, and that effective date was August 15, 2007. That opinion has now been obtained and has been shared with you.

Much discussion took place yesterday about the

Board's desire and commitment to transparency, accuracy, and staff engagement with the businesses and industries that they regulate. In our case, and in the case of other industries such as the sand car manufacturers, also damaged by CARB sanctions based on using underground regulations for six-figure settlements, your trust with us has been certainly strained if not damaged.

Your staff continues to be in denial that they made a mistake in choosing to enforce a regulation that had not yet been legally approved until months later. This has caused much consternation amongst our members who are suffering the effect of the economic depression that we are all painfully aware of.

Unless we make you, the Board, aware of the extent of this underground regulation being enforced, you, quite frankly, would never know. Staff should have informed you of the seriousness of this controversy, especially when Dr. Telles directly asked about the same underground regulation raised by Mr. Kit Enger at the last Board meeting.

So, in closing, I would respectfully ask that the Board either impanel its own oversight committee or take a look and ask the staff why they continue to stonewall and expend scarce State resources to persecute a struggling industry when the basis for that prosecution is fatally

flawed. It's an underground regulation.

CHAIRPERSON NICHOLS: We don't normally respond to comments in the public comment period, because it's the public comment period for a reason.

But I do want to note that despite your statement, we do not have the Legislative Council's opinion. We have a letter from a Senator purporting to summarize the Legislative Council's opinion. If we actually have a Legislative Council's opinion, it was not presented by you.

MR. PALIWODA: I mischaracterized that then. It is a letter from a State Senator that outlines what the opinion is, yes.

CHAIRPERSON NICHOLS: We have the greatest respect for Senator Harmon personally and professionally. But this is not a Legislative Council's opinion.

Secondly, your statement assumes that you have established the fact that something is an underground regulation. You can assert that it's an underground regulation and we would agree with you underground regulations by definition are illegal.

You have not yet established and you can't establish in this kind of a public comment process that whatever the Board did was, in fact, an underground regulation. You need to present us with evidence to that

effect and then we can make a decision on it. But we're not at that point.

So with all due respect, I think you're kind of misusing the process. I realize you're trying to take advantage of a process that's available to any member of the public. But this is not the way to pursue what you're trying to do.

And beyond that, I'm going to ask you to confer with Ellen Peter. Thank you very much.

MR. PALIWODA: Thank you.

CHAIRPERSON NICHOLS: Okay. We seem to have gotten in a situation where two people who were here yesterday for the public comment period were told or they claim they were told -- I believe them -- by someone that they couldn't testify yesterday in the public comment period. So they've come back today. And we will certainly entertain your comments. This is the group from the Kern Oil Refining.

MR. RICHARDS: Thank you. Thank you. Sorry about the miscommunication. I'm glad it's been rectified.

Good morning. I'm Robert Richards with Kern Oil Refining Company in Bakersfield. I'm the Environmental Health and Safety Manager down there.

I'm here to discuss today our position that small refiners are negatively impacted by the low-carbon fuel

standards. We've given comments before when you passed the regulation, and I'm here to reiterate some of that. I've done a little bit more work.

As adopted, the LCFS defines an average California gasoline and average California diesel fuel -- ultra low sulfur diesel. And in that, a baseline for those averages have an calculated. We've developed an estimate of a small refiner gasoline and a small refiner ultra-low sulfur diesel fuel. And we show it's about ten percent less than the CI of the average refiner.

Our use of local sweet light crude oil, 100 percent of light sweet crude, and our less intensive process -- we don't have any crackers; we don't have any cokers provides this reduction. In fact, we feel that we may already be achieving the 2020 goal.

We've had several discussions with CARB staff and some of the Board members, and we appreciate that and we look forward to having some more discussions.

We think the regulation clearly correctly differentiates other lower CI processes, higher energy/lower energy in alternative fuels, just not in petroleum fuels. We also show that not only are we lower in carbon intensity, but transportation-related emissions of criteria pollutants are lower with fuels that we supply in our local area than fuels that would have to come in

from outside of our local area.

We urge you to work with us in creating a small refiner carbon intensity and properly valuing our lower intensive process.

Thank you.

CHAIRPERSON NICHOLS: Thank you.

The request is for either an amendment to the rule or an interpretation of the rule. I'm not clear which.

Mr. Scheible, here's your parting opportunity to educate the Board.

DEPUTY EXECUTIVE OFFICER SCHEIBLE: I think it's for a request for an amendment to the rule, because we made the policy choice that we were going to treat petroleum-derived fuels from various refiners with the same carbon intensity and not try to parse out the differences in different refining processes.

CHAIRPERSON NICHOLS: The conventional --

DEPUTY EXECUTIVE OFFICER SCHEIBLE: The conventional petroleum which forms the baseline. And if we were to do that, we would find every refinery has a slightly different signature. And then in the case of a simple refinery, one that doesn't do all of the hydro cracking and treating, it's a less energy intensive process to go from the crude to the final product.

To me, this is an issue that we have plugged in a review period for the low-carbon fuel standard, and we'll re-visit that policy call when we do that. We didn't re-visit it in the 15-day change process, because we thought that had been a clear decision that was made.

CHAIRPERSON NICHOLS: So when would the review be coming back to this Board?

DEPUTY EXECUTIVE OFFICER SCHEIBLE: The review is probably in 2011.

CHAIRPERSON NICHOLS: And in the mean time, what would be the effect on a company such as Kern Oil?

DEPUTY EXECUTIVE OFFICER SCHEIBLE: In the mean time, the first year 2010 is a reporting year. So there is no substantial effect. You're just reporting what you're using.

In 2011, it's a fairly modest standard to meet. I don't think that refiners will have a hard time finding better blending components to meet the standards. What would probably happen is if they got what they wanted, they would be in a credit generating situation. And with the reg as it is, they probably would not be able to generate credits. And how we would address that issue would be probably fairly complicated. But it's a big policy call if we're now to go and change from saying there's one number for conventional oil and that's the

baseline and we treat it the same.

CHAIRPERSON NICHOLS: Right. It would be a major re-thinking of the basis for the rule. Unless anybody wants to direct that, I'm inclined to let this go until we get to the regular review period.

BOARD MEMBER D'ADAMO: Just full disclosure, I met with Kern Oil. And the thing that kind of caught my attention -- and I think that was based on some assumptions that you would not be able to meet the standard -- but that fuels would have to -- in particular in the southern part of the valley be transported in. And so that -- especially because we've got a more serious situation in the southern part of the valley, that was a cause of concern for me.

So I don't know in that year -- the first year, it sounds like reporting wouldn't be an issue. But what about in the first year of the regulation, would you be able to sustain it for that first year and in the interim continue discussions with staff?

MR. RICHARDS: Well, to meet the standard, we would either need to utilize different fuels in the standard or purchase credits as each year the level decreases.

Our concept of if fuels did not come from out of Kern to our distribution channel that they would have

to -- we're the only refiner down there making gas and diesel fuel. They would have to come from either the bay area or the L.A. area. So that concept is, with that scenario, emissions would increase from trucking fuels into the southern San Joaquin Valley. So that was our concept there.

DEPUTY EXECUTIVE OFFICER SCHEIBLE: We can have staff deal with the details.

But the rule was very much designed that in the first couple of years refiners that are currently all using large amounts of ethanol would meet it by finding better low-carbon ethanol and you could deploy that strategy. So it does not take more effort, but it should not be a large challenge for the refiners.

CHAIRPERSON NICHOLS: I think it's probably a good idea to prepare a written evaluation of this. And it may take another meeting for staff with the company, and then we'll see if we need to do anything beyond that. Without objection, that's what we'll do then.

Okay. Thank you very much. That concludes -- oh, one more.

MR. FROST: Thank you, Chair. Good morning, Chair Nichols and members of the Board.

I'm Jerry Frost, Regulatory Advisor for Kern Oil and Refining Company.

We're a 70-year-old family-owned small refinery located in the beautiful tropical resort community of Bakersfield.

In 1981, there were 12 small refineries as defined by CARB. However, today, there's only one left, and that's us, producing a reformulated gasoline and ultra-low sulfur diesel. That's not a good trend. We want to get another 70 years of business here in California, and we are working hard to do that.

One reason that a lot of the small refiners are no longer producing the fuels is because of the many generations of more stringent fuel standards. And they've either chosen to go out of fuels and into producing asphalt or gone out of business all together. As you all know, the rules and regulations add tremendous cost to businesses. And during this current economic crisis, businesses are suffering even greater job losses, capital, and market share.

California is one of the hardest hit states as far as an economic crisis. And coupled with a barrage of new regulations, businesses in California will be faced with a harsher and more dire economic outlook.

Now I'll get to my point. I'm here today to express concern that CARB climate change regulations and federal EPA climate change regulations are on a collision

course. And, unfortunately, our refinery and many other businesses subject to AB 32 are smack dab in the middle of this issue.

Not too long ago, EPA promulgated Title 5 permitting at a federal level. As I remember, CAPCOA fought really hard representing all local air districts trying to get EPA to recognize equivalency for California's air quality permitting program, which was already one of the most stringent and effective programs in the nation. They ignored this plea, and they adopted Title 5 anyway. It was unfortunately another layer of duplication over California's already excellent program.

Now we're doing it again all over again. Déjà vue in climate change. Let me give you some examples.

Number one, the federal renewable fuels standard regulations are in duplication to CARB's AB 32 low-carbon fuels standard regulation.

Secondly, the federal greenhouse gas mandatory reporting regulation is in duplication to AB 32 mandatory reporting. We got to do both of them.

Federal cap and trade program is again going to be in duplication what CARB is proposing.

And number four, the federal tailoring rule is going to duplicate many of the Scoping Plan controls that AB 32 will impose on stationary sources. So we have

multiple layers of duplication between federal and State, and I would urge CARB to work diligently with federal EPA, elected officials, and anyone else to see if we can coordinate and make consistent these climate change programs and regulations.

It would really help businesses. Thank you very much.

CHAIRPERSON NICHOLS: Thank you.

Are there any other comments?

EXECUTIVE OFFICER GOLDSTENE: Chairman Nichols, I'd like to say to the gentleman's comment, we are, as you know, working closely with EPA and in Washington to make sure that we avoid as much duplication as possible.

DEPUTY EXECUTIVE OFFICER SCHEIBLE: And we would be very happy if the government would adopt a low-carbon fuel standard and we could merge the two programs.

CHAIRPERSON NICHOLS: Sir, you didn't sign up, but go ahead.

MR. GRONICH: I thought I did, but I didn't.

Thank you, Madam Chairman.

I, too, want to compliment the staff on the assessment that they made of advance vehicles, but I think one of the facts that came out isn't quite being addressed in what then needs to be done.

And I'd like to go back to the table, but

represented on the incremental costs of these electric platform vehicles. And we do know we need electric platform vehicles in order to get to the 80 percent reduction in 2050.

Fuel cell vehicle may be $5300 more than a gasoline vehicle, a plug-in hybrid 5900, and a 200-mile battery range vehicle would be $14,000. A ZEV regulation can go so far. And I think what is important is that between 2015 and '17 that we get to the step of building or regulating tens of thousands of vehicles by each manufacturer so that we maybe have 50,000 vehicles out there by 2017.

But the economic penalty when you go beyond that into hundreds of thousands of vehicles, it goes into the tens of billions of dollars. And you need an incentive mechanism in order to then get these vehicles into the marketplace, unless you're going to ask the auto manufacturers to absorb those costs.

So I think the incentive program has to be looked at very seriously after 2017. There is an important step between 2015 and '17 to get, let's say, tens of thousands of vehicles out there so the cost can come down to where they begin to look pre-commercial or economic. But beyond that point, incentives have to be considered much more strongly than a further ZEV regulation. In fact, the

further ZEV regulation beyond that point could be onerous to the industry.

And I would recommend looking -- I don't think as much attention was paid to the NAS report or to an Oak Ridge report that looked at those kind of costs in those out-year periods to 2025. And to be successful, I think you're going to need much stronger incentive program.

CHAIRPERSON NICHOLS: Would you identify yourself for the record?

MR. GRONICH: I'm Sig Gronich, a consultant. I'm representing myself.

CHAIRPERSON NICHOLS: Thank you.

MR. GRONICH: And I worked at DOE in the hydrogen program.

CHAIRPERSON NICHOLS: Thank you. We appreciate your comments.

Any more comments? All right. If not, then I think we should adjourn. Thanks, everybody.

(Thereupon the California Air Resources Board adjourned at 11:45 a.m.)

CERTIFICATE OF REPORTER

I, TIFFANY C. KRAFT, a Certified Shorthand Reporter of the State of California, and Registered Professional Reporter, do hereby certify:

That I am a disinterested person herein; that the foregoing hearing was reported in shorthand by me, Tiffany C. Kraft, a Certified Shorthand Reporter of the State of California, and thereafter transcribed into typewriting.

I further certify that I am not of counsel or attorney for any of the parties to said hearing nor in any way interested in the outcome of said hearing.

IN WITNESS WHEREOF, I have hereunto set my hand this 17th day of December, 2009.

TIFFANY C. KRAFT, CSR, RPR
Certified Shorthand Reporter
License No. 12277