

MEETING

STATE OF CALIFORNIA

AIR RESOURCES BOARD

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

AUDITORIUM

21865 E. COPLEY DRIVE

DIAMOND BAR, CALIFORNIA

(VIDEOCONFERENCE LOCATION)

CALEPA HEADQUARTERS

BYRON SHER AUDITORIUM

SECOND FLOOR

1001 I STREET

SACRAMENTO, CALIFORNIA

THURSDAY, OCTOBER 22, 2015

9:03 A.M.

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

A P P E A R A N C E S

BOARD MEMBERS:

Ms. Mary Nichols, Chair(via video conference)
(9:03 a.m. to 11:35 a.m.)

Ms. Sandra Berg, Vice Chair

Dr. John Balmes

Supervisor John Gioia

Mr. John Eisenhut

Ms. Judy Mitchell

Mrs. Barbara Riordan

Supervisor Ron Roberts

Supervisor Phil Serna

Dr. Alexander Sherriffs

Professor Daniel Sperling(via video conference)
(12:40 p.m. to 3:00 p.m.)

STAFF:

Mr. Richard Corey, Executive Officer

Dr. Alberto Ayala, Deputy Executive Officer

Ms. Edie Chang, Deputy Executive Officer

Mr. Kurt Karperos, Deputy Executive Officer

Ms. Ellen Peter, Chief Counsel

Ms. La Ronda Bowen, Ombudsman

Ms. Kirsten Cayabyab, Air Pollution Specialist, Air
Quality Planning and Science Division(AQPSD)

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

STAFF:

Mr. Oliver Chang, Manager AAMES, ECARS

Ms. Inna Dzhema, Air Resources Engineer, Aerosol Analysis and Methods Evaluation Section(AAMES), ECARS

Ms. Graciela Garcia, Air Pollution Specialist, Innovative Light-Duty Strategies Section, MSCD

Ms. Annette Hebert, Chief, ECARS Division

Ms. Deborah Kerns, Senior Attorney, Legal Office

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

Ms. Karen Magliano, Division Chief, AQPSD

Mr. Mike McCarthy, Vehicle Program Specialist, ECARS

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

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

Ms. Carol Sutkus, Manager, AQPSD

Mr. Jonathan Taylor, Assistant Chief, AQPSD

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

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

ALSO PRESENT:

Mr. Will Barrett, American Lung Association(via video conference)

Mr. Todd Campbell, Clean Energy

Ms. Sharon Cooney, San Diego Metropolitan Transit System

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

ALSO PRESENT:

Mr. Wade Crowfoot, Deputy Cabinet Secretary, Governor's Office(via video conference)

Mr. Steven Douglas, Auto Alliance

Mr. Todd Eckerle, Governor's Office of Business and Economic Development

Mr. Bill Elrick, California Fuel Cell Partnership

Mr. Anthony Fournier, Bay Area Air Quality Management District(video conference)

Ms. Corie Goldman, American Lung Association in California

Mr. Mike Hartrick, Fiat Chrysler Automobiles

Mr. Henry Hogo, South Coast Air Quality Management District

Ms. Bonnie Holmes-Gen, American Lung Association in California(via video conference)

Ms. Christine Kehoe, California Plug-In Electric Vehicle Collaborative

Ms. Azita Khalili, BMW Group

Ms. Michelle Kinman, Environment California

Ms. Christine Kirby, Massachusetts Department of Environmental Protection

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

Mr. Tom Knox, Valley Clean Air Now(via video conference)

Mr. Joel Levin, Plug In America

Ms. Amy Lilly, Hyundai Motor Group

Ms. Jerilyn Lopez Mendoza, SoCalGas

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

ALSO PRESENT:

Mr. Michael Lord, Toyota

Mr. Joe Lyou, Coalition for Clean Air

Mr. Bill Magavern, Coalition for Clean Air(via video conference)

Mr. Elliott Martin, UC Berkeley

Mr. George Minter, SoCalGas

Mr. Simon Mui, Natural Resources Defense Council

Mr. Dave Nordberg, Oregon Department of Environmental Quality

Mr. Diarmuid O'Connell

Mr. Michael Pimentel, California Transit Association(via video teleconference)

Mr. David Puzey, Natural Resources Defense Council

Ms. Julie Rege, Global Automakers

Mr. David Reichmuth, Union of Concerned Scientists

Mr. David Rothbart, Los Angeles County Sanitation District

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

Mr. Chris Shimoda, California Trucking

Mr. John Tillman, Mercedes-Benz

Ms. Eileen Tutt, CalETC

Ms. Diana Vasquez, Sierra Club California(via video conference)

Dr. Barry Wallerstein, South Coast Air Quality Management District

I N D E X

	PAGE
Opening remarks by Vice Chair Berg	1
Pledge of Allegiance	1
Roll Call	1
Item 15-8-1	
Vice Chair Berg	5
Motion	5
Vote	5
Item 15-8-2	
Vice Chair Berg	6
Motion	6
Vote	6
Item 15-8-3	
Vice Chair Berg	7
Motion	7
Vote	7
Item 15-8-4	
Vice Chair Berg	7
Motion	8
Vote	8
Item 15-8-5	
Vice Chair Berg	8
Executive Officer Corey	9
Staff Presentation	9
Board Discussion and Q&A	16
Mr. Hogo	18
Ms. Tutt	20
Ms. Rege	22
Mr. Douglas	23
Mr. Reichmuth	24
Mr. Puzey	25
Mr. Fournier	27
Ms. Holmes-Gen	29
Mr. Magavern	30
Board Discussion and Q&A	31
Motion	36
Vote	36

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

	PAGE
Item 15-8-6	
Vice Chair Berg	36
Executive Officer Corey	37
Staff Presentation	38
Board Discussion and Q&A	58
Dr. Wallerstein	60
Mr. Lyou	63
Ms. Goldman	65
Ms. Rege	67
Mr. Minter	70
Ms. Lopez Mendoza	73
Mr. Campbell	75
Mr. Reichmuth	78
Mr. Puzey	81
Mr. Rothbart	83
Mr. Shimoda	84
Mr. Douglas	85
Ms. Cooney	87
Mr. Knox	89
Mr. Pimentel	90
Mr. Magavern	92
Board Discussion and Q&A	94
 Afternoon Session	 114
Item 15-8-7	
Vice Chair Berg	114
Executive Officer Corey	117
Staff Presentation	118
Item 15-8-8	
Vice Chair Berg	138
Executive Officer Corey	139
Staff Presentation	139
Mr. Crowfoot	146
Mr. Eckerle	151
Ms. Kehoe	173
Mr. Klee	188
Ms. Kirby	194
Mr. Nordberg	199
Ms. Kirby	203
Board Discussion and Q&A	207

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

	PAGE
Item 15-8-9	
Vice Chair Berg	211
Executive Officer Corey	211
Staff Presentation	213
(Item 15-8-7, Item 15-8-8, Item 15-8-9)	
Mr. Barrett	225
Ms. Vasquez	227
Mr. Magavern	229
Mr. Shears	231
Mr. Hogo	233
Mr. Douglas	234
Ms. Rege	237
Ms. Lilly	240
Mr. Reichmuth	243
Mr. Mui	246
Mr. Hartrick	248
Mr. O'Connell	250
Ms. Tutt	254
Ms. Kinman	256
Mr. Lord	259
Ms. Khalili	261
Mr. Martin	264
Mr. Tillman	267
Mr. Levin	268
Board Discussion and Q&A	269
Public Comment	
Mr. Craig	295
Adjournment	296
Reporter's Certificate	297

P R O C E E D I N G S

1
2 VICE CHAIR BERG: Good morning. This is going to
3 be an exciting meeting today. It is the first meeting
4 that we have held in two separate places. And so we're
5 not only here in South Coast Air Quality Management
6 District's beautiful facility, but we also are live and
7 have Chair Nichols participating, along with other
8 stakeholders. And a little bit later, I understand that
9 Professor Sperling will be joining us in Sacramento. And
10 so it is a dual location meeting.

11 And with that, I'd like to call to order the
12 October 22nd, 2015 public meeting of the Air Resources
13 Board.

14 Would you please stand with me and -- for the
15 Pledge of Allegiance.

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

18 VICE CHAIR BERG: And if the clerk of the Board
19 would please call the roll.

20 BOARD CLERK JENSEN: Dr. Balmes?

21 BOARD MEMBER BALMES: Here.

22 BOARD CLERK JENSEN: Mr. De La Torre?
23 Mr. Eisenhut?

24 BOARD MEMBER EISENHUT: Here.

25 BOARD CLERK JENSEN: Supervisor Gioia?

1 BOARD MEMBER GIOIA: Here.

2 BOARD CLERK JENSEN: Ms. Mitchell?

3 BOARD MEMBER MITCHELL: Here.

4 BOARD CLERK JENSEN: Mrs. Riordan?

5 BOARD MEMBER RIORDAN: Here.

6 BOARD CLERK JENSEN: Supervisor Roberts?

7 BOARD MEMBER ROBERTS: Here.

8 BOARD CLERK JENSEN: Supervisor Serna?

9 BOARD MEMBER SERNA: Here.

10 BOARD CLERK JENSEN: Dr. Sherriffs?

11 BOARD MEMBER SHERRIFFS: Here.

12 BOARD CLERK JENSEN: Professor Sperling?

13 Vice Chair Berg?

14 VICE CHAIR BERG: Here.

15 BOARD CLERK JENSEN: Chair Nichols?

16 CHAIR NICHOLS: Here.

17 BOARD CLERK JENSEN: Madam Vice Chair, we have a
18 quorum.

19 VICE CHAIR BERG: Thank you very much. So as I
20 stated, we are going to have our meeting today in two
21 separate locations. And as you can imagine, this does
22 require some logistics. So, for example, Chair Nichols
23 will be participating in our vote. Our one item that will
24 have a Board vote. And so I will call for a voice vote
25 here on our dais, and then I will turn to Chair Nichols

1 for her vote.

2 That will ensure that our record is clear. We'd
3 like to encourage both locations, anyone who wishes to
4 testify, should fill out a request to speak card, which is
5 available in both of these lobbies, and then return it to
6 the Board Clerk as soon as possible, but certainly before
7 the commencement of the item.

8 On our agenda today, three last three items are
9 information update. I'd like to explain to my fellow
10 Board members, that because they all tie together, I have
11 requested staff to give all of the presentations. We will
12 do clarifying questions, but we'll keep them very
13 specific. And then we will have testimony and Board
14 discussion at the end of all three items. I think that
15 will allow us to get all the staff's information out on
16 the table and allow us then to react -- respond
17 holistically rather than cutting it up in three different
18 spots.

19 And so we would like to tell our stakeholder we
20 will be doing testimony for the afternoon in one -- at one
21 point at the end of all three presentations. You can
22 absolutely identify on your speaker card if you have a
23 specific focus for your comments or you can join all of
24 your comments together. But we think this is really a
25 more efficient way for us to be able to take a look at the

1 exciting updates for this afternoon.

2 Also, please, speakers, be aware that there will
3 be a three minute time limit. And when you come up,
4 please state your first and last name. Because we don't
5 have the ability here at South Coast to post the speakers
6 on the wall, I have asked the clerk of the Board to be my
7 timekeeper as well as an announce who will be the next
8 speaker.

9 Please put your testimony in your own words. If
10 you've submitted something in writing, we will get that,
11 but we really appreciate if you can summarize, rather than
12 read your comment. It gives us a little bit more
13 connection with you.

14 And then for safety reasons, we really want to
15 recognize both in Sacramento for those stakeholders that
16 are there, as well as here in South Coast, the emergency
17 exits. And they are at the rear of the room, fortunately
18 in both locations. And in the event of fire alarm, we're
19 required to evacuate the buildings and immediately go
20 outside. We will then hear and all-clear signal and
21 return to the hearing room and resume the hearing.

22 Now I think we have enough going on today with
23 two locations so I'm rather hoping a fire drill is not on
24 the agenda.

25 (Laughter.)

1 VICE CHAIR BERG: So I'm keeping my fingers
2 crossed.

3 And so with that, I believe I've covered all the
4 opening comments, and so we'll jump right into our first
5 four agenda items are consent. And we will take them one
6 at a time.

7 And starting with our first consent item, which
8 is 15-8-1, greenhouse gas quantification determination for
9 the Shasta region transportation agency -- Regional
10 Transportation Agency sustainable plan and their
11 communities strategy. I'd like to ask the Board clerk,
12 are there any witnesses who have signed up to testify?

13 BOARD CLERK JENSEN: (Shakes head.)

14 CHAIR NICHOLS: Any there any Board members that
15 would like to move this from the consent agenda?

16 BOARD MEMBER RIORDAN: Madam Chair, then let me
17 move then approval of Agenda Item 15-8-1.

18 BOARD MEMBER BALMES: Second.

19 VICE CHAIR BERG: Great. I will now close the
20 record on this agenda item. And with the record closed,
21 and a motion and a second, all in favor?

22 (Ayes.)

23 CHAIR NICHOLS: Any opposed?

24 Chair Nichols?

25 CHAIR NICHOLS: I'm in favor.

1 (Unanimous aye vote.)

2 (Professor Sperling not present.)

3 VICE CHAIR BERG: Thank you.

4 Motion approved.

5 The next item on the consent calendar is number
6 15-8-2, the greenhouse gas quantification determination
7 for Tulare County Association of Governments Regional
8 Transportation Plan and Sustainability Communities
9 Strategy. I'd like to ask the Board Clerk if any
10 witnesses have signed up to testify?

11 BOARD CLERK JENSEN: No.

12 VICE CHAIR BERG: Seeing none.

13 Are there any Board members who would like to
14 remove this from the consent calendar?

15 I will now close the record on this agenda.

16 Can I have a motion and a second to adopt?

17 BOARD MEMBER GIOIA: So moved.

18 BOARD MEMBER BALMES: Second.

19 VICE CHAIR BERG: And seeing a first and a
20 second. All in favor?

21 Chair Nichols?

22 CHAIR NICHOLS: Aye.

23 (Unanimous aye vote.)

24 (Professor Sperling not present)

25 VICE CHAIR BERG: Motion passed.

1 And our third consent item is 15-8-3, also a
2 greenhouse gas quantification determination for Kings
3 County Association of Governments Regional Transportation
4 Plan and Sustainability Communities Strategy. I'd like to
5 ask the Board Clerk if any witnesses have signed up?

6 BOARD CLERK JENSEN: (Shakes head.)

7 VICE CHAIR BERG: Would there be any Board
8 members who would like to remove this from the consent
9 calendar?

10 Seeing none. I will now close the record on this
11 agenda item.

12 Having a chance to review the resolution, can we
13 have a motion and a second for Resolution 15-47?

14 BOARD MEMBER MITCHELL: I move approval of
15 Resolution 15.

16 BOARD MEMBER SHERRIFFS: Second.

17 VICE CHAIR BERG: Thank you.

18 All in favor?

19 Chair Nichols?

20 CHAIR NICHOLS: Aye.

21 (Unanimous aye vote.)

22 (Professor Sperling not present.)

23 VICE CHAIR BERG: Motion passed.

24 Our final consent item is number 15-8-4, an
25 update transportation conformity budget of the San Joaquin

1 Valley ozone PM2.5 and PM10 State Implementation Plans.
2 I'd like to ask the Board Clerk if any witnesses have
3 signed up to testify on this?

4 BOARD CLERK JENSEN: (Shakes head.)

5 VICE CHAIR BERG: Seeing none. Are there any
6 Board members who would like this item to be removed from
7 the consent calendar?

8 Seeing none. I will now close the record on this
9 agenda item. Having reviewed the resolution, can I have a
10 motion to move this resolution forward?

11 BOARD MEMBER SHERRIFFS: Motion to approve.

12 BOARD MEMBER MITCHELL: Second.

13 VICE CHAIR BERG: Hearing a first and second.

14 All in favor?

15 Chair Nichols.

16 CHAIR NICHOLS: Aye.

17 (Unanimous aye vote.)

18 (Professor Sperling not present.)

19 VICE CHAIR BERG: Motion approved.

20 So our first agenda item for discussion is a
21 proposed modification to the fiscal year 2015-16 funding
22 plan for the Low Carbon Transportation investment from the
23 cap-and-trade auction proceeds, and the Air Quality
24 Improvement Program.

25 When the Board approves this plan -- approved

1 this plan in June of this year, \$350 million in auction
2 proceed funding for Low Carbon Transportation was still
3 pending before the legislature. So the plan was
4 contingent on the approval of these funds. Last month,
5 the legislature appropriated 90 million of the 350 to ARB
6 while they continue to consider the rest of the
7 administration auction proceeds expenditure for. The
8 proposal we have today, we will hear staff's
9 recommendation for how to spend this first \$90 million.

10 Mr. Corey, will you please introduce this item?

11 EXECUTIVE OFFICER COREY: Yes. Thank you, Vice
12 Chair Berg. As you heard at the June Board meeting,
13 there's considerable demand for this advanced technology
14 incentive funding. So we realized allocating 90 million
15 of the anticipated 350 million will leave unmet demands.
16 We understand the intent of this initial appropriation of
17 auction proceeds funding is to allow continuing
18 implementation of existing programs.

19 Based on this, we recommending that the Board
20 direct this limited funding to our three projects
21 operating in an ongoing first-come first-served basis for
22 consumers and delays starting other projects until
23 additional funds are available.

24 Gracie Garcia of the Innovative Strategies Branch
25 will now give the staff presentation.

1 Gracie.

2 (Thereupon an overhead presentation was
3 Presented as follows.)

4 AIR POLLUTION SPECIALIST GARCIA: Thank you, Mr.
5 Core. Good morning, Vice Chair Berg and members of the
6 Board. Today, I will present a proposed modification to
7 the funding plan for Low Carbon Transportation investments
8 and the air quality improvement program that will allocate
9 ARB's partial appropriation for Low Carbon Transportation
10 funds.

11 --o0o--

12 AIR POLLUTION SPECIALIST GARCIA: As the Vice
13 Chair noted in her introduction, the 350 million in
14 proposed Low Carbon Transportation funding was contingent
15 upon appropriation of funds to ARB when the Board approved
16 this year's funding plan in June. These funds were for
17 several light- and heavy-duty vehicle and equipment
18 projects. However, these funds were not ultimately
19 appropriated as part of the State's overall budget in
20 June.

21 The funding plan also identified 23 million in
22 AQIP funding that was included in the final State budget.
23 Today's proposal does not modify the Board's direction
24 related to AQIP project funds. As a reminder, the
25 majority of AQIP funds support the truck loan assistance

1 program, which provides loans to small business truckers.
2 This program is proceeding without interruption.

3 --o0o--

4 AIR POLLUTION SPECIALIST GARCIA: In September,
5 the legislature passed and the Governor signed Senate Bill
6 101, which made appropriations to several State agencies
7 to prevent some programs from halting while budget
8 discussions continue on the remainder of the cap-and-trade
9 auction proceeds. With the legislature currently in
10 recess, staff does not expect action on the remaining Low
11 Carbon Transportation funds until after the first of the
12 year.

13 As a part of SB 101, ARB received 90 million for
14 Low Carbon Transportation. This initial appropriation is
15 intended to provide bridge funding for existing rebate and
16 voucher projects to avoid implementation disruptions
17 through spring. Today we are presenting our proposal for
18 how to allocate this funding.

19 --o0o--

20 AIR POLLUTION SPECIALIST GARCIA: Based on the
21 legislative intent of SB 101, we propose allocating
22 funding to our three ongoing vehicle rebate and voucher
23 projects in order to meet consumer demand. These projects
24 are the Clean Vehicle Rebate Project or CVRP, the Enhanced
25 Fleet Modernization Program or EFMP Plus-Up Pilot Projects

1 to benefit disadvantaged communities, and the Hybrid and
2 Zero Emission Truck and Bus Voucher Incentive Project, or
3 HVIP.

4 CVRP and HVIP have been operating for about five
5 years. Consumer demand remains strong, particularly for
6 CVRP. So this bridge funding is essential to keeping
7 these projects up and running.

8 The EFMP Plus-Up programs were launched in the
9 South Coast and San Joaquin Valley earlier this year.
10 These programs provide extra incentives to lower income
11 consumers in and near disadvantaged communities who scrap
12 and older vehicle and replace it with a newer or used
13 hybrid, plug-in hybrid, or zero mission vehicle.

14 Both programs have seen strong consumer interest,
15 and we believe it is important to avoid funding
16 disruptions to build on this initial momentum. The
17 proposed funding total shown on this slide represent a
18 proportional share of each project's full allocation from
19 the Board approved funding plan. These allocations should
20 enable each of the projects to continue through early
21 spring.

22 We are proposing to delay implementation of the
23 nine other Low Carbon Transportation projects included in
24 the funding plan, pending additional legislative
25 appropriations.

1 --o0o--

2 AIR POLLUTION SPECIALIST GARCIA: These next two
3 slides provide an illustration of what would be newly
4 funded and what would be delayed under staff's proposal.
5 As you can see on the light-duty side, we will be able to
6 partially fund CVRP and only one of our disadvantaged
7 community pilots. However, despite the lack of current
8 funding, staff will continue to build upon last year's
9 projects and work with stakeholders to develop
10 solicitations in preparation for additional funding should
11 the legislature act with the subsequent appropriation.

12 --o0o--

13 AIR POLLUTION SPECIALIST GARCIA: The story is
14 similar on the heavy duty and freight side, with all
15 projects, other than HVIP, being delayed. While this
16 delayed will result in unmet project demand,
17 implementation of our heavy-duty demonstration and pilot
18 projects from last year's funding plan are moving forward
19 and staff will continue development on the deferred
20 projects in preparation for additional funding being
21 appropriated.

22 For example, our zero emission drayage truck and
23 multi-source demonstration solicitations recently closed
24 in September and we should be awarding grant shortly. We
25 also have a solicitation open for last year's truck and

1 bus pilot funding. We expect that solicitation to be
2 significantly oversubscribed, but it includes provisions
3 to fold in additional funds shown on this slide, if the
4 legislature ultimately appropriates that money.

5 Next, I will go over our proposed implementation
6 schedule for expending the funds.

7 --o0o--

8 AIR POLLUTION SPECIALIST GARCIA: In addition to
9 appropriating 90 million, the State Budget Act of 2015
10 contains a provision that limits State agencies from
11 committing more than 75 percent of their appropriations
12 prior to the fourth cap-and-trade auction of the fiscal
13 year, which will take place in May 2016.

14 So even though this funding provides a short-term
15 bridge, we cannot access the full amount until seven or
16 eight months from now. We are proposing to apply the 75
17 percent limit across each project, so initial grants will
18 be for the amount shown on this slide, totaling 67.5
19 million out of the 90 million.

20 To better manage the EFMP Plus-Up Program, we
21 propose to limit grants to the two districts with existing
22 programs, the South Coast and San Joaquin Valley. The
23 approved funding plan included provisions to expand the
24 project to other air districts, but we propose to defer
25 this expansion until additional funds are available.

1 Next, I'll provide a brief status update on CVRP.

2 --o0o--

3 AIR POLLUTION SPECIALIST GARCIA: Last year's
4 funding for CVRP was exhausted the first week of October.
5 In order to avoid a waiting list and a delay in rebate
6 processing, the Executive Officer executed a partial CVRP
7 grant with a small portion of CVRP's share of the 90
8 million earlier this month, using contingency provisions
9 in the funding plan you approved in June.

10 The three-month delay in Low Carbon
11 Transportation funding will result in an implementation
12 delay of the income cap and higher rebates for low and
13 moderate income consumers.

14 However, implementation of these new provisions
15 remain a priority, and we will work with our grantee to
16 minimize any delay. With Board approval for today's
17 proposal, we will amend the grant to include the full
18 proportional share of the available funding for CVRP.

19 --o0o--

20 AIR POLLUTION SPECIALIST GARCIA: We hope that
21 the 90 million is just an initial appropriation and that
22 we receive additional funds. If the legislature
23 ultimately approves the full 350 million, we will
24 implement the funding plan as approved in June, albeit on
25 a delayed schedule.

1 However, in the event we receive another partial
2 appropriation, we propose to add a contingency provision
3 that would give the Executive Officer the option to add
4 funding to just the three projects proposed for funding
5 today up to the amounts in the funding plan to meet
6 consumer demand.

7 If we receive an amount appreciably less than 350
8 million, we believe this approach is more appropriate than
9 directing small allocations to each of the 12 projects
10 where those amounts would be less than needed for a
11 project to be viable.

12 Should this occur, we anticipate we would include
13 any deferred projects in next year's funding plan. We
14 will return to the Board for further direction if the best
15 course of action doesn't fall within the funding plan's
16 contingency provisions.

17 --o0o--

18 AIR POLLUTION SPECIALIST GARCIA: In closing, we
19 recommend the Board approve the proposed modification to
20 the funding plan to allocate the 90 million appropriated
21 by the legislature last month.

22 Thank you.

23 VICE CHAIR BERG: Thank you.

24 I'll first turn to the Board to see if there's
25 any clarifying questions on staff's...

1 BOARD MEMBER GIOIA: Just a question. And I'm
2 sure we'll hear from speakers about it. On the EFMP
3 Plus-Up, I understand, in looking at the light-duty
4 project chart, the total funding plan for the program was
5 originally to be 20 million. The partial allocation of 10
6 million is going to the existing districts, San Joaquin
7 and South Coast.

8 Given that there's been -- there'd been previous
9 discussion and -- or an intention to expand this program
10 to other districts, I just wanted to make clear and have
11 an understanding that hopefully when the -- we get the
12 full allocation of cap-and-trade funding, that the
13 additional 10 million will be used for the expansion into
14 other air districts, who are anxiously waiting this fund
15 to ramp up their own programs. So, Richard, if you can
16 just sort of --

17 EXECUTIVE OFFICER COREY: Yeah, that's correct,
18 Supervisor Gioia. In fact, those conversations with the
19 districts are happening now.

20 BOARD MEMBER GIOIA: Right.

21 EXECUTIVE OFFICER COREY: So in the event that
22 those monies become available, we'll be able to move
23 forward efficiently.

24 BOARD MEMBER GIOIA: Right. So the commitment is
25 that 10 million then gets used for the expansions?

1 EXECUTIVE OFFICER COREY: Correct.

2 VICE CHAIR BERG: And I would just like to add to
3 that in my discussions with staff was to really encourage
4 the districts to continue developing their plans with
5 staff, and be in the position to be shovel ready when
6 those funds become available.

7 Any other questions?

8 Then let's go to testimony.

9 BARCU MANAGER ANDREONI: I'll call the first two,
10 Henry Hogo and Eileen Tutt.

11 MR. HOGO: Good morning, Vice Chair Berg, members
12 of the Board, and Chair Nichols. So I'll turn my head one
13 way or the other.

14 (Laughter.)

15 MR. HOGO: Good morning again. I'm Henry Hogo,
16 Assistant Deputy Executive Officer in the Mobile Source
17 Division here at the South Coast Air Quality Management
18 District. The low-carbon transportation investments and
19 Air Quality Improvement Program are two incentive programs
20 that enable the deployment of advanced zero and near zero
21 mobile source technologies that are critically needed to
22 not only meet long-term climate goals, but more
23 importantly local air quality standards and reduce air
24 toxics exposure.

25 The South Coast AQMD has been successful in

1 implementing many of the programs under the Air Quality
2 Improvement Program. And more recently, we have received
3 significant interest in the Enhanced Fleet Modernization
4 Program Plus-Up, or EFMP Plus-Up, element of the
5 low-carbon transportation funds.

6 To continue this momentum, we need to have
7 sustained levels of funding. It is understandable that
8 your staff is proposing a reallocation of funds given the
9 amount of funding received to date. However, there is a
10 need to inform the State Legislature that attainment of
11 federal air quality standards in meeting SIP obligations
12 are of the utmost importance, and more funding will be
13 needed if non-attainment areas in California are to meet
14 federal air quality standards by their applicable
15 deadlines.

16 The next item on your agenda, the Draft Mobile
17 Source Control Strategy discussion document will require
18 the fortitude of all stakeholders to make informed
19 decisions to meet air quality standards and climate goals.
20 If we are to succeed, we must educate all levels of
21 government, the private sector, and the public on what
22 will be needed to attain air quality standards for
23 California.

24 As I mentioned earlier, we have seen a tremendous
25 interest in the EFMP Plus-Up Program. Of the vouchers

1 that we have issued to date, 75 percent are for the -- are
2 for either a dedicated battery electric or plug-in hybrid
3 electric vehicle for residents living in disadvantaged
4 communities in our region.

5 There's a strong need to identify sufficient
6 funding to cover the over 2,000 applications that we have
7 received to date. If everyone took the \$5,000, that's \$10
8 million we already have ready to go.

9 The SCAQMD alone with our funding partner, the
10 MSRC, have already approved up to an additional \$12
11 million of local funding to complement up to \$20 million
12 from ARB for the EFMP. We urge the Board consideration of
13 the funding levels that we currently need to continue this
14 successful program.

15 We're not -- we believe you need more than \$20
16 million in total to do this program. So thank you for
17 allowing us to comment today.

18 MS. TUTT: Hi. Eileen Tutt with the California
19 Electric Transportation Coalition. I want to say that
20 today I'm here representing a much larger group of folks
21 that you've met that have been before this Board many,
22 many times, including the auto industry, the utility
23 industry, the folks that are trying to build the products
24 that we need to be on the road to meet the State's goals,
25 as well as consumer groups and trade associations.

1 I want to first say that I like the size of my
2 head on this split screen much better --

3 (Laughter.)

4 MS. TUTT: -- than at your own site. So thank
5 you to the AQMD for allowing this.

6 BOARD MEMBER GIOIA: But you're in the cross
7 hairs, as Supervisor Roberts pointed this out.

8 (Laughter.)

9 BOARD MEMBER GIOIA: He's pointed this out.

10 (Laughter.)

11 MS. TUTT: That's okay. I'm used to that.

12 (Laughter.)

13 MS. TUTT: So I want to say first to thank you to
14 the staff and to the Board, because you have consistently
15 recognized the importance of incentive programs. You are
16 not the challenge here. We support the staff's proposal,
17 support everything that you've done, you know, in support
18 of these incentive programs. So we wanted to let you know
19 is that we are all with you, and we will work with the
20 legislature to ensure that you get the 260 million that is
21 desperately needed to support the -- all of the goals of
22 the State, the ZEV program, the numerous Executive Orders,
23 the ZEV Action Plan. There's just a lot of different
24 State goals that are supported by this incentive money.

25 And it's just very unfortunate that the

1 legislature has not acted on this issue, which was, by the
2 way, in an all three budgets, both sides of the
3 legislature and the Governor's budget originally.

4 So it is extremely harmful to the market that we
5 have this delay. It sends the wrong signal to all those
6 making investments, and all of us trying to meet our
7 regulatory obligations. What it does say to me is that we
8 need to get a continuous appropriation for these programs.

9 I mean, it's just -- we cannot continue this way.
10 We thought we had it in the bag when we had the support of
11 the legislature and the Governor, but this year has proven
12 that we have to have a lot more certainty, if we're really
13 going to double down, and like Henry Hogo said, meet all
14 of the obligations of the State and of our very important
15 local air districts.

16 So anyway, thank you. We're here in support. We
17 will continue to work with you, although you're the easy
18 part, but we will continue to advocate strongly in the
19 legislature, and very much appreciate the recognition and
20 hopefully adoption of the staff's recommendation today.

21 BARCU MANAGER ANDREONI: Julia Rege, then Steven
22 Douglas

23 MR. REGE: Good morning. I'm Julie Rege with the
24 Association of Global Automakers. Global Automakers
25 represents 12 international automobile manufacturers as

1 well as suppliers. And in 2014, we represented 57 percent
2 of the California new vehicle market, and 72 percent of
3 the green vehicle sales in the state.

4 We'd like to thank staff for their proposal
5 today, and just generally recognize the State for its
6 ongoing commitment to supporting zero emission vehicle
7 technology. The Clean Vehicle Rebate Program is critical
8 to California's plans to grow and build the zero mission
9 program, and it's all the more needed now when we are
10 seeing some fluctuations in ZEV sales in this current
11 year.

12 We support the proposal that the staff has put
13 forward, and we are willing to work and take additional
14 steps as necessary with the legislature to help support
15 additional funding going for. We believe that the staff's
16 proposal does show the ongoing commitment that I
17 mentioned, and we look forward to continuing our work with
18 the staff on this proposal. We recommend that the Board
19 approve the proposal as presented.

20 Thank you.

21 MR. DOUGLAS: Good morning. I'm Steve Douglas
22 with the Alliance of Automobile Manufacturers. And first,
23 we'd also like to thank the staff for all their hard work,
24 not just on being flexible and putting together this
25 proposal, but also on the June 30th -- or the June

1 proposal, which was a comprehensive proposal. We also
2 work in the legislature. We also support the entire
3 program.

4 And second, I'd like to thank the Board for your
5 continued commitment to this program to zero emission
6 vehicle technology. I've said this before, but California
7 leads the nation. And you've developed and sustained a
8 comprehensive program to support what's a brand new
9 technology, so we're kind of all new here, and this is
10 really important that comprehensive program.

11 Today we offer 23 different zero emission vehicle
12 technology models, from battery electric, to fuel cells,
13 and plug-in hybrid electric vehicles. And -- but we still
14 have a long, long way to go, and this program is critical
15 in demonstrating the State's support and in building a
16 sustainable market.

17 Again, we support the staff's proposal and we
18 recommend the Board approve it.

19 Thank you.

20 BARCU MANAGER ANDREONI: David Reichmuth, then
21 David Puzey.

22 DR. REICHMUTH: Good morning, Chair Nichols, Vice
23 Chair Berg, and members of the Board. My name is David
24 Reichmuth, and I'm speaking on behalf of the Union of
25 Concerned Scientists. We fully support the proposed

1 allocation of the available GGRF funds as -- to keep these
2 viable incentive programs operational. And I agree with
3 the comments of the previous speakers that these funds are
4 vital for programs that are -- that have put over 150,000
5 electric vehicles on the road in California, thousands of
6 hybrid and electric trucks on the road.

7 And we also recognize the need for the full \$350
8 million allocation to support all of the programs in the
9 Low Carbon Transportation Program authorized by the Board
10 earlier this year.

11 UCS is committed to advocate for this funding and
12 will be reaching out to our supporters to contact the
13 legislature and the Governor to make sure they know the
14 need to have these programs fully funded.

15 We've been making incredible progress in the
16 State and -- to reduce emissions and reduce air pollution,
17 and we don't want to jeopardize this product -- progress.

18 Thank you.

19 VICE CHAIR BERG: Thank you. David, before you
20 get started, can I please let our Sacramento contingency
21 we have three speakers that would like to speak on this
22 item. And so after David testifies, we'll be calling on
23 those three speakers in Sacramento. So David, you want to
24 close us up here, please.

25 MR. PUZEY: Sure. Good morning, Chairman Nichols

1 in Sacramento and respective members of the Board here.
2 Dave Puzey on behalf of NRDC.

3 We support the staff bridge funding proposal. It
4 is a sensible, fair, proportional plan to continue the
5 three ongoing projects without interruption. And NRDC
6 appreciates the efforts staff have made to incorporate
7 stakeholder input.

8 Of course, the bigger issue that we all recognize
9 is that CARB shouldn't even be facing this budget
10 shortfall. As everyone here knows, and today's draft
11 mobile source strategy will once highlight, accelerating
12 the transition to zero mission vehicles is one of the
13 cornerstones of reaching our climate and air quality
14 goals, as well as protecting the health of millions of
15 Californians especially in disadvantaged communities, many
16 of which are just down the road from here, breathing very
17 polluted air.

18 These projects, including CVRP Plus-Up, HVIP, and
19 those on hold are the means of making that transition, and
20 are far too important to be left in the lurch. And, of
21 course, I'm preaching to the choir here, but suffice to
22 say, NRDC and our Charge Ahead partners, will continue to
23 support CARB however we can to secure the balance of the
24 350 million and hope that the legislature will act as soon
25 as possible to fully fund these vital programs.

1 Thank you.

2 VICE CHAIR BERG: Thank you. Now, we get to test
3 out this technology. So we're going to turn to Sacramento
4 and we have three people testifying on this item.

5 MR. MUFFETT: The first speaker is Anthony
6 Fournier.

7 MR. FOURNIER: Good morning, Madam Chair, members
8 of the Board down in Diamond Bar. My name is Anthony
9 Fournier. I'm with the Bay Area Air Quality Management
10 District. And this morning I'm here to speak in favor of
11 the proposed modifications to 2015/2016 funding plan for
12 Low Carbon Transportation investments.

13 I'd like to first thank Mr. Corey and his staff
14 for their hard work to make the best out of this
15 challenging situation, given that there's not enough
16 funding to meet the original goals of the 2015/2016 plan.

17 Now, we support the prioritization of the HVIP
18 funding and the CVRP funding. These programs have proven
19 to be reliable sources of incentive funding for California
20 residents and businesses, and are significantly
21 responsible for the accelerated transition of California's
22 fleet to zero and near zero emission vehicles. I would
23 believe that it's essential that these programs be
24 maintained to help all Californian communities meet their
25 air quality, toxic, risk reduction, and climate goals.

1 Now, we also support the prioritization of the
2 remaining funding for the continuation of Enhanced Fleet
3 Modernization Plus-Up Program. Now the EFMP Plus-Up
4 Program provides additional incentives to low-income
5 residents in disadvantaged communities that help them
6 replace their older polluting vehicles with significantly
7 cleaner vehicles.

8 While we recognize that there's currently
9 insufficient funding to build maintain the two existing
10 EFMP programs in the San Joaquin Valley and the South
11 Coast districts, and expand the program into the other
12 districts as outlined in the approved 2015/2016 plan, we'd
13 like to request the Board prioritize a portion of the next
14 available Low Carbon Transportation plan funding to expand
15 the program beyond the initial pilot areas and allow more
16 disadvantaged communities across the state to access EFMP
17 Plus-Up incentive funding.

18 Now, in the Bay Area, we've been working for more
19 than 20 years to help residents and businesses transition
20 their vehicles to -- over to cleaner technologies. And
21 we've done this through incentives, policies, our
22 education and outreach efforts. Now, we run the
23 largest -- one of the largest scrap programs in the State,
24 having retired over 60,000 vehicles over the last 10 years
25 and have one of the densest electric vehicle charging

1 networks in California.

2 Now, we're very interested in partnering with ARB
3 to offer the EFMP Plus-Up to eligible Bay Area residents
4 and are ready to provide local match funding to further
5 leverage the State's EFMP funding. Now, we look forward
6 to continuing our partnership with your staff and support
7 the successful implementation of the Low Carbon
8 Transportation plan investments and the effective
9 allocation of future State funds.

10 Thank you for your time.

11 MS. HOLMES-GEN: Good morning, Chairman Nichols
12 and Vice Chair Berg. Bonnie Holmes-Gen, Senior Director
13 for Air Quality and Climate Change American Lung
14 Association in California. Glad to be here to support
15 this initial funding allocation now, so that we can get
16 clean air vehicles and trucks and hybrid and electric
17 vehicles on the road now, but we need to get the remainder
18 of that funding allocation. We're committed to work with
19 you and work with the legislature as soon as they get
20 back.

21 And I wanted to highlight the broad support, not
22 just from the American Lung Association, but from the
23 broader health community for this GGRF funding as a
24 critical tool to move us forward to our 2030 and 2050
25 goals, and to get those clean air health benefits.

1 And we support the whole mix of programs,
2 including the EFMP Plus-Up and the other pilot programs.
3 And I wanted to also say how important it is to get that
4 EFMP Plus-Up expanded to other air districts. So I wanted
5 to add on to those comments. And we would be happy to
6 work with you on educating legislators on the critical
7 importance of all these programs to meeting our immediate
8 health and air quality goals, but also getting us on the
9 road to our long-term climate stand -- climate targets.

10 We'd like to join the chorus of those who are
11 saying again that it is so important to get a continuous
12 appropriation of Cap-and-Trade funds for Low Carbon
13 Transportation.

14 So in closing, we support your staff proposal
15 today, and putting the emphasis on the consumer programs
16 and ensuring that there's no lapse in funding and look
17 forward to working with you for -- to get the rest of that
18 350 million out.

19 MR. MAGAVERN: Good morning, Vice Chair Berg and
20 Members, Chair Nichols. Bill Magavern with the Coalition
21 for Clean Air. And we support the staff proposal as the
22 best that could be done under the circumstances. We join
23 with the previous speakers in going to the legislature and
24 the Governor and asking them to, as soon as possible,
25 appropriate the remainder of \$350 million that ARB has in

1 its funding plan, and which the Governor and the Assembly
2 and the Senate all have in their budget proposals.

3 So it's very disappointing and frustrating that
4 so little of the money has actually been appropriated so
5 far. We support all of the projects within this Low
6 Carbon Transportation category. And of the programs that
7 are now deferred, most of them are in heavy duty, where we
8 had a crying need to provide the incentive funding.
9 That's a key part of the sustainable freight strategy, and
10 we're looking at grant programs for trucks and buses that
11 really need the funding that is in ARB's funding plan.

12 It's also very important as previous speakers
13 have said to continue the momentum of the enhanced fleet
14 modernization program. We've seen that demand is strong
15 in both the South Coast and San Joaquin Air Districts, and
16 we want to make sure that the drivers who are interested
17 in those programs actually see the promise of the programs
18 fulfilled with funding, and also as Supervisor Gioia has
19 said, that that funding be expanded as soon as possible to
20 additional air districts.

21 So we look forward to seeing the full complement
22 of funding as soon as possible. I hope early next year.
23 Thank you.

24 VICE CHAIR BERG: Thank you. Well, that
25 technology worked great. I want to let the people in

1 Sacramento know you came across loud and clear as if you
2 were sitting here in the room. So thank you very much for
3 your participation.

4 And with the witnesses completed, I will now
5 close the record on this agenda item. Turn to my fellow
6 Board members to see if there's any closing comments.

7 Ms. Mitchell.

8 BOARD MEMBER MITCHELL: Thank you. I want to
9 say -- talk about the EFMP Plus-Up Program. We rolled it
10 out here in the South Coast, and with a fairly robust
11 response. And it's too bad now to see the pull back on
12 the money that was available for this. The policy, as we
13 recall when we enacted this program a year ago, was to
14 improve the EFMP Program, but also to introduce low carbon
15 vehicles and electric vehicles to lower income
16 communities.

17 And I'm happy to say we've been extremely
18 successful as Henry Hogo mentioned. Seventy-five percent
19 of the vouchers we issued are for electric vehicles or
20 hybrid electric vehicles or plug-ins.

21 So -- and we're oversubscribed. You know, we
22 don't have even -- we don't have enough money to actually
23 carry out the full impact of the applications we received.
24 But also recognizing that with the allocation that we
25 thought, that we need to spread that money over these

1 three important programs. And so I think it's important
2 that we work with the legislature to let them know how
3 important this program is and how successful it's been.
4 I'm mean the legislature had, in fact, asked us to look at
5 spreading these low carbon vehicles, electric vehicles
6 into the low income market. And we are working on it, and
7 we are succeeding at it.

8 And so I think it's important that we work with
9 the legislature to let them know the success of this, and
10 how important it is to our goals. As you know, South
11 Coast is nonattainment. And so this project is a project
12 that is directed toward cleaning the air, lowering our
13 carbon footprint and also public health over the
14 overriding principle of improving public health. So we
15 have a job in front of us and we need to keep working to
16 achieve it.

17 VICE CHAIR BERG: Thank you. Very well said.

18 Any other comments?

19 With that, I'd ask the Board to turn their
20 attention to Resolution 15-52.

21 CHAIR NICHOLS: Ms. Berg?

22 Chair Berg, may I comment at this time?

23 VICE CHAIR BERG: Oh, absolutely, Chair Nichols.

24 CHAIR NICHOLS: I just want to -- thank you. I
25 just wanted to -- I don't know how to wave my hand. Well,

1 maybe, I should just wave my hand.

2 (Laughter.)

3 CHAIR NICHOLS: I just wanted to follow on with
4 Ms. Mitchell's comment and add something, which I think
5 was said, but perhaps not clearly enough at the beginning,
6 which is that the legislature is holding the vast majority
7 of the funds that were a part of the Governor's budget
8 this year to be appropriated from the Greenhouse Gas
9 Reduction Fund.

10 They, at the end of the session, agreed to
11 forward a portion of those monies, of which the ones that
12 we're talking about here, were a big share. We have no
13 reason to think that they have any policy or political
14 concerns about the program overall. I definitely agree
15 that we should continue to inform them about what a great
16 part we're doing with the funds that we got, and the
17 importance of getting the rest of them.

18 But I did want to just make sure that people
19 understand that we're not redoing the budget at this
20 point. We are also looking at our investment plan for
21 future years and have some ideas along the lines of the
22 things that several of the witnesses commented on for
23 possibly changing some of the allocations to different
24 programs.

25 But it seems to me that this use of the monies

1 that we have now is the lowest risk way to make use of
2 what we have right now to keep these critical programs
3 moving forward.

4 Thanks.

5 VICE CHAIR BERG: Thank you. And so Chairman
6 Nichols, so am I correct in understanding that you see
7 this as a timing issue with the Legislature?

8 CHAIR NICHOLS: Yes. Now, of course, when the --
9 there are many truisms about what can happen if the
10 legislature is in session. You know, they could do what
11 they want. But, in fact, the proposal that stands is in
12 front of them. And again, we have no reason to believe
13 that it's going to be changed from what was in the budget.

14 So that's really just meant to say that the
15 proposal that's before us to vote on, which I hope we will
16 pass, is probably the best solution to what we can do in
17 the interim, while we're waiting for the rest of that
18 appropriation to come through. And there's no reason, at
19 this point, to believe that it's in jeopardy.

20 VICE CHAIR BERG: And it seems to me that from
21 the testimony we've heard today, we have quite a coalition
22 of support to help continue to educate and remind all of
23 us how important these programs are, and how we are
24 spending the money. And with that concerted effort,
25 encouraging the legislature to resolve the timing and put

1 these funds in work, it seems that we're on the right
2 path.

3 CHAIR NICHOLS: I absolutely agree.

4 VICE CHAIR BERG: Great. So with that --

5 BOARD MEMBER RIORDAN: Madam Chair, if I might, I
6 would just like to say thank you to all of those who have
7 indicated their support today in their testimony.

8 And I'd like to move forward and approve
9 Resolution 15-52.

10 VICE CHAIR BERG: May I have second?

11 BOARD MEMBER BALMES: Second.

12 VICE CHAIR BERG: All in favor?

13 Chairman Nichols.

14 CHAIR NICHOLS: Aye.

15 (Unanimous aye vote.)

16 (Professor Sperling not present.)

17 VICE CHAIR BERG: Motion passed. And thank you,
18 everyone, for your support on this unwavering support.

19 And we'll look forward to working with everybody as we go
20 after the balance due.

21 Our next agenda item is Item number 15-8-6. It's
22 an informational update on a discussion draft for the
23 mobile source strategy that staff released last month.
24 Over the next 15 years, California will need to build upon
25 its successful efforts to meet not only criteria air --

1 critical air quality, but also climate goals.

2 Achieving those goals will provide much needed
3 public health protection for millions of Californians that
4 still breathe unhealthy air and reduce exposure to toxic
5 air contaminants. Meeting California's greenhouse gas
6 reduction targets is an essential part of a global action
7 needed to slow down global warming, reducing our
8 dependence on petroleum, and establishing a more secure
9 energy future.

10 Given the significance of the mobile source
11 emissions along with the interconnected nature of these
12 goals, staff has developed an approach -- an integrated
13 approach to the mobile source strategy. This is an
14 important effort that will be a foundation for much of
15 ARB's work over the next coming years, and I look forward
16 to the Board's discussion here today.

17 I can also say that this strategy is also very
18 important for establishing investments and certainty in
19 the marketplace, as certain as one can be when you're
20 asking for lots of innovation. But certainly direction
21 and having understanding as to what we are thinking is
22 really great in the marketplace.

23 Mr. Corey, will you please introduce this item?

24 EXECUTIVE OFFICER COREY: Yes. Thank you, Vice
25 Chair Berg. Today's presentation will describe the draft

1 mobile source strategy which is designed to simultaneously
2 meet air quality standards, achieve greenhouse gas
3 reduction targets, reduce petroleum consumption, and
4 reduce health risk.

5 Mobile sources are the largest contributor to the
6 formation of ozone, PM 2.5, diesel particulate matter, and
7 GHG emissions in California, and ARB's current mobile
8 source emission reduction programs will reduce NOx and
9 diesel PM emissions over 60 percent from today's levels by
10 2030, position California to meet the 2020 GHG target, and
11 reduce petroleum consumption. However, large reductions
12 will still be needed beyond these programs to meet air
13 quality and climate goals by 2030.

14 The draft strategy sets out a vision for
15 transformation of the mobile sector. The strategy will
16 support multiple planning efforts, including upcoming
17 State Implementation Plans. ARB staff has worked closely
18 with the South Coast Air Quality Management District on
19 specific measure concepts that are needed for ozone
20 attainment. Over the next year, additional elements of
21 the strategy will be incorporated into other planning
22 efforts, including the scoping plan update, and the
23 California sustainable Freight Action Plan.

24 All of these plans will provide continuing
25 opportunity for review and comment by the Board and the

1 public.

2 I'll now ask Kirsten Cayabyab of the Air Quality
3 Planning and Science Division to begin the staff
4 presentation.

5 Kirsten.

6 AIR POLLUTION SPECIALIST CAYABYAB: Thank you,
7 Mr. Corey.

8 (Thereupon an overhead presentation was
9 presented as follows.)

10 AIR POLLUTION SPECIALIST CAYABYAB: Good morning,
11 Vice Chair Berg, and members of the Board.

12 --o0o--

13 AIR POLLUTION SPECIALIST CAYABYAB: In today's
14 presentation, I will provide you with an update of -- I
15 will provide you with an overview of the integrated mobile
16 source strategy for meeting California's air quality and
17 climate goals.

18 After describing the strategy development
19 process, I will set out the mobile source transformation
20 that will be needed to meet these goals. Finally, I will
21 describe the measure concepts that implement specific
22 elements of the strategy required for State Implementation
23 Plans.

24 --o0o--

25 AIR POLLUTION SPECIALIST CAYABYAB: As you have

1 heard, California will need to meet multiple air quality
2 and climate goals over the next 15 years, including
3 attaining federal air quality standards for ozone in the
4 South Coast and San Joaquin Valley in 2023 and 2031, and
5 fine particulate matter standards in the next decade;
6 reducing the greenhouse emissions 40 percent below 1990
7 levels, and petroleum use by up to 50 percent; minimizing
8 health risk from exposure to toxic air contaminants; and,
9 deriving 50 percent of our electricity from renewable
10 sources, all by 2030.

11 --o0o--

12 AIR POLLUTION SPECIALIST CAYABYAB: Mobile
13 sources, and the fossil fuels that power them, are the
14 largest contributors to the formation of ozone, PM2.5,
15 diesel particulate matter, and greenhouse gas emissions.

16 They're responsible for approximately 80 percent
17 of smog forming nitrogen oxide emissions, 50 percent of
18 greenhouse gas emissions, and over 95 percent of diesel
19 particulate matter emissions.

20 Consequently, significant cuts in pollution for
21 mobile sources will be needed from a combination of
22 cleaner vehicle technologies, fuels and energy sources,
23 and increased efficiency in how people and freight move
24 throughout the State.

25 --o0o--

1 AIR POLLUTION SPECIALIST CAYABYAB: Given the
2 importance of mobile source reductions and the
3 interconnected nature of California's goals, staff took an
4 integrated approach to developing the draft mobile source
5 strategy. This allows us to evaluate how strategies to
6 meet both air quality and climate goals can best
7 complement each other.

8 Using scenarios, staff evaluated the scope and
9 timing of needed advances in technologies, fuels, and
10 energy sources, and the interplay between measures. This
11 helps guide long-term policy developments and maximize
12 program effectiveness.

13 --o0o--

14 AIR POLLUTION SPECIALIST CAYABYAB: The
15 integrated strategy supports multiple planning efforts
16 that are currently underway. While appropriate elements
17 of the draft strategy will be incorporated into individual
18 plans as they come forward, the strategy provides a
19 framework to link these programs in a coordinated manner.

20 SIPs for federal ozone and PM2.5 standards are
21 due to EPA next year. The South Coast Air District
22 expects to release a first draft of its SIP later this
23 year. Initial planning is underway for California's
24 scoping plan update to meet the 2030 greenhouse gas
25 reduction goal. The first draft of the scoping plan

1 update is anticipated in spring 2016 with adoption of the
2 final plan targeted for fall.

3 Building upon ARB's Freight Pathways Document
4 that was released this past spring, development of the
5 multi-agency California Sustainable Freight Action Plan is
6 underway.

7 Finally, the Short-Lived Climate Plan Reduction
8 Strategy was released last month and will be considered by
9 the Board in November. This plan, which addresses
10 methane, fluorinated gases, and black carbon relies on
11 black carbon emission reductions achieved from ARB's
12 mobile source program.

13 --o0o--

14 AIR POLLUTION SPECIALIST CAYABYAB: The estimated
15 benefits of this strategy from today's levels are
16 highlighted in this graphic. The strategy would achieve
17 the 80 percent reduction in smog forming NOx emissions
18 required in the south coast by 2031.

19 Statewide, the strategy would also reduce
20 greenhouse gas emissions from mobile sources by 45 percent
21 and cut the consumption of petroleum based fuels in half
22 by 2030. It will also reduce regional risk through a 45
23 percent reduction in diesel PM emissions in the south
24 coast.

25 --o0o--

1 AIR POLLUTION SPECIALIST CAYABYAB: Development
2 of SIPs is an immediate focus of ARB's planning efforts,
3 with regional plans for ozone and PM2.5 nonattainment
4 areas due in 2016. Meeting the ozone standards in the
5 south coast drives the scope and timing of emission
6 reduction needs. This includes attaining the 80 parts per
7 billion, 8-hour ozone standard in 2023, and the 75 ppb
8 ozone standard in 2031.

9 ARB has been coordinating with South Coast staff
10 to conduct air quality modeling, define emission reduction
11 needs and develop mobile source measures for inclusion in
12 the SIP.

13 Meeting PM2.5 standards in the San Joaquin Valley
14 is also a significant challenge. They attainment strategy
15 for the valley will need to consider the diversity of
16 sources that contribute to PM, as well as the specific
17 time frames for measuring both the annual and 24-hour
18 standards. Air quality modeling efforts are underway, and
19 the further region-specific strategies will be defined
20 through this process.

21 --o0o--

22 AIR POLLUTION SPECIALIST CAYABYAB: As shown in
23 the slide, in addition to achieving an 80 percent
24 reduction of NOx emissions in 2031, the mobile source
25 strategy is designed to achieve 70 percent reduction from

1 today's levels in 2023.

2 Implementation of current mobile source control
3 programs will provide a substantial downpayment,
4 accounting for approximately two-thirds of the needed
5 reductions as shown by the height of the gray bars.

6 New actions in the strategy are designed to
7 provide the remaining reductions necessary for attainment.
8 The height of the blue bars represents an equal share
9 reduction meeting the 70 percent and 80 percent reduction
10 levels respectively in 2023 and 2031.

11 --o0o--

12 AIR POLLUTION SPECIALIST CAYABYAB: With this as
13 background, I'll now move on to describing the technical
14 foundation supporting the strategy developments.

15 --o0o--

16 AIR POLLUTION SPECIALIST CAYABYAB: Development
17 of the integrated strategy relies on three elements.
18 First, the success of current programs provides a
19 blueprint for future policies and approaches.

20 Second, detailed technology assessments evaluate
21 the capabilities of technologies and fuels that are
22 becoming available today, and advancements that are
23 expected to occur in the near future.

24 Third, scenario analysis provides the framework
25 for coordinated air quality and climate assessments by

1 analyzing the types of technologies, fuels, and energy
2 sources that will ultimately need to make up our vehicle
3 and equipment fleets by the end of the next decade.

4 In the next three slides, I will expand on each
5 of these elements.

6 --o0o--

7 AIR POLLUTION SPECIALIST CAYABYAB: The success
8 of ARB's long-standing programs have relied on a portfolio
9 approach, which combines technology forcing fleet average
10 standards for new vehicles along with cleaner burning
11 fuels, durability requirements and inspection programs to
12 ensure in-use performance, sale requirements for advanced
13 technologies, pilot programs, and incentives to accelerate
14 technology deployments.

15 This approach has resulted in significant
16 progress in deploying clean passenger vehicle
17 technologies, while setting the stage to transition to
18 zero emission vehicles. This is a model for next steps in
19 the heavy-duty sector, and developments in light-duty zero
20 emission technologies continue to foster advancements that
21 benefit heavy-duty applications.

22 In all cases, successful strategies rely on
23 actions at the State, local, and, federal level.

24 --o0o--

25 AIR POLLUTION SPECIALIST CAYABYAB: ARB staff, in

1 collaboration with South Coast, is writing a series of
2 technology and fuel assessment reports for heavy-duty
3 applications to understand technology options. In
4 addition, ARB is partnering with EPA and the National
5 Highway Traffic Safety Administration on review of
6 advanced light-duty vehicle technologies as part of the
7 mid-term review, which you will hear an update on later
8 today.

9 The assessments identify technology performance
10 and necessary fuels, as well as an evaluation of market
11 readiness, costs, environmental benefits, and current
12 deployment challenges.

13 The basic conclusion of the technology
14 assessments is that the technologies needed to meet the
15 State's goals are available. Light-duty ZEVs are gaining
16 market share and low NOx heavy-duty natural gas engines in
17 some sizes are being certified. Heavy-duty ZEV
18 technologies are also available in a number of
19 applications, including forklifts and transit buses.

20 Similar improvements in new engine standards are
21 also feasible for large off-road equipment. And Coupled
22 these technology advancements, cleaner renewable fuels can
23 provide significant greenhouse gas and petroleum
24 reductions.

25 --o0o--

1 AIR POLLUTION SPECIALIST CAYABYAB: Staff used
2 the ARB developed vision model, a multi-pollutant scenario
3 planning tool, to examine the scope and timing of
4 technology penetration along with interactions between
5 technologies, fuels, and efficiency improvements.

6 The vision model is built from ARB's official
7 inventories and informed by the results of the technology
8 assessments. Scenario modeling is an iterative process,
9 reflecting different combinations of assumptions that
10 change over time and build from the benefits of the
11 existing programs.

12 The vision model provides unique capability to
13 understand the intertwined nature of different policies.
14 For example, deployment of light-duty battery electric
15 vehicles provides co-benefits across all pollutants,
16 decreases petroleum use, and frees up use of renewable
17 fuels for other sectors.

18 At the same time, the associated increase in
19 electricity demand must be met with greater use of
20 renewable energy generation. Similarly, deployment of
21 cleaner combustion technologies for trucks provides
22 significant NOx reductions but requires use of renewable
23 fuels to achieve the greenhouse gas and petroleum
24 reductions.

25 The vision model provides the ability to look at

1 all of these factors at the same time, including the
2 examples I just described of interactions across car and
3 truck sectors. The vision scenario tool is available on
4 our website to support these efforts.

5 --o0o--

6 AIR POLLUTION SPECIALIST CAYABYAB: So what does
7 the strategic vision for transformation of the mobile
8 sector look like and what will it take to get us there?

9 The next few slides show one possible view.
10 They're not intended to be a specific forecast of the
11 future, but instead one possible mix that meets the
12 State's multiple goals.

13 --o0o--

14 AIR POLLUTION SPECIALIST CAYABYAB: For passenger
15 vehicles, the strategy relies on increased penetration of
16 plug-in hybrid electric vehicles and ZEVs by over 50
17 percent compared to current programs. As a result, the
18 number of PHEVs and ZEVs on the road would need to
19 increase from just over 100,000 today to over four million
20 by 2030. The amount of renewable energy generation would
21 increase from 27 percent to 50 percent and fuel efficiency
22 would double reaching over 50 miles per gallon.

23 --o0o--

24 AIR POLLUTION SPECIALIST CAYABYAB: For
25 heavy-duty vehicles, combustion technology will continue

1 to dominate through 2030. The strategy therefore calls
2 for engine technology that is effectively 90 percent
3 cleaner than today's standards. While these technologies
4 are just now being introduced, by 2030 over one million
5 cleaner low NOx trucks will be on the road. Clean
6 renewable fuels would comprise half the fuels burned
7 compared to only eight percent today, and fuel efficiency
8 would increase by over 30 percent.

9 --o0o--

10 AIR POLLUTION SPECIALIST CAYABYAB: Regional
11 population of 4.3 million ZEVs and PHEVs by 2030 will
12 require that these technologies make up 40 percent of new
13 cars sold in 2013. The electrical grade and hydrogen
14 supply supporting these vehicles will need to include an
15 energy portfolio consisting of 50 percent renewable
16 generation.

17 At the same time, the stringency of fleet-wide
18 emission standards will need to increase to ensure the
19 remaining combustion vehicles are as clean as possible.

20 For trucks, new engine performance standards that
21 are effectively 90 percent cleaner than today's engine
22 standards need to be implemented no later than 2024. Fuel
23 efficiency standards, such as the phase 2 greenhouse gas
24 regulations, will need to ramp up beginning in 2018. And
25 zero emission technologies will need to be introduced in

1 targeted applications that are suited for early adoption
2 to foster broader development in the future.

3 --o0o--

4 AIR POLLUTION SPECIALIST CAYABYAB: Along with
5 the widespread use of cleaner technologies and fuels, the
6 strategy relies on ongoing improvements in community
7 design and efficiency improvements in the freight
8 transport system. These efforts will make our communities
9 and cities more sustainable and enhance the benefits of
10 investments in cleaner technologies by reducing growth in
11 vehicle miles traveled through a range of mobility choices
12 and improved land use.

13 Increased freight system efficiencies are
14 currently being discussed as part of the California
15 Sustainable Freight Action Plan with consideration of new
16 technologies, such as connected vehicles, operational
17 efficiencies, and smart logistics.

18 In the longer term, advanced transportation
19 systems and new approaches to personal mobility, such as
20 shared vehicles and autonomous vehicles, have the
21 potential to be a transformative element of cleaner,
22 safer, and more efficient transportation system.

23 Coordination will be needed amongst agencies to
24 position California to take advantage of these emerging
25 technologies.

1 --o0o--

2 AIR POLLUTION SPECIALIST CAYABYAB: For the
3 off-road sector, similar transformative actions will also
4 be necessary, including requirements for more stringent
5 engine standards, deployment of zero emission
6 technologies, and increased system efficiencies.

7 Although zero emission technologies are now
8 feasible for some applications, in others, the
9 technologies lag behind the on-road sector. Ultimately,
10 success in on-road technologies will transfer to off-road
11 sectors.

12 --o0o--

13 AIR POLLUTION SPECIALIST CAYABYAB: As I
14 described earlier, appropriate elements of this strategy
15 will be incorporated in the various plans for each of the
16 State's environmental goals.

17 The next plans are the SIPs. So I will focus on
18 the mechanisms needed to implement the strategy as part of
19 the State Implementation Plans in the remainder of the
20 presentation.

21 --o0o--

22 AIR POLLUTION SPECIALIST CAYABYAB: The federal
23 Clean Air Act outlines specific requirements for SIP
24 control strategies. Under the Act, SIPs must contain
25 enforceable actions and identified emission reductions to

1 demonstrate attainment of federal air quality standards.
2 ARB staff had been working in close coordination with the
3 South Coast to identify initial measure concepts,
4 implementing agencies, and adoption and implementation
5 time frames.

6 In addition to these measure concepts, South
7 Coast will identify local mechanisms to achieve
8 complementary reductions from mobile sources. The
9 collaboration with the South Coast has been key to
10 developing a detailed set of measure concepts that lay out
11 a complete set of actions necessary to achieve all the
12 needed reductions from mobile sources in both 2023 and
13 2031.

14 The following slides highlight the key SIP
15 measure concepts in each mobile sector.

16 --o0o--

17 AIR POLLUTION SPECIALIST CAYABYAB: For passenger
18 vehicles, staff will evaluate policy mechanisms to ensure
19 the ZEV market continues to expand in conjunction with
20 increasing the stringency of fleet wide emission
21 standards. This will incorporate updates to the Advanced
22 Clean Cars likely compliance scenario as part of the
23 mid-term review.

24 In addition, ARB and the Bureau of Automotive
25 Repair would continue ongoing evaluations of the Smog

1 Check program to ensure that vehicles continue to operate
2 as cleanly as possible. Incentives will also be essential
3 to ensure early deployment of the cleanest technologies
4 available.

5 As you heard earlier, the Clean Vehicle Rebate
6 Program, along with the Enhanced Fleet Modernization
7 Program are mechanisms to increase the penetration of
8 cleaner vehicles in the fleet.

9 --o0o--

10 AIR POLLUTION SPECIALIST CAYABYAB: For trucks,
11 staff is proposing a low NOx standard coupled with in-use
12 performance requirements to reduce engine emissions by 90
13 percent compared to today's standards. While ARB will
14 move forward on a California only standard, out-of-state
15 trucks comprise over 30 percent of truck activity in the
16 South Coast. Thus, the need for federal action in
17 parallel with California efforts is essential.

18 ARB staff is preparing a petition to request a
19 new federal standard implemented no later than 2024.
20 Early implementation is needed to deploy the technology
21 through natural turnover. Additional measure concepts
22 would establish requirements to introduce ZEVs in targeted
23 applications where the technology is now becoming
24 available. This includes transit buses, airport shuttle
25 buses, and last mile delivery.

1 As with passenger cars, incentives will be
2 critical to accelerating the penetration of cleaner
3 technology in the heavy-duty sector. Additional funding
4 beyond that currently authorized will be required to
5 accomplish the scale of transformation needed to meet air
6 quality standards.

7 --o0o--

8 AIR POLLUTION SPECIALIST CAYABYAB: For off-road
9 equipment zero-emission technologies are becoming
10 increasingly available in certain applications. Thus,
11 measured concepts will establish requirements for use of
12 ZEV technologies for forklifts, transport refrigeration
13 units, and airport ground support equipment. An
14 additional measure would develop new engine standards and
15 increase the penetration of electric lawn and garden
16 equipment.

17 Finally, as with other categories, funding will
18 continue to be essential to incentivize early deployment
19 of these cleaner technologies.

20 --o0o--

21 AIR POLLUTION SPECIALIST CAYABYAB: As with other
22 sectors, continued development of more stringent engine
23 standards will be necessary for ships, locomotive, and
24 aircraft, as they represent an increasing share of
25 emissions in the South Coast. Because these sources are

1 primarily regulated under federal and international
2 regulatory authority, actions by these agencies are
3 critical, and measure concepts include petitions to EPA to
4 adopt more stringent performance standards for
5 locomotives, as well as provide ARB with authority to
6 regulate non-new locomotives.

7 ARB would also advocate with international
8 partners for new international maritime organization
9 standards and efficiency targets for ocean going vessels.

10 --o0o--

11 AIR POLLUTION SPECIALIST CAYABYAB: In addition
12 to the concepts that focus on deployment of advanced
13 technologies, measures that account for the benefits of
14 greater efficiencies and require cleaner fuels are further
15 elements of the SIP strategy. ARB staff will assess
16 technology options for increased work-site efficiencies,
17 and advanced technologies, such as connected vehicles,
18 automation, and intelligent transportation systems.

19 Finally, the proposed fuel measure would
20 establish standards for low emission diesel fuels and
21 require them to comprise a steadily increasing percent of
22 the diesel pool.

23 --o0o--

24 AIR POLLUTION SPECIALIST CAYABYAB: Meeting the
25 2023 attainment target in the South Coast is an important

1 public health milestone. Implementation of current
2 programs will provide over 60 percent of the needed
3 reductions. Building from these efforts, measure concepts
4 for each sector outline a pathway for further deployment
5 of cleaner technologies to achieve the remaining
6 reductions.

7 The 2023 time frame is short, which will require
8 focus on incentive funding to achieve early deployment of
9 these technologies. Over the next few months, ARB will be
10 working with South Coast to identify the needed resources
11 and potential funding strategies. These efforts will need
12 to ensure that investments for 2023 are supportive of
13 technologies for 2031 attainment.

14 --o0o--

15 AIR POLLUTION SPECIALIST CAYABYAB: Implementing
16 the strategy is predicated on early and sustained action.
17 Early regulatory action will help drive the introduction
18 of cleaner technologies and fuels and take maximum
19 advantage of natural turnover. At the same time, as noted
20 a moment ago, identification of funding needs and
21 mechanisms will be an important next step, as well as
22 consideration of the economics of individual sectors.
23 This will require partnerships across all level of
24 governments and with the private sector to coordinate and
25 align investments to maximize effectiveness.

1 Multi-state and international alliances can also
2 help build market share for advanced technologies.
3 Efforts to continue to increase consumer acceptance of ZEV
4 technologies and address market barriers will be necessary
5 along with establishing charging and refueling
6 infrastructure.

7 Finally, we will need to ensure the availability
8 of renewable fuel and energy sources to power the cleaner
9 technologies that will make up future fleets.

10 --o0o--

11 AIR POLLUTION SPECIALIST CAYABYAB: Release of
12 the draft mobile source strategy last month was the start
13 of the public discussion on the strategy. In addition to
14 today's Board meeting, staff held a public workshop in
15 Sacramento last week. Both the workshop and the Board
16 meeting provide the public an opportunity to comment on
17 the strategy and propose measure concepts.

18 ARB staff will continue to work with the South
19 Coast and San Joaquin Valley to refine the measure
20 concepts. Development of detailed measures for inclusion
21 in the SIP will include identification of specific
22 implementation mechanisms, review of inventory growth
23 assumptions and assessment of funding needs.

24 The environmental and economic assessments will
25 be completed in parallel with the development of regional

1 SIPs. And workshops on the mobile source strategy for the
2 SIP will be held in conjunction with workshops for the
3 SIPs themselves.

4 --o0o--

5 AIR POLLUTION SPECIALIST CAYABYAB: These
6 regional SIPs will be considered by the Board next spring
7 and summer along with final SIP measures. The South Coast
8 anticipates releasing its draft SIP at the end of this
9 year followed by release of SIPs for the San Joaquin
10 Valley early next year. Ozone SIPs are due to EPA in July
11 2016 and PM2.5 SIPs in October.

12 In addition to work on the SIP, the mobile source
13 strategy will also be integrated into other planning
14 efforts. Subsequent work by ARB and other State agencies
15 will refine and expand on the needed actions as part of
16 these planning efforts, including the scoping plan update
17 and California's Sustainable Freight Action Plan.

18 This concludes the presentation today. Staff
19 will be happy to answer any questions from the Board.

20 VICE CHAIR BERG: Thank you very much for that
21 great presentation. So we do have people signed up here,
22 as well as in Sacramento. Before we go to testimony, I'd
23 like to turn to my fellow Board members to see if they
24 have any comments and also to Chair Nichols to see if she
25 has any opening comments on this item.

1 CHAIR NICHOLS: Madam Chair, I would like to just
2 perhaps add a little bit of framing to this discussion.
3 First of all, it's been a terrific process so far
4 developing this mobile source strategy and has included
5 many different groups in the discussion, as well as the
6 local districts that are involved here with a need to
7 update the SIP.

8 Clearly, once again, we are presented with the
9 necessity, as well as the opportunity, to do something
10 beyond what we've ever challenged ourselves to do before
11 in order to address our air quality needs, as well as our
12 desire and the legal obligations to meet both federal air
13 standards and our commitments and standards and
14 requirements for greenhouse gases.

15 I think it's hard sometimes to keep all the
16 different moving pieces together, because there are so
17 many parts to this. And I think the mobile source
18 strategy is a useful vehicle for allowing people to see
19 how the various different elements fit together, but there
20 may be things that we're missing or there may be new kind
21 of cross-cutting ideas that we haven't factored into this
22 plan.

23 And so I do think it's important that it be
24 looked at as a document that is open to revision based on
25 both new information from a technical perspective, and

1 also different ways of framing some of these questions
2 that may take us beyond what ARB has ever done before. So
3 I'm just looking forward to the discussion.

4 Thank you.

5 VICE CHAIR BERG: And thank you for that framing.
6 This is cutting edge in all ways. And it is a living
7 document. And participation from all stakeholders and
8 being open to the fact that today none of us have a
9 crystal ball, and we aren't able to definitively say what
10 we know to be a fact for 2030. And so but without us
11 being brave and moving forward and collectively looking at
12 these strategies, we leave people to guess as to where
13 we're going.

14 So we do walk a very fine line. And I really
15 appreciate Chair Nichols framing it up for us as we get
16 ready for the discussion.

17 So my fellow Board members, if there's any
18 clarifying questions, then we could proceed with that.
19 Otherwise, why don't we proceed to testimony and then
20 we'll come back for discussion, is that good?

21 Great. Thank you, Lori.

22 BARCU MANAGER ANDREONI: Okay. Barry Wallerstein
23 and Joe Lyou.

24 DR. WALLERSTEIN: Good morning. It's a pleasure
25 to be here. I'm Dr. Barry Wallerstein. I'm the Executive

1 Officer of the South Coast Air Quality Management
2 District. And I want to start by acknowledging the
3 efforts of your staff, Richard, Kurt, and Alberto and the
4 rest of the staff.

5 This is absolutely, without question, the best
6 coordination we've had on a SIP in the last three decades.
7 And I've been working on them for three decades, so I know
8 what I'm talking about in that regard.

9 The staff has laid out all the kind of key points
10 from the technical side. We have a series of attainment
11 dates. Several of them near term, 2019, 2021, 2023. So
12 time truly is of the essence.

13 As highlighted in your staff's presentation,
14 funding is absolutely critical relative to those near-term
15 dates. We have to be able to phase out more of the legacy
16 fleets and move in more of the advanced technologies. And
17 as I've mentioned to your Board on previous occasions, you
18 simply do not get back enough of the GGRF funds for your
19 agency to get, not only reductions in greenhouse gases,
20 but also the co-benefits for local air pollution problems,
21 such as particulates, ozone, or air toxics.

22 For this plan to be successful, we are going to
23 have to work together with a large number of other
24 stakeholders to inform the legislature about the need for
25 that funding to go to these purposes. And I think

1 sometimes we are actually a victim of our success. People
2 can see the mountains on more days. Their lungs don't
3 hurt as much on smoggy days, and we tend to lose sight of
4 the fact that your staff, for example, estimates that in
5 our air basin over 4,000 individuals die prematurely each
6 year due to current air pollution levels. And, of course,
7 the thousands of other health endpoints that our neighbors
8 and friends and communities suffer. So it's important
9 that we put together a funding plan and go to the
10 legislature with that.

11 It's also very important, as your staff was
12 highlighting, the federal sources that are under the sole
13 jurisdiction of the federal government, and where the
14 federal government has most influence on the international
15 sources.

16 A long, long time ago, when I was on the CARB
17 staff in 1983, I was privileged to help write what I think
18 at the time was the first CARB mobile source control plan.
19 I just asked the director of EPA's mobile source program
20 whether they had a mobile source control plan? And the
21 answer was no.

22 So we would ask CARB to join us in really
23 requesting firmly that U.S. EPA put together a strategic
24 plan for the sources under its jurisdiction. And as
25 highlighted by your staff, we also need EPA to move

1 forward on a 0.02 NOx standard for heavy-duty trucks. We
2 need that at the earliest possible date from the federal
3 government as well as here in the state.

4 So I'd like to just conclude by once again
5 thanking Richard and the staff for all the work that
6 they've put in. We have a few things to iron out between
7 us, but I'm sure we'll get there. And I'm hopeful for the
8 2016 SIP.

9 So thank you.

10 VICE CHAIR BERG: Thank you, Dr. Wallerstein.
11 And thank you very much for the use of this fabulous
12 facility and your great staff. I know I can speak on
13 behalf of ARB staff, we really, really appreciate this
14 partnership.

15 Hi, Joe.

16 MR. LYOU: Hi. Joe Lyou with the Coalition for
17 Clean Air. I'm also one of Barry's 13 bosses, be he
18 covered all the bases for South Coast AQMD, so I don't
19 need to repeat all of that. He did a very good job.

20 I would really like to compliment the Air
21 Resources Board on stepping up on this measure and really
22 showing the leadership and the responsibility and the
23 commitment to solving the problems that we face with
24 mobile sources. You need to be complimented for other
25 reasons too, including coming up with an integrated plan

1 that takes a look at all these diverse needs and
2 responsibilities, not only integrated internally within
3 your own planning process, but on an interagency
4 standpoint to and working with South Coast staff and
5 working to figure out how this fits in with, for example,
6 the Governor's Executive Order on heavy-duty freight and
7 the action plan.

8 These scenarios that you've proposed show again
9 that, you know, our criteria pollutant priorities are
10 pushing us faster and in a more aggressive manner than
11 even our greenhouse gas goals and the requirements that
12 are, of course, very difficult to achieve in and of
13 themselves. But this message that we really need to
14 attain these standards for the national ambient air
15 quality standards in a timely and very quick fashion needs
16 to be pushed and emphasized again and again, so that
17 everyone understands that message.

18 I would ask that you take a look at this document
19 and this commitment in a way that would prioritize the
20 roll-out of these mobile source emission reductions in our
21 most heavily burdened communities. One way to do that, of
22 course, is to focus on the heavy-duty trucks and emission
23 reductions that can happen, also the off-road emission
24 reductions. But also, you can increase the zero emission
25 miles for that last mile delivery, which you're proposing,

1 which is a great measure. But you could also focus that
2 in the most heavily burdened communities initially too.

3 With regard to the ultra low NOx standard, it's
4 great that you're proposing to move forward with that. We
5 know that you are considering petitioning U.S. EPA on that
6 item. I would like to express our support for that and
7 the offer to assist in any way, shape, or form possible to
8 get EPA to work on that. We don't get to attainment
9 without EPA getting trucks from a federal level.

10 I do have a question, I think, that has to do
11 with the facility cap measure that was in the sustainable
12 freight pathways report, because it's not incorporated
13 into this in any way, shape, or form. Although I would
14 like to see that it is compatible, and it is part of the
15 plan process. So I know that you have data needs to be
16 met when it comes to facility cap issues with regard to
17 port and freight sources, but I was wondering how this
18 mobile source mitigation measure will fit in with that
19 proposed facility cap concept.

20 And the last thing, I mean, just please urge your
21 staff to carry on with this. They're doing a wonderful
22 job. Thank you.

23 BARCU MANAGER ANDREONI: Corie Goldman and Julia
24 Rege.

25 MS. GOLDMAN: Good morning. I'm Corie Goldman

1 with American Lung Association in California. The
2 American Lung Association in California appreciates the
3 solid analysis given throughout the document. We can
4 clearly see the scope of the challenge we face to cut the
5 harm cause by -- thank you -- by our transportation sector
6 and reliance on fossil fuels.

7 Transportation emissions place significant public
8 health burdens on California residents, and especially our
9 children and other vulnerable communities. Pollution from
10 our cars, trucks, buses, and other mobile sources
11 contribute to delayed lung development in children, asthma
12 attacks, lost work and school days, hospitalizations, and
13 early deaths.

14 Fortunately, we believe this document can move us
15 on a pathway to a clean air future. We have a few
16 comments on the document for you today and will continue
17 to work with you and the staff going forward.

18 First, we appreciate the focus on increasing zero
19 emission technologies to reduce NOx emissions greenhouse
20 gases, and petroleum dependency. We support planning now
21 to expand zero emission technologies across the passenger
22 fleet freight systems and off-road applications.
23 Electrification is key to our clean air goals and should
24 remain the focus of our -- ARB's planning efforts.

25 Along with new engine technologies to clean our

1 air, we know we must also maintain a focus on reducing the
2 miles we drive, expand healthier mix of fuel choices, and
3 achieve our renewable energy goals.

4 While ARB is driving the discussion, we know that
5 all sectors of the government need to mobilize to ensure a
6 clean air future. ARB State agency partners and the
7 legislature need to coordinate to move the vision forward
8 with strong policies, investments in electric drive
9 technologies.

10 Local elected officials should be leading their
11 communities to be more sustainable, walkable, transit
12 friendly, and ZEV ready. The federal government needs to
13 support California's effort with a national low NOx
14 standard for trucks and other policies that move us
15 forward to our clean air goals.

16 The Lung Association is ready to partner with you
17 to make this happen and believe that our outreach is a key
18 to this effort. We look forward to working with you as
19 this discussions moves forward. Thank you for the
20 opportunity to speak today.

21 MS. REGE: Hi. Good morning again. Julia Rege
22 with Global Automakers. So I actually want to start today
23 by outlining three sort of overall themes that relate to
24 this document as well as some of our other comments today.

25 First, that Global Automakers and our members

1 are invested in the market and in the long-term goals of
2 improving greenhouse gases, fuel economy and air quality.

3 Second, that the regulations that are already in
4 place through 2025 under the Advanced Clean Car Program
5 are challenging.

6 And third, targets alone don't create markets.
7 Flexibility in the regulations and market enablers are
8 necessary as we strive for these near- and long-term
9 goals.

10 In regards to the draft mobile source strategy
11 document, we'd like to thank staff for all of the work --
12 hard work they've done on it. We found the document to be
13 helpful in understanding the impact of the current
14 regulations we're complying with, as well as the potential
15 for future rule-makings. We really appreciate ARB's
16 effort to involve automakers in the discussion and the
17 long-term planning process. And we believe the document
18 shows the future is no less challenging for today as -- or
19 compared to today as well, and that ongoing flexibility
20 and many technology options, including gasoline, hybrids,
21 and zero emission vehicles will be a necessary part of the
22 future going forward.

23 While we understand this document is only a
24 draft, we do have two points we want to highlight. And
25 the first is we believe it's really important to note it's

1 early in the process for setting post-2025 regulations.
2 And this document is not intended to do that, but we do
3 want to just caution that we have a mid-term review coming
4 up in the next year that is going to look at the
5 feasibility of 2025, and that this document shouldn't
6 inadvertently make any assumptions about the outcomes of
7 the mid-term review.

8 And then the second is that the modeling
9 represents some potential scenarios, but it doesn't
10 represent all scenarios. So, at this time, the work
11 doesn't consider feasibility and it's not a regulatory
12 road map, but instead the modeling exercise is based on a
13 long-term goal and then looking back at what those goals
14 are that are needed to reach it in the long term.

15 So we don't want the standard -- the document to
16 be misinterpreted as standards or what vehicle volumes may
17 be in the long term. There's a lot of additional work
18 that has to go into the regulatory process for looking at
19 that.

20 Just, for example, the document shows a jump from
21 an 18 percent ZEV market in 2025 to 40 percent in 2030.
22 And again, this is back calculated from a long-term goal,
23 and it hasn't yet looked at feasibility as part of that
24 process.

25 So the document notes that regulations would --

1 you know, regulatory processes would begin in 2020. And
2 so we're certainly committed to working through that
3 process. And we note that feasibility costs, market
4 acceptance, and all of those other factors that are really
5 important in setting standards are going to be an
6 important part of that discussion in 2020.

7 We understand this document is going to evolve
8 over time, and that our ongoing input and collaboration is
9 going to be necessary to making sure the document is as
10 good as it can be. And we look forward to working with
11 the agency.

12 Thank you.

13 BARCU MANAGER ANDREONI: George Minter and
14 Jerilyn Lopez Mendoza.

15 MR. MINTER: Thank you. Madam Vice Chair and
16 Madam Chair, members of the Board, my name is George
17 Minter. I'm VP at SoCalGas. And we'd really like to
18 thank the agency, the staff, as well as the regional
19 agencies that we've also been working with. And we really
20 appreciate the focus on public health on addressing air
21 pollution, and specifically the challenges of NOx
22 reduction here in Southern California, and not just L.A.,
23 but also the Central Valley, that we see reflected in the
24 mobile source strategy document.

25 At SoCalGas we focus on emissions. We see that

1 as our goal. We see those goals embodied in law. And
2 whether it's reducing ozone or particulate matter for
3 public health or whether it's reducing GHGs for global
4 health, that's our focus. Nobody is asking about a
5 compromise or a change in those goals, but we do think
6 that CARB should take advantage of the best that
7 innovation can deliver. And it shouldn't limit options,
8 but instead it really should welcome the options and the
9 technology advancement that can occur and that can move us
10 to the goals -- to the emission goals.

11 We note that the CARB mobile source strategy
12 that's focused on NOx control is kind of divided in two
13 periods, now to 2030, and then from 2031 to 2050. For the
14 largest NOx contributor, the heavy-duty sector, CARB
15 relies on a low NOx engine strategy in the first period,
16 but then that strategy pivots to a zero emission tailpipe
17 standard for the second.

18 We believe that the strategy that relies on a
19 zero tailpipe vehicle that's expected to be implemented a
20 decade before the technology assessment by that same
21 agency, that that's perhaps a significant technological
22 risk, and we think an economic risk. We think that the
23 time frame that's being proposed here really undercuts the
24 investment return that we need to pursue the low carbon
25 and the low NOx half way in the first phase. And then

1 that would jeopardize the entire low NOx strategy overall.

2 We see the same kind of problem in the
3 alternative clean transit rule. A mandate for an all
4 electronic or a fuel cell bus by 2040 really means that no
5 0.02 or near zero natural gas engine, for example, running
6 on renewable natural gas that's cleaner than an electric
7 bus would actually be able to be purchased after 2028, if
8 you account for the capital life of the vehicle.

9 We think that this then frustrates the
10 development of renewable natural gas, and its deployment
11 in transportation. It also frustrates the return needed
12 from the investment in the 0.02 of engine.

13 Essentially, it means that the 0.02 engine that's
14 already developed and certified by Cummins for the transit
15 sector and the one that we expect in the next year for the
16 heavy-duty truck sector will become a stranded investment.
17 We think the more prudent plan, one that has lower risk,
18 would be to consider an addition to an electrification
19 pathway, a low carbon gas pathway. A pathway that extends
20 the low carbon strategy -- excuse me, the low NOx strategy
21 from the first period into the second period, moving
22 natural gas into transportation immediately reduces NOx,
23 creates market pool for the development of renewable
24 natural gas that displaces fossil gas, that then achieves
25 the same or even a lower carbon intensity than

1 electricity.

2 VICE CHAIR BERG: And, Mr. Minter, could you go
3 ahead and wrap-up, because your --

4 MR. MINTER: In sum, I think it's really
5 important that we focus on this low carbon strategy, that
6 a low carbon pathway join the electrification pathway, so
7 that we are able to provide a pathway for NOx reductions
8 through 2023 and continue those NOx reductions through
9 2032, as well as achieve the GHG reductions we need in
10 2030, and also in 2050.

11 Thank you.

12 VICE CHAIR BERG: Thank you.

13 MS. MENDOZA: Good morning, Chair Nichols, Vice
14 Chair Berg, members of the Board.

15 (Timer buzzer sounded.)

16 MS. MENDOZA: I just got started.

17 (Laughter.)

18 MS. MENDOZA: That's not fair.

19 VICE CHAIR BERG: That's what happens when your
20 colleague goes over, you know.

21 (Laughter.)

22 VICE CHAIR BERG: It's a deduction thing.

23 (Laughter.)

24 MS. MENDOZA: Oh, wow. I'm going to have to
25 speak really fast.

1 Thank you. He's Got Duncan Donuts coffee. Lucky
2 guy.

3 So Board members, Executive Officer, and staff, I
4 want to welcome you to Southern California for those of
5 you who are visiting. It's a beautiful day to be here.

6 I have two main points I want to share with you
7 regarding the mobile source strategy that's under
8 discussion this morning.

9 Firstly, the California Office of the
10 Environmental Health Hazard Assessment, or OEHHA, issued
11 a revised guidance for calculating cancer risk in March of
12 2015. Cancer risk estimates for residential exposures
13 increase and higher cancer risk estimates affect public
14 noticing, CEQA significant determinations, permitting, et
15 cetera.

16 In the freight sector, switching from natural
17 gas -- switching to natural gas provides opportunity to
18 lower cancer risk from non-road sources. For example, in
19 analysis that we completed using the new OEHHA cancer risk
20 calculations, we found a hypothetical locomotive example,
21 that natural gas substituted for diesel results in 107
22 times lower cancer risk, and in a hypothetical ocean-going
23 vessel example, natural gas substituted for diesel
24 resulted in 314 times lower cancer risk.

25 We hope you take these findings into

1 consideration when evaluating the off-road reduction
2 measures for locomotives and ocean-going vessels located
3 at the pages 79, 81, and 83 of your draft document.

4 I also want to quickly address the Advanced Clean
5 Transit, or ACT, proposal, which is also included as part
6 of your draft mobile source strategy, details at page 66.

7 The objective of ACT is to require 100 percent
8 purchase of zero emission tailpipe transit buses by 2030,
9 and full zero emission transit fleets by 2040. We've
10 submitted comments where we have expressed concern about
11 the lack of cost estimates for the capital to purchase the
12 buses, as well as the infrastructure to fuel and charge
13 those buses.

14 But we're also concerned that such a strong
15 technology mandate for the transit because sector is a
16 source of only two percent of statewide NOx emissions from
17 mobile sources. And it is sector that contributes less
18 than one percent of greenhouse gases statewide for mobile
19 sources. So we would like the staff and the Board to
20 provide us with a rigorous economic and cost benefit
21 analysis to this particular mobile source strategy to
22 determine if it indeed is the correct place to what be --
23 to invest what may be millions or even billions of dollars
24 for such a small reduction of NOx and GHG emissions.

25 I have brought copies of our written ACT

1 comments, which we previously submitted, but this is to
2 share with the Board and the executive team who may not
3 have seen them. And I thank you very much for your time.

4 BARCU MANAGER ANDREONI: Todd Campbell, David
5 Reichmuth.

6 MR. CAMPBELL: Good morning, Madam Vice Chair and
7 Madam Chair in Sacramento. My name is Todd Campbell
8 representing Clean Energy. And thank you so much for the
9 opportunity to testify on this really important matter.

10 We strongly support staff's efforts to develop a
11 mobile source strategy. We also strongly agree that
12 significant NOx, PM2.5, and the greenhouse gas emission
13 reductions are required to meet federal and State air
14 quality goals.

15 We also strongly support the Air Resources
16 Board's call to action to accelerate low NOx,
17 electrification, and renewable fuel strategies that meet
18 these daunting challenges.

19 We do recommend that the following modifications
20 be put forward for your consideration. First, and I think
21 the Chair mentioned it, and was right -- was very spot on
22 in her comments, the report's framing, or narrative, is
23 very important. We would ask that staff focus on the
24 goals or milestones to achieve clean air, and allow
25 technologies that can achieve these goals work -- to work

1 together. This would support business confidence to
2 further develop technologies, such as the Cummins Westport
3 engine that was just mentioned, which is about 50 percent
4 cleaner than the current California grid mix, when you
5 look at NOx emissions.

6 That's a tremendous technology advancement, and
7 that's something that this plan should acknowledge and
8 accelerate. It would also encourage further development
9 of the renewable fuels, like renewable natural gas that
10 currently makes up 50 percent of all the fuels being put
11 into natural gas vehicles today under the Low Carbon Fuel
12 Standard.

13 We also believe that the vision document or the
14 vision model that's being used should consider cost
15 effectiveness. Extremely important, given the penetration
16 or deep penetration expectations of the plan, but also
17 look at historical adoption rates of advanced
18 technologies, not just adoption of new fleets, but
19 adoption of advanced technologies. I think it's going to
20 be really important for us to get this right, especially
21 with 2023 and 2031 looming over our shoulders.

22 I also recommend that we have significant
23 investments -- or significant investments will be required
24 to make this transformation, and it is a significant
25 transformation.

1 The focus -- more focus should be placed on the
2 heavy-duty sector to ensure deep penetration of low NOx
3 technologies, as well as electrification technologies as
4 they develop. But I think most importantly, this sector
5 is the largest source of NOx for both the South Coast and
6 San Joaquin Valley, and yet they only make up a fraction
7 of the vehicles on the road. They are also a significant
8 source of diesel particulate matter, as my colleagues from
9 SoCalGas, Jerilyn Mendoza, mentioned the enormous
10 carcinogenic risk associated with these engines.

11 Fourth, we also support the certification for
12 innovation technologies to apply to all advanced
13 technologies, low NOx, electrification, et cetera.

14 And then fifth, heavy-duty mobile source measures
15 being recommended within the report that impact transit,
16 airport shuttles, and last mile fleets should embrace all
17 advanced technology strategies to ensure timely compliance
18 with federal and State air quality rules.

19 The draft mobile source strategy states that it
20 will regulate low NOx technologies, but incentivize zero
21 emission vehicle technologies. And I think to conclude
22 that we should embrace all technologies to get us to where
23 we need to go.

24 Thank you.

25 VICE CHAIR BERG: Thank you.

1 DR. REICHMUTH: Hello again. I'm David Reichmuth
2 speaking on behalf of the Union of Concerned Scientists.

3 First, I want to thank the ARB and the staff for
4 developing the comprehensive plan that builds upon the
5 past successes and aims to meet the combination of targets
6 with air quality challenges, climate targets, and oil
7 savings targets that the State has committed to achieving.

8 Cleaner combustion technologies, electrification,
9 lower carbon fuels, and strategies to reduce VMT are all
10 essential components of this plan. And the combination of
11 incentives and regulations and infrastructure development
12 will be needed to be successful.

13 As the plan development moves forward, there are
14 several areas of the plan where greater clarification is
15 needed and additional strategies should be considered.
16 First, large portions of the expected emission reductions
17 come from strategies characterized as further development
18 of cleaner technologies for each source category.

19 These strategies are the least detailed, and rely
20 significantly on identifying new sources of incentive
21 funding. We urge the Board to further detail these
22 approaches and examine the funding needs and sources to
23 achieve the desired emission reductions. We also strongly
24 support the efforts to develop and deploy heavy-duty
25 electrification technologies as part of a comprehensive

1 strategy, and support the inclusion of several categories
2 of vehicles, including transit and last mile delivery
3 trucks.

4 We also urge the Board to identify additional
5 heavy-duty categories for deploying zero tailpipe emission
6 technologies in the 2020 to 2030 time frame. For example,
7 drayage trucks are an emerging application for electric
8 drive. And development is currently being supported
9 through ARB's funding programs.

10 Providing a clear indication of the intent to
11 move towards electrification in this category, along with
12 identifying metrics and milestones for moving forward with
13 regulatory action would provide more certainty for
14 technology developers and fleet owners and encourage
15 greater investment.

16 ARB correctly notes the importance of
17 electrification to our long-term transportation emissions
18 and petroleum reduction goals and focuses on measures to
19 develop and deploy various vehicles and equipment. Given
20 the critical nature of deploying infrastructure alongside
21 electric vehicles, we encourage the plan to explicitly
22 capture both the vehicle and infrastructure measures
23 necessary to achieve the expected emissions reductions.

24 Finally, we note that the baseline scenario
25 anticipates over 15 percent ZEV sales in the light-duty

1 auto sector by 2025, and the cleaner technologies in fuel
2 scenario increases the sales to 40 percent by 2030. Due
3 in part to credit oversupply and bank credits, the ZEV
4 regulations will not ensure that those targets will be
5 met. The current ZEV regulation would need to be
6 strengthened to provide some certainty that the ZEV
7 vehicles will be available in the numbers and diversity of
8 models needed to meet the plan's sales goals.

9 Thank you.

10 BARCU MANAGER ANDREONI: David Puzey and David
11 Rothbart.

12 MR. PUZEY: Good morning again, Madam Chair and
13 the Board. David Puzey again on behalf of NRDC.

14 We believe the draft provides a well crafted
15 basis for a comprehensive strategy to meet the State's air
16 quality climate goals. And thank you CARB for continued
17 strong leadership. It's also been real helpful to be able
18 to examine the data from the new vision model.

19 NRDC believes this is a great start towards
20 meeting the State's 2020 greenhouse gas emission targets.
21 But in order to continue the progress and meet attainment
22 goals, we do indeed need to prepare to extend a strong set
23 of programs around clean cars, sustainable freight, and
24 low carbon fuels beyond the 2020 and '25 time frames.

25 As my colleagues Simon Mui will speak on the next

1 agenda item, we also agree about the central importance of
2 accelerating the passenger vehicle fleets transition to
3 zero emission technology and expanding the charging
4 infrastructure.

5 The ZEV program needs to be shored up to deliver
6 the vehicle targets outlined in the strategy. But with
7 the right incentives and standards, we are confident that
8 they can be achieved.

9 On sustainable freight, NRDC supports the low NOx
10 engine efforts to clean up the existing fleet together
11 with the cited transition strategy for early adoption of
12 medium-, heavy-duty and off-road electrification.

13 We encourage CARB to continue pushing EPA to move
14 further and faster on the low NOx freight strategies to
15 capture out-of-state vehicles, as well as other sources,
16 like aviation and locomotives. NRDC agrees we do need an
17 all-hands-on-deck approach across the agencies, air
18 districts, as well as federal and international partners.
19 And we will certainly support efforts to collaborate
20 behind meeting the State goals.

21 The last two points, we recommend that CARB put a
22 greater emphasis on the SB 375 toolkit to further reduce
23 the need to drive. This was one area of the draft
24 strategy that could have been further strengthened, and
25 since early adoption is also important in areas such as

1 land-use planning.

2 NRDC hopes that the timeline proposed in the
3 draft for implementing VMT reductions can be expedited.
4 Also, in the spirit of focusing on real-world emissions
5 performance, we encourage CARB to use this process to
6 further examine the impact of the dirty emissions from
7 unregistered vehicles. We appreciate the open discussion
8 and the great responsiveness we've had from staff thus
9 far, and look forward to working with you further to
10 develop the draft strategy.

11 Thank you.

12 MR. ROTHBART: Madam Chair, Board Members, good
13 morning. I'm David Rothbart. I'm with the Los Angeles
14 County Sanitation Districts. We support the draft mobile
15 source strategy. As you're aware the South Coast Air
16 Basin is in extreme nonattainment for ozone. And mobile
17 sources are responsible for the vast majority of emissions
18 which form ground-level ozone.

19 It's important to note that South Coast AQMD has
20 done an excellent job in controlling stationary sources,
21 and there is no remaining low-hanging fruit available to
22 reduce emissions from stationary sources. As a result,
23 mobile sources must contribute their fair share to help us
24 achieve clean air.

25 However, the mobile source strategy will be

1 costly, so it is very important that adequate funding be
2 provided to make this vision for clean air a reality. For
3 example, we recommend that cap-and-trade funds be directed
4 towards the implementation of cost effective emission
5 control strategies.

6 Thank you very much.

7 BARCU MANAGER ANDREONI: Chris Shimoda, Steven
8 Douglas, and then the last one is Sharon Cooney.

9 MR. SHIMODA: Good morning, Chair Berg and Chair
10 Nichols in Sacramento. Chris Shimoda, California Trucking
11 Association. We'd first like to thank staff for the hard
12 work that's gone into this discussion draft. As you know,
13 this is really just the beginning of a process. And so
14 keeping that in mind, we'd just like to offer some brief
15 high level comments to inform the work to come.

16 So first, we'd like to stress the importance of
17 harmonization. We'd urge you to continue your work with
18 the federal EPA, as well as local air districts like the
19 South Coast to ensure that mobile sources are not faced
20 with a patchwork of different State, federal, and local
21 requirements.

22 And second, as staff noted in the written report,
23 over 77 percent of the needed reductions for 2030 for
24 heavy-duty sources come from existing measures. And of
25 all the folks in attendance here today, I don't think I

1 need to tell the Board what was asked of truckers to get
2 those reductions.

3 Natural turnover to lower NOx engines, plus
4 incentives that we already have secured, will get us up to
5 nearly 93 percent of the needed reductions. And so
6 further deployment to get to that last seven percent,
7 which will require both more low NOx engines, as well as
8 selected introduction of zero emission technology is going
9 to require new incentive dollars, which we have not yet
10 identified.

11 And so we will commit to working both with your
12 staff and other stakeholders to both identify and secure
13 those funds moving forward. And we look forward to the
14 discussion.

15 Thank you.

16 MR. DOUGLAS: Good morning, Vice Chair Berg, and
17 Chair Nichols. I'm Steve Douglas with the Alliance of
18 Automobile Manufacturers. And we appreciate, like
19 everyone else, staff's work on this and their willingness
20 to be inclusive and include all the different
21 stakeholders, including the automakers.

22 We intend to work with the staff going forward on
23 this as they revise and finalize the mobile source
24 strategy document.

25 For my part, I'd like to I guess kind of frame it

1 and just point out that the mobile source strategy
2 document is important. However, it's not a roadmap. It's
3 not a starting point. It's kind of a mathematical
4 exercise, or what I'd consider a top-down analysis, where
5 you start with the answer, and you work your way
6 backwards.

7 ARB sets regulations. They set the standards
8 based on a bottom-up analysis, where you start with where
9 we are today or at some point in the very near future.
10 And then you add regulations, you build up regulations
11 based on what's technically feasible, what's cost
12 effective, considering the likely technological advances,
13 the cost reductions, the market acceptance, et cetera.

14 This bottom-up approach, this is the reason that
15 ARB has the reputation -- the sterling reputation it has
16 because of the bottom-up analysis.

17 And so I just want to clarify that the scenarios
18 identified in the mobile source strategy document they do
19 not reflect staff's conclusions on what is technically
20 feasible or cost effective. That analysis, those
21 conclusions will require thousands of hours of work and
22 technical and economic analysis that we'll do for the 2022
23 through 2025 standards next year, as part of the mid-term
24 review. And then for the 2026 and beyond standards, that
25 analysis of work, that bottom-up review will be done as

1 part of the 2020 rule-making, and that's identified in the
2 scoping plan.

3 So again, this strategy document is very
4 important, and we look forward to working with ARB on this
5 document, as well as on the future rule-makings.

6 Thank you.

7 VICE CHAIR BERG: Thank you. And as Sharon comes
8 up, I'd like to give a heads up to Sacramento. We have
9 three speakers that will be testifying or are witnesses on
10 this item. So we want to give you a heads up. After
11 Sharon, Sacramento is going to be ready to go. Thank you.

12 MS. COONEY: Good morning. My name is Sharon
13 Cooney, and I work for the San Diego Metropolitan Transit
14 System. I'm pleased to be here today. I was very
15 interested in seeing the mobile source strategy documents
16 come out.

17 I'm here really just to speak to one element of
18 that, and that would be in chapter 6 the advanced clean
19 transit measure. We appreciate the process that has been
20 going on. We have been in conversations with staff at ARB
21 for some time on this issue. We were a bit alarmed to
22 find that it is being moved down the road as quickly as it
23 is, and no pun intended on that.

24 (Laughter.)

25 MS. COONEY: But we did feel we had to come here

1 today to talk about this on behalf of our customers and
2 the communities we serve.

3 As a partner with CARB, we have been early
4 adopters and innovators at MTS. We've been aggressively
5 pursuing clean fuel strategies at a considerable cost to
6 our agency within our tight budgetary constraints.

7 We continue to grow our extensive all electric
8 light rail system. We've converted 86 percent of our
9 heavy-duty buses to CNG, and we consider that we will be
10 finished with that process in the next year. We've
11 invested in hybrid technologies, and are moving forward
12 with a gasoline conversion to propane on our mini-bus
13 fleet. And that's going to occur next year.

14 Finally, by next year, our entire CNG fleet will
15 be on biogas, a renewable source of energy. However,
16 we've been giving careful thought to the zero emission bus
17 purchase requirement that's being proposed by staff, and
18 we really do believe that there's unintended consequences
19 that this Board should be aware of. The proposal is to
20 require transit agencies to purchase these electric
21 vehicles, and to use that to spur the technology in the
22 marketplace, but we really don't believe that the
23 technology, as it stands today, is ready for all the
24 applications that an urban transit system really needs to
25 have in place.

1 I have a letter that I've distributed -- or given
2 to the clerk. I hope you'll read it. It's got a lot of
3 detail in it. I won't get into that right now.

4 But I think one of the biggest unintended
5 consequences is how are we going to pay for this
6 requirement? And some of what I've detailed in my letter
7 is to show you the consequences in 2018 of what that
8 requirement will be in San Diego.

9 One of the things I want to highlight is that our
10 ridership is extremely transit dependent, very low income,
11 and very disadvantaged and a lot of disabled. And those
12 are the people who would be hurt by the significant
13 service cuts we'd have to put in place.

14 So in conclusion, I do ask that -- I do want to
15 stress we're committed to work with CARB on this advanced
16 clean transit strategy, but I think it should be results
17 based, rather than a technology based type of program.

18 And we'd very much like it if you'd put together
19 a transit advisory team to really work with CARB to try to
20 come up with some performance measures.

21 Thank you.

22 VICE CHAIR BERG: Thank you. And now we'll turn
23 to Sacramento. We have three witnesses testifying in
24 Sacramento.

25 MR. MUFFETT: Okay. First, we're going to hear

1 from Tom Knox, followed by Michael Pimentel, followed by
2 Bill Magavern.

3 MR. KNOX: Vice Chair Berg, Chair Nichols,
4 members of the Board, I'm Tom Knox. I'm with Valley Clean
5 Air Now. We manage a light-duty small repair program on
6 behalf of the valley air district. And I wanted to
7 comment this morning on something that's missing from
8 what's otherwise a very comprehensive document, is a look
9 at the older vehicles that are likely high emitting, that
10 have evaded controls to date. We see this as a major
11 opportunity to reduce criteria pollutants, to improve the
12 fleet overall as quickly as possible.

13 But what's missing right now is data to support
14 the number of the vehicles out there, the emissions that
15 they have and the pattern they're following to fall out of
16 vehicle registration. We would request that staff starts
17 to look at this issue. We did submit some written
18 comments this morning with some data analysis done by Dr.
19 Jeffrey Williams at UC Davis.

20 In the valley, we're seeing about 4,000 vehicles
21 per year that are unregistered. We have an analysis in
22 here of the 1,800 that we did repair. Last calendar year,
23 it showed that there are a lot of miles being driven by
24 some very, very dirty cars. We believe that the same
25 pattern is true in any SB 535 zip code statewide. And it

1 would be a great addition to the mobile source plan to
2 start to look at how to address this issue.

3 So thank you.

4 MR. PIMENTEL: Madam Chair and Board members,
5 Michael Pimentel here today on behalf of the California
6 Transit Association.

7 I want to start off by thanking ARB staff for
8 presenting under evolving strategy for meeting the State's
9 air quality and greenhouse gas emission targets, reducing
10 petroleum consumption, and decreasing the health risk
11 associated with the transportation sector.

12 California's transit agencies support these goals
13 and stand ready to assist the State to ensure that they
14 are achieved. However, we've come before you today to
15 highlight our concerns of the specific component of the
16 strategy before you, and that is the advanced clean
17 transit regulation, which is summarized on page 66 of the
18 mobile source discussion draft.

19 The proposed advanced clean transit regulation
20 would require transit agencies across the state to
21 purchase ZEVs beginning 2018 and would require a
22 transition to 100 percent zero emission bus technology by
23 2040. Now it's true that ZEV technology has made
24 considerable gains since the fleet rule for transit
25 agencies was first adopted in 2000. And for that reason,

1 we think it's appropriate that ARB staff revisit the role
2 that ZEV technology may play in its mobile source
3 strategy.

4 Now, for us, we've got a number of concerns
5 however expressed by many of our agencies, San Diego MTS
6 being one of them, with regards to the cost, range, and
7 reliability of ZEV technology relative to conventional
8 technologies. And we question whether the mandate
9 contained in the proposed regulation could be applied
10 broadly without disruption to critical transit service.
11 And as you heard from a previous speaker, that's largely a
12 function of funding.

13 Now, we've expressed these concerns with the ARB
14 staff across various formal communications, as well as in
15 private meetings, including with Deputy Executive Officer
16 Alberto Ayala, and we've seen some modest improvements to
17 the proposed regulation's framework. And we hope that
18 these inroads foretell the finding of more common ground.

19 As the proposed regulation moves forward, we
20 welcome the opportunity to share with each of you our
21 perspective on the regulation, including our understanding
22 of its benefits and challenges. We look forward to
23 working with you and your staff to advance our common goal
24 of cleaner air for Californians, and hope to find a
25 collaborative way to increase the adoption of ZEV

1 technology without placing undue burden on transit
2 agencies. Thank you so much.

3 MR. MAGAVERN: Good morning again. Bill Magavern
4 with Coalition for Clean Air. I'm going to add some
5 comments to the ones that Joe Lyou has already made, since
6 you've given us the opportunity for this north/south
7 double team, we'll take advantage of that.

8 (Laughter.)

9 MR. MAGAVERN: First of all, when it comes to the
10 light-duty fleet, we strongly support the proposed
11 measures to tighten the standards for both LEV and ZEV.
12 These have been very successful programs, and we need to
13 continue the progress to get the necessary emission
14 reductions.

15 Secondly, when it comes to the heavy-duty fleet,
16 we can make a lot of progress and fairly quickly with the
17 proposed clean diesel standards, which can reduce
18 particulate matter, NOx, and also carbon dioxide. So we
19 strongly support that measure concept also.

20 And then speaking of diesel, the Volkswagen
21 scandal gives us a very clear and alarming demonstration
22 of the importance of using on-road testing to check the
23 lab results that are reported, and also the importance of
24 strong enforcement. So we urge you to include in the SIP
25 strong enforcement measures, and also make sure that you

1 have in-use on-road testing to actually achieve the
2 emission reductions that we're expecting to get from these
3 measures.

4 And also along those lines, I want to second the
5 comments of Tom Knox from Valley CAN that we should be
6 looking to the unregistered vehicles and adopting measures
7 to retire, or at least to repair, the dirtiest of those
8 unregistered vehicles to make sure that we're getting the
9 real-world emission reductions, particularly in areas that
10 have got the worst pollution, like the San Joaquin Valley
11 and the South Coast Air District.

12 Thank you.

13 VICE CHAIR BERG: I think on my notes I see that
14 there was supposed to be three speakers, so I want to make
15 sure I'm not cutting anybody off? Are we all done in
16 Sacramento?

17 MR. MUFFETT: Yes, that was all.

18 VICE CHAIR BERG: I see a yes. Okay. Great.
19 Well, thank you very much for that participation. This is
20 an informational item only, and so there's no need to
21 close the record.

22 But with that, this is a very important process
23 and -- that we're going through and I'm sure my fellow
24 Board member will have some comments. And so who would --
25 John, you want to start?

1 Thank you.

2 BOARD MEMBER EISENHUT: Thank you, Vice Chair

3 I just had a question primarily of staff. As
4 Chair Nichols said, this is a -- this is a issue with many
5 moving parts. I noted in the presentation that primarily
6 the references were to South Coast. And I didn't hear
7 testimony from other air boards nor see specific
8 references to the involvement of other air boards. And I
9 just would like an indication, because of the need for
10 State coordination, that that coordination is being
11 conducted.

12 DEPUTY EXECUTIVE OFFICER KARPEROS: Yes, Mr.
13 Eisenhut, it is. The reductions in the 2030 time frame we
14 expect to be driven primarily by the ozone standard in the
15 South Coast, and reductions in the San Joaquin Valley, the
16 other most challenging area in the State. Attainment of
17 the PM standards in the middle of the next decade will be
18 what drive the reduction needs.

19 We're in the beginning stages of the modeling
20 with -- working with the valley district on emission
21 inventory and the modeling to identify what the emission
22 reductions need will be.

23 And we continue to work with them on what would
24 be this sort of unique strategies that would be
25 appropriate for a region like that in reflecting the type

1 of sources -- the differing sources that we do see in the
2 valley versus South Coast.

3 VICE CHAIR BERG: Yeah. Why don't we go ahead
4 and continue. Dr. Balmes.

5 BOARD MEMBER BALMES: So thank you, Vice Chair
6 Berg. First off, I want to join the appreciation that
7 staff has been receiving about getting this kind of
8 planning effort, strategic effort out before the public,
9 so that we can get stakeholder input, which we've gotten
10 today, and also to say that I'm very proud of the
11 integrated approach that we're taking to deal with both
12 air quality and climate change together in our planning,
13 because of the co-benefits that we get in terms of public
14 health by doing that, not to mention the fact that it
15 makes more regulatory sense, in terms of ease of
16 understanding on the part of all stakeholders.

17 And so I definitely think we do need to continue
18 to make progress with regard to air quality, including
19 reduction of NOx. And, you know, as somebody who owns a
20 cheater Volkswagen, I'm sorry that Bill Magavern stole my
21 line. And I do think that we have to be careful that the
22 technology that we're pushing is actually doing the job.

23 And I think I've heard for the first time about
24 the potential unintended consequences of zero emission
25 buses that we're proposing in this strategic plan. And I

1 would be concerned that one of those unintended
2 consequences that has been mentioned would be to make
3 bio-derived methane less attractive, because that would be
4 a pretty clean option.

5 So, you know, I'm not an expert in this. I'm
6 not, you know, pushing a particular agenda here, but I do
7 think that we should be careful about those unintended
8 consequences. And again, conceptually a performance
9 standard rather than a technology based standard, you
10 know, makes sense to me.

11 I think my colleague Dan Sperling isn't yet in
12 Sacramento in our view, but he generally favors
13 performance standards as opposed to technology standards.
14 And conceptually, I like that comment too or that concept
15 too.

16 So overall, I'm very pleased with the strategic
17 plan, but I'm glad that we're not voting on it today, as
18 something that is going to be in stone. Thank you.

19 VICE CHAIR BERG: Thank you.

20 Supervisor Roberts.

21 BOARD MEMBER ROBERTS: Thank you, Madam
22 Chairwoman. And I do want to comment on a couple things,
23 but I think -- I'm getting a lead in from Dr. Balmes
24 comments and his concern for transportation -- public
25 transportation and for performance driven rather than

1 technology driven. This is has been one of my pet mantras
2 the 20-plus years I've been on this Board.

3 BOARD MEMBER BALMES: I guess I finally learned
4 something from you.

5 BOARD MEMBER ROBERTS: And I would -- I think
6 it's very appropriate here. There was a recommendation
7 that I heard Sharon Cooney make that we should have a
8 transit advisory board, I think it is. That is
9 imperative. That's absolutely imperative. I've had a
10 lifetime of involvement now in public transit, and I think
11 in our exuberance of -- and our wanting to be on the
12 cutting edge, you know, I don't want to see transit being
13 on the receiving edge of the cutting edge so to speak.

14 (Laughter.)

15 BOARD MEMBER ROBERTS: Yet the performance of
16 electric buses today, if you try to match those up with
17 urban bus routes, you'll see how problematic it is. If
18 you look at the cost of infrastructure associated with it,
19 it's not just the first cost of the bus, it's the whole
20 system of things. There's basically three manufacturers
21 that are available to -- for California for electric
22 buses.

23 It's not a very competitive field. They all use
24 different infrastructure. The technology with respect to
25 the recharging, they're all completely different. Their

1 performance is different. None of them have the
2 performance that we would like to see on the kinds of
3 routes that we traditionally have in urban areas, which
4 means that you then have to figure out what do you do with
5 the bus, because you've got to keep the bus drivers
6 moving. It's an operational concern, but there's
7 tremendous expense.

8 I think what I heard is that we really need to
9 look at, if we -- as we've done in so many other things,
10 look at the system. When you have a system that is 88
11 percent, about to go to 100 percent CNG with then a light
12 rail system that's all electric, and you're seeing --
13 you're going to change over all your buses, and you're
14 going to start buying only electric buses, there seems to
15 be something inherently wrong in that approach from a
16 performance standard as a system that's making every
17 effort, and has really been quite successful in
18 implementing the kinds of changes that we want.

19 And I know that they are just putting in place a
20 new maintenance facility for CNG buses. That's like \$85
21 million. The investment is enormous, based on what we've
22 been asking for and how we're looking, at least discussing
23 right now how we change this.

24 I would just ask that you meet with transit
25 officials so you have a better grasp of the functioning of

1 a public transit line, and not just rush blindly into
2 electric buses, because it's very, very early in the
3 evolution of that particular product. It's way behind
4 electric cars in the infrastructure and the support system
5 and the operating cost.

6 I would hate to have to reduce transit service to
7 those disadvantaged communities we've heard about
8 repeatedly today, because we're enforcing rules that are
9 giving us a marginal benefit in an area that's already
10 spent a huge investment in cleaning up the air. So let's
11 work together on this, because I think the overall where
12 we would like to get I don't think -- you know, I noticed
13 nobody spoke in opposition to this. Everybody is either
14 neutral or in support, and I think the transit district
15 was.

16 We want to work with the people that are out
17 there. Natural gas is -- we shouldn't be ready just to
18 completely discard that. And I don't represent any gas
19 company, but there's a tremendous investment, a successful
20 tremendous investment in the public transit agencies in
21 the CNG. And this is something we've encouraged for
22 years.

23 So with that and the emphasis on keep looking at
24 performance, not technology, that is the key, and that we
25 wouldn't have to do as we've had to do sometimes in the

1 past, retreat.

2 I just have one other comment I want to make, and
3 that is, in the mid-nineties, I remember there was a lot
4 of discussion and a feeling that somehow vehicle miles
5 traveled was a good metric. I think it's one of the worst
6 metrics we have for anything. And I think we're falling
7 into that trap again.

8 In the mid-nineties, we were told the only way
9 we're going to clean up air pollution is to reduce vehicle
10 miles traveled. And I can show you every chart that shows
11 vehicle miles traveled going up and air pollution coming
12 down dramatically. There's absolutely no positive
13 correlation. Maybe a negative correlation, if anything.

14 And I think we're starting to go down that same
15 road again. I sense that there's some people out there
16 that just don't want to have driving a car as an option.
17 And that's fine for some, but it doesn't fit everybody.

18 I think that we need to, at the very least, when
19 we talk about vehicle miles traveled, we ought to be
20 considering how we can discount the zero emission vehicles
21 from that. I mean, why don't we treat them the same way
22 as, you know, we've got this -- from all aspects, we've --
23 when we start to log in how many vehicle miles traveled,
24 we -- completely electric vehicles are counted just like
25 in normal, or even the partial -- the zero electrics,

1 the -- even the hybrids, there should be some kind of
2 discount on the vehicle miles traveled, unless we're -- if
3 we're talking about -- if we're talking about greenhouse
4 gas and we're talking about air quality, I suspect some of
5 us have gotten into thinking maybe we're a highway
6 organization and we've just got to cut down on the number
7 of miles being driven. And I think that's the wrong way
8 for this organization to go.

9 So if we talk about vehicle miles traveled, I
10 think we have to recast that model and to develop some
11 type of a metric that has a relationship between what
12 we're trying to regulate and what we're actually
13 enforcing.

14 VICE CHAIR BERG: All right. Thank you.

15 Supervisor Gioia.

16 BOARD MEMBER GIOIA: So I just wanted to add, I
17 appreciate some of the comments hearing from transit. I
18 think the goal here is we're trying to be aggressive, but
19 we're trying to understand their needs. So I just wanted
20 to add an additional voice that -- it sounds like there
21 will be further discussion to understand how to implement
22 the moving towards zero emissions in the public transit
23 sector without having a real negative impact on the
24 finances. We know the challenges that exist with funding
25 public transit. Many areas are funding local

1 transportation measures to fund public transit. We hear
2 all the time the shortfalls both on the capital and the
3 operational sides.

4 So just understanding that, but also pushing
5 that. And I live in an area that actually AC Transit that
6 has the -- probably the largest fleet -- I think it has
7 the largest fleet of hydrogen fuel cell buses in the
8 country. And so they're ramping up. They're studying
9 that, and that's very promising, but just the voice to
10 continue to work with public transit on that.

11 VICE CHAIR BERG: Thank you.

12 Ms. Mitchell.

13 BOARD MEMBER MITCHELL: Thank you. First of all,
14 I want to give a big thank you to the staff of the Air
15 Resources Board and to the staff of the South Coast
16 District for coming together and working on this document.
17 As you know, as a nonattainment region, we really need to
18 attack our mobile sources and to have the support of the
19 Air Resources Board. And your staff working on it is so
20 meaningful to us. And we're very, very grateful. Thank
21 you very much all of you.

22 I want to be reminded that this is a draft
23 document, and it is a vision document. And it's a good
24 roadmap for us to be looking at as we try to reach our
25 goals and our targeted reductions in the future.

1 I think we need to embrace all technologies.
2 We're living in a world where technology is changing by
3 the day, and we need to be cognizant of new technologies
4 that might come along that may move us into a different
5 direction. And for that purpose, we should be flexible as
6 we look at this document and what it embraces for our
7 future.

8 Someone mentioned that we need to be cost
9 effective in what we do here. And I think for me that
10 means that we should be looking at where we can get the
11 most reductions for the best expenditure of our funds.
12 And so I think that should be part of our process in the
13 future.

14 Also, I think the integrated approach that we're
15 following is very good. We've been talking about getting
16 the co-benefits of reductions in greenhouse gas emissions,
17 but also reductions in criteria pollutants and air toxics.
18 And A lot of the strategies that are embraced in this
19 vision document can do both, and I think we should focus
20 our attention on that.

21 I am concerned, as other Board members, about
22 this issue with the zero emission buses. And we note that
23 just recently CARB certified an 8.9 liter engine at 0.02
24 grams per brake horsepower. And in the last meeting of
25 our South Coast District board, we approved four some

1 million for further work on an 11.9 liter engine.

2 These are the heavy-duty trucks that cause the
3 most pollution in our State, and so if we focus on the
4 kind of performance standard that would look at 0.02. And
5 I understand that when they did the testing on this truck,
6 it actually tested at 0.01, but we certified at 0.02. So
7 we may even get to 0.01 eventually.

8 But those are the kinds of advances that we're
9 seeing in engine development. And I think we need to pay
10 attention to that, and embrace those kind of improvements
11 in engines as we look at this vision document.

12 And so thank you. I think you guys have done
13 great work. Thank you very much.

14 VICE CHAIR BERG: Thank you.

15 Dr. Sherriffs and then we'll turn to Chair
16 Nichols.

17 BOARD MEMBER SHERRIFFS: Thank you. You know, I
18 think that where they tested at 0.01, but they give them
19 0.02 credit, that's -- there's a coefficient -- VW
20 coefficient that you double it.

21 (Laughter.)

22 BOARD MEMBER SHERRIFFS: Did I get that right?
23 Just to be on the safe side.

24 (Laughter.)

25 BOARD MEMBER SHERRIFFS: Sorry.

1 (Laughter.)

2 BOARD MEMBER SHERRIFFS: Mostly points that have
3 already been made, but to reemphasize. Yes, the gross
4 polluters, the unregistered vehicles, we really do need to
5 think about quantifying that and how to get a much better
6 handle on that. It's so important. And doing that in a
7 proactive, positive kind of way in terms of the scrap and
8 trade programs that we need to be -- but we do need to
9 have a better understanding of how much we're missing by
10 not being more proactive in that.

11 There have been a lot of comments about transit.
12 And it's great the everybody has gotten excited about
13 transit. And we don't want to make transit more expensive
14 by burdening it with some of these ideas. We want to make
15 it accessible to people. And it's raised the issue, we
16 need to think a little bit more. And Mr. Roberts spoke to
17 this about it. You know, it's not the vehicle miles.
18 It's the emissions per person per mile. And that probably
19 isn't even the right measure.

20 But are we measuring the right thing as we think
21 about? We need to think a little bit more about what
22 we're measuring. So again, it's performance, and we're
23 measuring the right performance and not pushing a
24 technology, because technology is changing.

25 You know, I guess I would say on the technology,

1 I think we have no idea what transportation is going to
2 look like in 15 or 20 years when we look at -- when we
3 look at things like Lyft and Uber and what we can do with
4 our smart phones, and how connected people are, and the
5 changing interest in millennials and actually owning a car
6 or knowing how to drive it.

7 And vehicles that can drive themselves really
8 potential change what transit means and what public
9 transit means. And I should probably copyright this
10 before I say it, but, you know, Zuber, we need to be
11 thinking about zero emission Uber.

12 (Laughter.)

13 BOARD MEMBER SHERRIFFS: It really -- we need to
14 be careful about what we're pushing, because we just -- we
15 don't know what the future is going to look like.

16 And the last comment, again going back to the
17 beginning of the low NOx engines, how important it is that
18 we are going to be -- I'm surprised at the question that
19 we're going to be petitioning the EPA. We really have to
20 be pushing the EPA to adopt this ultra low NOx standard.
21 That is critical for the South Coast. It is critical for
22 the South Coast. It is critical for the Central Valley.
23 It's critical for the State. It's critical for the health
24 of our citizens.

25 So thank you.

1 VICE CHAIR BERG: Thank you. And Chair Nichols,
2 can you wrap us up, please?

3 CHAIR NICHOLS: Thank you. I think this has been
4 a very robust and interesting discussion, and certainly
5 isn't the end, but it is time perhaps to appreciate the
6 breadth and diversity of the input that we've seen here,
7 and to acknowledge that there is more stakeholders out
8 there that also need to be consulted as well. I have to
9 say, I was a little disappointed in the discussion about
10 zero emission transit, for the simple reason that two days
11 ago I was at a meeting of the California Fuel Cell
12 Partnership. It was chaired by -- or co-chaired, I guess,
13 by Dr. Parker from the South Coast Board, and included
14 representatives of the manufacturers of heavy-duty
15 vehicles, as well as the Energy Commission and others.

16 And we heard from two transit agencies, one
17 Alameda, and the other Foothill, that are pioneering in
18 the use of fuel cell buses. And I know there are others
19 out there, and there are other innovative engines being
20 used as well. Zero emission doesn't automatically mean
21 batteries by any manner of means.

22 And I think it is important that we escalate and
23 elevate this discussion with the transit community,
24 because it's disappointing to hear this being set up as
25 either clean air or more expensive transit for people who

1 can least afford it.

2 I think a number of other people have pointed out
3 that we need more people using transit, both to meet our
4 air quality and climate goals, and to meet the needs of a
5 population that doesn't always want or need to drive.

6 So we clearly need to be working together, and I
7 think we can start from the assumption that we all want to
8 see transit available. The State has now really put its
9 money where its mouth is on these issues, because the
10 Greenhouse Gas Reduction Fund is being used to provide,
11 for the first time from the State, money that's available
12 for operating subsidies, not just construction in the
13 transit area.

14 So I don't think there's any doubt of the
15 commitment that we have to work with the agencies, but
16 certainly we could make it more clear, and hopefully a
17 more interactive process, if we were to follow the
18 suggestion of creating an advisory committee or at least a
19 regular working group to begin to pursue this issue more
20 seriously.

21 So I think it's been great that we've had this
22 discussion and raised the profile of the issue, because it
23 is an area where change is slow and expensive. And so we
24 want to make sure that we're doing the right thing as we
25 move forward, and not just debating philosophical

1 concepts.

2 And I think you can say the same thing about
3 other elements of this as well, that we're coming to the
4 point now, where because of deadlines in the Clean Air
5 Act, we will have to start making real commitments, not
6 just as regulators but also as government agencies that
7 provide funding support that will promote the cleanest
8 technologies out there. And we have to keep our options
9 opening, as we've said, and recognize that we don't yet
10 know everywhere technology will take us.

11 Fortunately, there's always new and interesting
12 developments on the horizon, but we definitely need to put
13 a stake in the ground in terms of what our needs are to
14 protect the health and environment of our people.

15 So a good start to the discussion. It is still a
16 draft. And it probably will continue to be a draft for a
17 while, but it will also receive updating and see some
18 changes as well.

19 So I think with that, I'm ready to close this
20 item if the folks in Diamond Bar are as well.

21 And I'm not sure what your next plan is. Madam
22 Chair, is this the point at which you were going to take a
23 break?

24 VICE CHAIR BERG: Yes. We're going to go ahead
25 and take a lunch break at this time. And then we come

1 back, we're going to combine the last three items, and
2 then have one witness testimony period and one Board
3 discussion based on the last three items. And so we will
4 miss you, as I know you have a conflict this afternoon,
5 and have obligations from this point forward, but truly
6 appreciate your joining us here for this morning. I think
7 it's been remarkably successful. And thank you for
8 setting this up, and we'll look forward to seeing you next
9 month.

10 CHAIR NICHOLS: Thank you. Thanks to the people
11 here in the auditorium for keeping me company, so I wasn't
12 here all by myself.

13 (Laughter.)

14 VICE CHAIR BERG: And we hope to see them back
15 after lunch. So we will be having a vibrant discussion
16 after staff presentation after lunch, so be sure to
17 return.

18 Before we close the last item, I would just like
19 Richard Corey to tell the Board what are our next steps,
20 and what can we -- what are the next steps going forward
21 on this item?

22 EXECUTIVE OFFICER COREY: Yes, Vice Chair, Berg.
23 Next steps would continue to work with South Coast. We
24 talked about the work that we've been doing over the last
25 several months with South Coast and with stakeholders

1 externally. Based on this discussion and the comments
2 that we received, we'll be having follow-up workshops in
3 terms of as we refine this document -- because a number of
4 comments were pertaining to the level of detail, comments
5 respecting -- with respect to the magnitude of potential
6 funding, structurally where regs may have a role versus
7 incentives and so on. We need to drill down more. So
8 those are the areas that there will be further refinement
9 to the document through a workshop process, over the next
10 several months. The refined document will return to the
11 Board in the mid-2016 time frame, am I correct, Kurt?

12 DEPUTY EXECUTIVE OFFICER KARPEROS: Yes.

13 EXECUTIVE OFFICER COREY: But that will follow
14 several workshops that we need to have, posting drafts,
15 exchange, follow-on analysis. In addition to that, and I
16 did want to touch on this, because I -- it gives me an
17 opportunity to -- because there were a number of comments
18 on -- with respect to transit. We have been reaching out
19 to the folks. In fact, I was at AC Transit on Friday. In
20 fact, I spent half the day there.

21 BOARD MEMBER GIOIA: That's right. You saw those
22 hydrogen fuel cell buses.

23 EXECUTIVE OFFICER COREY: They're are very
24 impressed with it and they've been key, key partners
25 historically from an incentive standpoint from the

1 investments they made from the air quality improvements.
2 We will look though at terms of the opportunity to pull a
3 workgroup, some other instrument to even enhance the
4 communication that's been underway, so you don't take into
5 heart the comments that have been made and we have some
6 additional work to do for certain.

7 VICE CHAIR BERG: So I encourage Board members as
8 stakeholders are reaching out to you, please feel free to
9 interact with staff. This is a living document that is
10 going from draft, will come back to us mid next year.

11 So with that, we are going to break for lunch.
12 And we will take a one hour lunch. Be back here at 20
13 minutes to 1:00 and finish up our final three Board items.
14 And look forward to the lively discussion this afternoon.
15 Thank you very much.

16 (Off record: 11:37 AM)

17 (Thereupon a lunch break was taken.)

18

19

20

21

22

23

24

25

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

2 (On record: 12:42 PM)

3 VICE CHAIR BERG: I'm going to ask everybody to
4 take their seats and we will get our afternoon on the way.

5 Before I introduce the next agenda items, we
6 wanted to welcome Professor Sperling. He is joining us in
7 Sacramento. I think we'll have him on the screen here in
8 just a minute. And so welcome, professor.

9 BOARD MEMBER SPERLING: Thank you. Pleasure.
10 Hello, everyone. Sorry I missed you.

11 VICE CHAIR BERG: Our afternoon session is going
12 to consist of three updates from staff all around our
13 clean -- Advanced Clean Cars programs. What we have
14 decided to do is we're going to hear all three staff
15 presentations. That's going to take a little bit of
16 logistics, because staff is going to have to change, and
17 we'll take that opportunity if we need to get up and
18 stretch, because it will be about an hour and a half of
19 presentation.

20 But what this is going to allow us to do is our
21 first presentation is on the Advanced Clean Car program,
22 the second presentation is an update on all the different
23 support mechanisms that support this program, and where it
24 is, the status of that information. And then our third
25 item is Advanced Clean Cars particulate matter. So they

1 all do tie together.

2 These regulations, and what we need to accomplish
3 from these regulations is very comprehensive. And I think
4 to get the three presentations and the overview of the
5 three will allow the comments, by the people that are
6 testifying, to be consistent, and for you to be able to
7 communicate full thoughts across all of these three
8 spectrums.

9 I know that some people have come with prepared
10 slides and testimony time. We will be very supportive of
11 making sure everybody has the time. But what I want to be
12 able to do is also be very efficient. So in our time
13 we'll be able to thank staff, one, so I've said you about
14 20. Seconds

15 (Laughter.)

16 VICE CHAIR BERG: And if we really look at the
17 first two items, they do go together. And so comments
18 around those for about three minutes. And then, of
19 course, the PM is a little more technical. We will be
20 allowing some time.

21 So I wanted to let you know don't be anxious
22 about the testimony time. That said, I will be writing
23 herd that you don't try to take advantage as well. So
24 with that, we'll get started.

25 So our first presentation is a report on the

1 Advanced Clean Cars program and mid-term review. Approved
2 by the Board in January 2012, the Advanced Clean Cars
3 program lays the foundation for substantial personal
4 mobility in California. It does this by setting ambitious
5 yet achievable reductions of criteria pollutants and
6 greenhouse gas emissions from passenger vehicles through
7 2025 model year.

8 The program also fosters the commercialization of
9 ultra clean vehicles, such as pure electric vehicles, and
10 fuel cell vehicles that will benefit -- that will be
11 needed to achieve our long-term criteria pollutant and
12 greenhouse gas goals and obligation.

13 When the program is fully phased in, California
14 consumers will be driving the cleanest and most efficient
15 vehicles available, while at the same time saving
16 thousands of dollars over the lifetime of these vehicles
17 in maintaining.

18 The Advanced Clean Car program includes about
19 halfway through the years covered by regulation, and the
20 mid-term review or evaluation to reevaluate the current
21 state of the vehicle technology. This review will be done
22 in cooperation with U.S. EPA and provides an opportunity
23 to determine whether any adjustments to the stringency of
24 the 2022 through 2025 model years are appropriate.

25 Staff is committed to providing the update to the

1 Board throughout the mid-term review process. Today's
2 update will cover progress on work underway to support the
3 mid-term review of the federal greenhouse gas standards
4 and the California review of the zero emission vehicle
5 regulation.

6 And if my memory serves me right, I think this is
7 the second review from staff, and we look forward to that.

8 So, Mr. Corey, would you please introduce this
9 item?

10 EXECUTIVE OFFICER COREY: Yes. Thanks, Vice
11 Chair Berg. And as you noted, today staff will be
12 providing the Board with an update on the progress we've
13 made on the Advanced Clean Cars program and the mid-term
14 review. As you know, in addition to greenhouse gas
15 standards, the Advanced Clean Cars program includes the
16 Low Emission Vehicle III, or LEV III, program for criteria
17 pollutants and the zero emission, or ZEV program.

18 Because the LEV III greenhouse gas requirements
19 were developed through a coordinated effort with the
20 federal government, California agreed to participate in
21 the mid-term review with the U.S. EPA and NHTSA, as you
22 mentioned, to evaluate the continued appropriateness of
23 those standards for model years 2022 through 2025. Staff
24 has committed to provide the Board with updates on
25 progress made on the mid-term review.

1 Staff will present work that is underway to
2 support the joint federal State mid-term review of the
3 federal greenhouse gas standards, and staff will provide
4 an update on manufacturer's compliance status with the
5 federal greenhouse gas light-duty fleet average standards.

6 Additionally, this year California has passed
7 150,000 ZEV and plug-in hybrid sales with increasing
8 momentum of pure ZEV sales, a significant milestone.

9 California and the states have adopted California
10 standards, rather than the federal standards, the Clean
11 Air Act Section 177 states. And they account for the
12 majority of the ZEV and plug-in hybrid sales in the United
13 States. Staff will present the results of surveys of the
14 ZEV and plug-in hybrid owners, the status of ZEV
15 regulatory credits, and staff's initial analysis of
16 driving data.

17 Anna Wong, of the Emissions Compliance Automotive
18 Regulations and Science Division will now give the staff
19 presentation.

20 Anna.

21 (Thereupon an overhead presentation was
22 presented as follows.)

23 AIR POLLUTION SPECIALIST WONG: Thank you, Mr.
24 Corey. Good afternoon, Vice Chair Berg and members of the
25 Board. Today, I will present an update on the Advanced

1 Clean Cars program and the mid-term review efforts.

2 --o0o--

3 AIR POLLUTION SPECIALIST WONG: California
4 continues to be faced with significant climate change and
5 air quality challenges. Near- and long-term emission
6 targets have been established to ensure we are on track to
7 meet the federal air quality standard and global climate
8 stability. In addition to these existing targets,
9 Governor brown announced earlier this year a 2030 GHG
10 target of 40 percent below 1990 levels in California.

11 In 2012, the Board approved the latest round of
12 fleet average standards for all new passenger vehicles.
13 The Low Emission Vehicle program, or LEV III, is intended
14 to produce criteria pollutant emissions to help attainment
15 with 2023 and 2031 air quality requirements, as well as
16 contribute to reductions needed from the transportation
17 sector to meet the 2020 and 2030 greenhouse gas emissions
18 targets.

19 However, as last year's scoping plan update and
20 recently released mobile source State implementation plan
21 also indicated, future standards will likely be needed to
22 keep California on track to meet both the mid- and
23 long-term targets.

24 Projections for meeting long-term climate and air
25 quality goals continue to show the need for full

1 electrification of new light-duty vehicle sales by 2050.
2 The zero mission vehicle, or ZEV, regulation was amended
3 in 2012 to continue forcing the advanced technology that
4 will be needed to enter the marketplace today if we're
5 going to transform the fleet by 2050. The LEV III and
6 ZEV programs together compromise(sic) California's
7 Advanced Clean Cars program.

8 --o0o--

9 AIR POLLUTION SPECIALIST WONG: As you heard
10 earlier this morning, ARB staff have completed a mobile
11 source strategy report that, in addition to listing
12 potential policy actions, describes updated vision
13 scenarios targeting strategies that can help the State
14 meet our emission targets. This graphic shows the
15 technology roll-out for the light-duty vehicle fleet, that
16 would put us on the path to achieving the greenhouse gas,
17 air quality, and petroleum reduction targets. In this
18 scenario, electric vehicles move well beyond the current
19 ZEV regulation, scaling up to 100 percent of all vehicle
20 sales by 2050, and putting 4.3 million ZEVs and plug-in
21 hybrids on the road by 2030.

22 This scenario captures the latest major trends in
23 the vehicle technology from ARB's ongoing technology
24 assessments, including significant efficiency gains, VMT
25 reductions and widespread availability of low carbon

1 renewable fuels. Additionally, plug-in hybrids are
2 assumed to have a larger role in these scenarios, but pure
3 ZEVs remain the dominant technology necessary for deep
4 emission reductions.

5 The plug-in hybrids assumed here would need to
6 operate on electricity 80 percent of the time for
7 passenger cars and at least 40 percent for trucks. That's
8 an average of 60 percent electric vehicle miles traveled
9 for all plug-in hybrids by 2050.

10 This analysis represents a potential pathway to
11 long-term emission targets and emphasize the role to --
12 the need to further reductions from all Advanced Clean
13 Cars regulations.

14 --o0o--

15 AIR POLLUTION SPECIALIST WONG: In 2012, the
16 Board adopted the Advance Clean Cars program. It directed
17 staff to participate in the mid-term review of the
18 standards adopted. In this regard, we have been working
19 closely with our federal partners on a variety topics in
20 the joint review of the GHG standards.

21 In April of this year, California finished its
22 research contract on road load potential and mass
23 reduction in the light-duty vehicle fleet, and I will
24 present the findings later in this presentation.

25 To improve projections on the effectiveness of

1 emission reduction technologies, EPA continues to test and
2 benchmark advanced engines and drivetrains. Consumer
3 acceptance of such technologies in comparison to projected
4 vehicle price increases also remains an area of focus.
5 Lastly, EPA and NHTSA are wrapping up their tear downs of
6 various technologies which are helpful in informing future
7 standards.

8 For the ZEV portion of the review, staff is
9 conducting an internal analysis of manufacturers ZEV
10 credit banks in California and the section 177 states,
11 which I will go into further detail later in this
12 presentation.

13 Staff is also conducting a technology assessment
14 of the latest developments in plug-in hybrids, batter
15 electric and fuel cell electric vehicles. Additionally,
16 staff continues to review data provided by the OEMs late
17 last year on a selection of plug-in hybrids and battery
18 electric vehicles. We are also reviewing consumer
19 awareness and attitudes towards plug-in hybrids and ZEVs.
20 Lastly, we plan to look at the State of infrastructure for
21 both electricity and hydrogen.

22 The third part of California's mid-term review is
23 an assessment of the one milligram per mile particulate
24 matter standard. Later today, you will be hearing from a
25 part of our mid-term review team on measurement

1 feasibility. Next year, we plan to present the full
2 picture of the accelerating the phase-in of the one
3 milligram per mile standard, which will include vehicle
4 feasibility and testing.

5 --o0o--

6 AIR POLLUTION SPECIALIST WONG: You may recognize
7 this timeline from staff's 2013 update. We've stayed on
8 track. And this year, you will hear from staff later
9 today about the particulate matter measurement.

10 Next year, we plan to present all staff's
11 analysis on the various elements of California's mid-term
12 review.

13 --o0o--

14 AIR POLLUTION SPECIALIST WONG: The next few
15 slides will update you on the status of the greenhouse gas
16 portion of the review. In summary, manufacturers are
17 overcomplying with the current GHG standards nationally,
18 and even more so in California. Additionally, while we
19 continue to work with our federal partners on the joint
20 agency technical assessment report, we are encouraged by
21 two recent reports showing pathways for manufacturers to
22 comply with standards for future model years.

23 The National Academy of Sciences concluded that
24 the current GHG standards are feasible and can be met with
25 conventional technologies.

1 Also, earlier this year, ARB finished its
2 contract on road load reduction technologies concluded
3 that the current best-in-class technologies for road load
4 reductions can produce one-fourth the necessary reductions
5 toward meeting the 2025 model year requirements.

6 --o0o--

7 AIR POLLUTION SPECIALIST WONG: Let's take a look
8 at where we are with compliance with the current
9 standards. The standards shown here were calculated based
10 on the sales-weighted average footprint of passenger cars
11 and light-duty trucks from the six large volume
12 manufacturers that are subject to greenhouse gas
13 requirements. Since the sales weighted footprint of
14 California fleet is smaller than the federal fleet,
15 because Californians buy more cars than trucks, the
16 greenhouse gas requirement for the California fleet is
17 lower than for a federal fleet.

18 Compliance with the greenhouse gas requirements
19 can be achieved by reducing tailpipe CO₂ emissions and
20 earning off-cycle credits. Off-cycle credits reflect the
21 use of greenhouse gas reducing technologies that are not
22 captured by standard emission's tests, like through
23 improving the efficiency of air conditioning systems or
24 using a refrigerant with a low global warming potential.

25 The blue bars shown here illustrate that for 2012

1 model year, manufacturers were able to achieve compliance
2 with the greenhouse gas standards entirely through the
3 reduction of CO₂ emissions from the tailpipe. Once
4 off-cycle credits are included, the greenhouse gas
5 reductions from the vehicle fleet become even greater. As
6 you can see, for the 2012 model year, manufacturers
7 overcomplied with the greenhouse gas standards nationally
8 by 13 grams per mile.

9 For California, the benefits were even greater
10 with 21 grams per mile below what was required. For the
11 2013 model year, the results are similar. It looks like
12 the manufacturers are headed in the right direction.

13 --o0o--

14 AIR POLLUTION SPECIALIST WONG: A study on the
15 Corporate Average Fuel Economy standard, or CAFE standard,
16 commissioned by NHTSA and conducted by National Academy of
17 Sciences concluded in June of this year. The study was to
18 assess the 2017 through 2025 CAFE regulation and analysis
19 used to set the standards, as well as assess costs and
20 technologies likely to be implemented through 2030. The
21 study found that the analysis conducted during 2011 to
22 2012 by the agencies was thorough and of high caliber.

23 Additionally, the committee concluded
24 conventional gasoline technologies can be used to meet the
25 future standards. Lastly, the report acknowledged the

1 California ZEV regulation to be driving the surge in ZEV
2 sales. ARB appreciates the committee's report and
3 looking -- looks forward to incorporating their
4 suggestions into the mid-term review.

5 --o0o--

6 AIR POLLUTION SPECIALIST WONG: To meet the
7 greenhouse gas standards, it is expected that the vast
8 majority of reductions will come from improvements to
9 vehicle powertrains, specifically the engine and
10 transmission. However, there are other improvements that
11 can increase efficiency and the agencies did assume some
12 reductions were from these areas.

13 Notably, items like vehicle aerodynamics, low
14 rolling assistance tires, and making vehicles lighter can
15 have an appreciable contribution by reducing the road load
16 of these vehicles.

17 To better understand some of the possibilities
18 for these other technologies, ARB commissioned a "what-if"
19 study. The study analyzed all available vehicles in 2014
20 model year, identified the better performers, and then
21 upgraded the entire vehicle fleet to have best-in-class
22 aerodynamic, tire rolling resistance, and mass efficiency.

23 Starting from a baseline average of 263 grams per
24 mile CO₂, five grams per mile of reductions came from
25 applying best-in-case aerodynamics to each vehicle class.

1 Another five grams per mile were taken off by applying
2 best-in-class tire rolling resistance. And seven grams
3 per mile of the reductions were achieved by applying
4 best-in-class mass efficiency.

5 Once these efficiency improvements were made, the
6 engine was made slightly smaller and reoptimized to
7 maintain the original performance, which achieved the
8 additional benefits of the ten grams per mile. As a
9 reminder, this study did not include any powertrain
10 improvements like replacing a naturally aspirated engine
11 with a downsized turbo engine or adding a more efficient
12 transmission, where much further gains would be expected.
13 This shows that 2014 model year technology, technology
14 that is on the road today, could be used to get the
15 average California fleet emissions from 263 to 236 grams
16 per mile.

17 This is a little over 25 percent of what is
18 needed to meet the 2025 standard without even considering
19 powertrain improvements or considering technology that has
20 already or will be introduced after the 2014 model year.

21 Some of these improvements are already on the
22 road today with brand new 2015 and 2016 model year
23 vehicles that are made from lightweight materials and
24 contain more advanced powertrains. Further, off-cycle
25 credits were not part of this contract, which

1 manufacturers use today and will use in future years to
2 meet the requirements.

3 --o0o--

4 AIR POLLUTION SPECIALIST WONG: Okay. Moving to
5 the ZEV review. This next set of slides will focus on
6 staff's review of the ZEV regulation. In summary, staff
7 has found that the ZEV credits currently in the banks will
8 continue to provide appropriate flexibility for
9 manufacturers, however requirements will continue to
10 require greater volumes of ZEVs into the future.

11 Additionally, the market in California for ZEVs
12 and plug-in hybrids continues to appear healthy, with the
13 number of pure ZEVs continuing to increase. I will also
14 update you on surveys staff conducted earlier this year on
15 CVRP recipients, which showed buyers were pleased with
16 their plug-in electric vehicle purchase decisions, many of
17 them willing to pay more for greater electric range.

18 Lastly, staff will show analysis conducted on
19 data received from a few manufacturers, which will show
20 the electric vehicle miles traveled of plug-in hybrids to
21 be highly variable across vehicle platforms, as well as
22 for the same type of vehicle.

23 --o0o--

24 AIR POLLUTION SPECIALIST WONG: As part of this
25 review, the Board has been very interested in the status

1 of the ZEV credit banks, both in California and in section
2 177 states. In general, manufacturers use, generate,
3 trade, and purchase credits in very different ways.
4 However, for this analysis, we looked at the industry as a
5 whole, including trading across manufacturers.

6 For this first scenario, in the shaded area you
7 can see the manufacturers' requirements for California and
8 the section 177 states in terms of vehicles. The purple
9 and orange lines show actual sales from 2012 through 2015
10 model year. In our first scenario, we assume sales to
11 continue at model year 2015 levels through 2025.

12 Then we asked how far would the credit banks get
13 you assuming current sales levels? We found that
14 manufacturers could comply through 2021 model year.
15 However, this would mean manufacturers would need to
16 comply at significantly higher levels starting in 2022
17 model year.

18 --o0o--

19 AIR POLLUTION SPECIALIST WONG: In our second
20 scenario, we took a more realistic approach and wanted to
21 see what the requirements would look like if the
22 manufacturers supplemented their requirements with credits
23 from their banks each year.

24 On this chart, we started with the same
25 requirement you can see in green and blue shaded areas,

1 and with the current sales in purple and orange. You can
2 see when I apply the credits left in the bank, they are
3 able to comply with a combination of sales and credits
4 through 2025 model year. These two scenarios are meant as
5 bounding cases for how to interpret the credits in the
6 bank. The manufacturers continue to use, generate, trade,
7 and purchase credits, which is important flexibility in
8 the regulation.

9 --o0o--

10 AIR POLLUTION SPECIALIST WONG: Moving onto sales
11 trends. This plot of data from IHS Automotive shows how
12 California's ZEV market has developed over time. The size
13 of the orange bubble on this figure is scaled to the total
14 number of new ZEV and plug-in hybrid registrations in
15 California in 2011. Each bubble is positioned
16 horizontally, according to the new vehicle sales sold that
17 year, and positioned vertically to indicate the market
18 share that is ZEV or plug-in hybrids.

19 Over the past few years, the bubbles have been
20 rising steadily thanks to many of the ZEV-enabling actions
21 that you will be hearing about in the next presentation.
22 Extrapolating current data available to cover the full
23 calendar year, we project that the number of new ZEVs and
24 plug-in hybrids sold this year to be about the same as
25 2014.

1 However, given the sales record for all new
2 vehicle sales expected this year, constant volume
3 translates into a slight drop in market share. Of course,
4 California is not the only state with the ZEV
5 requirements. Nine other states have adopted the
6 California ZEV regulation, including many northeast
7 states, as well as Oregon. The lighter bubbles on the
8 right represents the market in our partner states. And in
9 the next presentation, state representatives will provide
10 more detail about the ongoing work and recent developments
11 to grow and elevate their bubbles.

12 --o0o--

13 AIR POLLUTION SPECIALIST WONG: Returning to
14 California's market, this figure shows the manufacturer
15 diversity of each of those bubbles. The height of the bar
16 shows the portion of California's new car sales that were
17 plug-in hybrids or ZEVs. The increasing color diversity
18 in the bars on the right shows how a greater number of
19 manufacturers are now offering ZEV products.

20 While we noted that the overall market share has
21 dipped slightly this year, the market share of pure ZEVs
22 has continued to grow every year. And so far, in 2015,
23 pure ZEVs have outsold plug-in hybrids at a nearly 2 to 1
24 ratio. However, whether this trend continues, the
25 remainder of the year is uncertain.

1 --o0o--

2 AIR POLLUTION SPECIALIST WONG: So far this year,
3 the number of models commercially available to consumers
4 was roughly the same as last year, with new introductions
5 replacing discontinued models. Notably, just yesterday,
6 Toyota delivered the first fuel cell Mirai to
7 California -- to a California household. By the end of
8 this year, an additional five plug-in hybrid models are
9 expected to be released, including several all-wheel drive
10 crossovers. And with the recent launch of the redesigned
11 Chevrolet Volt, the plug-in hybrid market may very well
12 resurge in the coming months. But these plug-in hybrids
13 will face some stiff competition from their all-battery
14 counterparts, with the new Nissan Leaf offering over 100
15 miles of real-world electric range and Tesla's 250 mile
16 Model X Crossover beginning deliveries as well.

17 So the next question is if manufacturers build
18 them, will the consumers buy them?

19 --o0o--

20 AIR POLLUTION SPECIALIST WONG: This spring ARB
21 surveyed over 6,000 plug-in electric vehicle drivers who
22 received a clean vehicle rebate. Survey respondents
23 spanned an array of 18 vehicle models and have been
24 driving their plug-ins a minimum of eight months, and on
25 average for over a year and a half.

1 Both battery electric and plug-in hybrid drivers
2 alike would overwhelmingly recommend their vehicle or
3 plug-in electric vehicle to someone they know looking for
4 a new car.

5 --o0o--

6 AIR POLLUTION SPECIALIST WONG: And when asked
7 what technology they would purchase if suddenly needing to
8 replace their car, only a small fraction would switch to
9 conventional technologies. Most BEV drivers would stay
10 with BEV technology, while most plug-in hybrid drivers
11 would stay with plug-in hybrids.

12 Most -- some BEV drives would add a gas engine
13 while a slightly large fraction of plug-in hybrids would
14 rather shed their gas engine. And finally, fuel cell
15 electric technology is already starting to attract some
16 potential customers. In this dynamic market, actual
17 future purchases may deviate when new vehicle options
18 become available or household needs change. However,
19 overall, we interpret these results to mean consumers are
20 satisfied with ZEV technologies. That's not to say
21 there's no room for improvement.

22 --o0o--

23 AIR POLLUTION SPECIALIST WONG: When asked how
24 they would change their vehicle, only about one-fifth of
25 respondents are completely satisfied with their vehicle

1 and would not make any changes. Overwhelmingly though,
2 drivers want more all-electric range, whether they have to
3 pay for it as part of an increased vehicle price or
4 sacrifice performance or both.

5 Faster or wireless charging was of interest only
6 to a relatively small portion of drivers. Of course,
7 there are some respondents who chose other and stated that
8 more range should be offered at the same price, given the
9 decrease in battery costs. It turns out these are savvy
10 customers.

11 --o0o--

12 AIR POLLUTION SPECIALIST WONG: Now, focusing on
13 those battery costs. They are falling faster than what
14 was projected in the 2012 Advanced Clean Car staff report.
15 This gray area represents the range of battery costs for
16 plug-in hybrids and battery electric vehicles projected
17 for 2018 used for staff -- for 2018 used for staff's 2012
18 analysis, which shows a \$350 to \$650 per kilowatt hour
19 range.

20 However, based on reports and public
21 announcements released in the last year, costs for
22 batteries are far lower than staff's projections. Some
23 recent international research projected 2018 battery costs
24 of 20 -- \$230 per kilowatt hour. The 2014 Tesla battery
25 report released by Advanced Automotive Batteries projected

1 the 70 kilowatt hour battery pack from Tesla would cost
2 \$221 in 2018.

3 A few weeks ago, General Motors announced \$145
4 for the battery cell. The expected range of a dollar per
5 kilowatt hour cost for an entire pack is shown in the
6 shaded overall on this slide.

7 Lastly, the red X shows the \$125 target set by
8 the U.S. Department of Energy for the year 2022, which
9 appears to be achievable when considering these latest
10 projections.

11 --o0o--

12 AIR POLLUTION SPECIALIST WONG: In 2012, the
13 Board asked for staff to better understand the usage of
14 plug-in hybrids. Additionally, a group of manufacturers
15 along with the Idaho National Laboratory presented an
16 analysis showing an average of electric miles of a Chevy
17 Volt are very similar to those of a Nissan Leaf warranting
18 more favorable treatment of plug-in hybrids within the ZEV
19 regulation.

20 Some manufacturers, though not including General
21 Motors, submitted vehicle data to staff last year for our
22 own analysis. This is a chart where the X axis shows the
23 projected annual vehicle miles traveled, or VMT, and the Y
24 axis is the percent of a vehicle miles that are driven
25 electrically, also known as electric vehicle miles,

1 traveled, or EVMT.

2 The first set of points, the blue squares you are
3 seeing come from those Nissan Leafs. We've also plotted
4 the Ford Focus EV in green, and the Honda Accord EV in
5 red. As you can see, all of these vehicles sit on the 100
6 percent EVMT line, because these vehicles are full battery
7 electric vehicles and can only travel on electricity.

8 Next, the large filled circles that are now
9 appearing represent that average, annualized VMT, and
10 percent EVMT for all of the vehicle models. Those on the
11 100 percent line represent the BEVs in this analysis,
12 while those listed lower down in the graph represent the
13 plug-in hybrids, and match the annual average presented
14 last year in the Idaho National Laboratory analysis.

15 However, when you plot the EVMT for the
16 individual vehicles, one can notice the extreme
17 variability and the data. The first set of dots in orange
18 show data from the Honda Accord plug-in hybrid. The line
19 appearing with the data is an approximate trend line to
20 illustrate this general direction of the data.

21 The red dots appearing belong to the Toyota Prius
22 plug-in hybrids. The data from those vehicles show a
23 large variance in the annualized VMT with some vehicles
24 traveling large distances in one year. The data is
25 followed by the Ford Fusion Energi plug-in hybrid in green

1 and the Ford C-Max Energi in blue.

2 We've also recently received some data from
3 Tesla. Like the other full electric vehicles, all of the
4 vehicles sit on the 100 percent EVMT line, but notably the
5 annual average VMT is over 13,000 miles, which is
6 consistent with the national average VMT.

7 These data require further study. Staff will
8 continue to work with the manufacturers to better
9 understand the trends and correlations, and has also
10 sponsored research to understand vehicle usage in the
11 household context. Additionally, internal testing at our
12 El Monte facilities will help ensure we understand the
13 emission profiles for these vehicles.

14 --o0o--

15 AIR POLLUTION SPECIALIST WONG: Staff is
16 currently on track to return to the Board by the end of
17 2016 with California's full Advanced Clean Cars mid-term
18 review. Additionally, we believe it's appropriate to hold
19 a public Advanced Clean Cars symposium to present staff's
20 analysis and hear from others on their analyses next year
21 before we bring the full review to the Board. We are
22 targeting a two-day symposium in September 2016. Staff is
23 looking forward to presenting its full findings next year
24 to the Board.

25 This concludes my presentation.

1 VICE CHAIR BERG: Thank you very much. It's a
2 great presentation. Very thorough. We appreciate it.

3 Any burning questions or can we go on to the
4 next?

5 Great. Our next presentation is going to
6 piggyback very nicely with our last one. In October, we
7 received an update from our multi-state ZEV Action Plan
8 partners on the status of zero emission vehicle
9 infrastructure. Today, we welcome back our multi-state
10 ZEV Action Plan partners and other California ZEV Action
11 Plan partners to update us on the various efforts underway
12 to support the full commercialization of ZEVs.

13 California remains the leader in this exciting
14 yet young market for zero emission vehicle adoption. Our
15 Governor has set ambitious goals for us of 1.5 million
16 ZEVs on the road in California by 2025, a multitude of
17 actions will ensure California continues on track to
18 accomplish this goal.

19 We are very pleased to hear from a number of
20 presenters representing the Governor's office,
21 public-private partnerships, and our ZEV State partners
22 speaking on the successes to date and future actions in
23 the update on the ZEV market enablers.

24 Mr. Corey, would please introduce this item?

25 EXECUTIVE OFFICER COREY: Yes. Thanks, Vice

1 Berg. This series of presentations will provide updates
2 on our California ZEV Action Plan, hydrogen and electric
3 charging infrastructure, activities led by the California
4 Plug-In Electric Vehicle Collaborative, California Fuel
5 Cell Partnership, and multi-state MOU ZEV State
6 Implementation Teams, as well as describe actions within
7 the new international ZEV alliance.

8 Joshua Cunningham of the Emissions Compliance
9 Automotive Regulations and Science Division will now give
10 the staff presentation or basically set the stage for
11 those to follow.

12 Joshua.

13 (Thereupon an overhead presentation was
14 presented as follows.)

15 ADVANCED CLEAN CARS BRANCH CHIEF CUNNINGHAM:

16 Thank you, Mr. Corey, Vice Chair Berg, and
17 members of the Board.

18 I'll be leading this briefing of the status
19 update on zero emission vehicle market enablers.

20 I will begin with a few introductory slides to
21 provide context, but then I will individually invite a
22 number of guest speakers to present an overview on the
23 many market enabling efforts occurring throughout the
24 State and beyond.

25 --o0o--

1 ADVANCED CLEAN CARS BRANCH CHIEF CUNNINGHAM:

2 Zero emission vehicles are a critical strategy
3 for achieving deep emission reductions in California and
4 abroad. There are a number of ZEV related targets in
5 California that provide important signals for the market
6 and for stakeholders that pursue actions to enable the
7 market.

8 As you are aware, our current zero emission
9 vehicle regulation requires an increasing amount of ZEV
10 sales through 2025. Our current likely compliance
11 scenario was projected to result in approximately 15
12 percent sales of ZEVs and plug-in hybrids by 2025. The
13 Governor's office Executive Order establishes a target of
14 1.5 million vehicles in the same time, frame which is
15 consistent with the ZEV regulation.

16 Additionally, the Executive Order stipulates a
17 second target requiring sufficient infrastructure by 2025
18 to support up to a million zero emission vehicles.
19 Finally, as you heard earlier this morning in the
20 presentation about the mobile source strategy report, ARB
21 staff are beginning to explore strategies that will
22 achieve additional emission reductions beyond 2025. One
23 path of the light-duty vehicles that achieves the
24 necessary emissions and petroleum reductions involves a
25 large expansion of ZEVs and plug-in hybrids.

1 This strategy achieves 100 percent light-duty
2 vehicle sales of ZEVs and plug-in hybrids by 2050 and
3 results in approximately 4.3 million electric vehicles and
4 plug-in hybrids on the road in 2030.

5 --o0o--

6 ADVANCED CLEAN CARS BRANCH CHIEF CUNNINGHAM: ZEV
7 sales require market enabling actions by many different
8 stakeholders. Critical market enabling actions include
9 consumer and community leader awareness, infrastructure
10 for both hydrogen electric charging, and a myriad of
11 partnerships between different stakeholders to
12 collectively address barriers for vehicle consumers.

13 An essential outcome of zero emission vehicle
14 enabling actions is to foster higher sales rates, and
15 ensure diversity of ZEV products or on the market to draw
16 consumer demand.

17 --o0o--

18 ADVANCED CLEAN CARS BRANCH CHIEF CUNNINGHAM: The
19 outline presented here shows you topic areas and guest
20 speakers that I have convened to help provide this
21 briefing.

22 Wade Crowfoot from the Governor's office will be
23 describing the Governor's ZEV action plan and recent
24 successful efforts by many agencies in California. He will
25 describe how State agency cooperation is critical to

1 address common barriers.

2 Tyson Eckerle will present on the status of the
3 California ZEV infrastructure and progress towards the
4 Governor's 2020 infrastructure targets. Christine Kehoe
5 and Bill Elrick both executive directors of their
6 respective partnerships will describe their current
7 workplans and how important multi-stakeholder partnerships
8 are to accelerate market adoption.

9 And finally, we've invited several leading
10 officials from our partner sections 177 states to speak
11 about the importance of the coordinated state efforts on
12 ZEVs, where they will share examples of local actions that
13 are influential in their regions.

14 --o0o--

15 ADVANCED CLEAN CARS BRANCH CHIEF CUNNINGHAM:

16 Given the importance of zero emission vehicle
17 markets and challenges of introducing different
18 technologies to consumers, Congress in its 2012
19 appropriations for the U.S. Department of Energy requested
20 that DOE commission a study by the National Academies to
21 identify market barriers that are slowing the purchase of
22 electric vehicles and hindering the deployment of
23 supporting infrastructure.

24 As a result of the request, the National Research
25 Council appointed the Committee on Overcoming Barriers of

1 Electric Vehicle Deployment which prepared an interim
2 report published earlier this year.

3 California is already working on many of the
4 recommendations made by the committee, which may be
5 contributing to the higher than average market share of
6 ZEVs in California.

7 Two of the barriers discussed prominently in the
8 conclusions that of expanding fueling infrastructure and
9 addressing a lack of consumer awareness are strong
10 elements that the market enablers discussed today.

11 --o0o--

12 ADVANCED CLEAN CARS BRANCH CHIEF CUNNINGHAM:

13 Building on one of those elements, in the 2015
14 National Academies report, ARB conducts and supports a
15 number of outreach efforts to expand consumer awareness.
16 This includes our long standing drive clean consumer
17 information portal. This website includes information on
18 new plug-in and fuel cell electric vehicles, incentives
19 that are available, and provides tools to Calculate user
20 benefits such as fuel cost savings.

21 In addition to the drive clean information
22 outreach, ARB administers the Clean Vehicle Rebate
23 program, with unique incentive levels for bearing
24 technology types. As you heard earlier today, vehicle
25 incentives are a critical aspect of encouraging zero

1 emission vehicles sales.

2 --o0o--

3 ADVANCED CLEAN CARS BRANCH CHIEF CUNNINGHAM: But
4 before I invite the first guests to brief you, I want to
5 summarize the current ZEV and plug-in hybrid sales
6 globally and in California. This graphic developed by the
7 International Council on Clean Transportation shows the
8 expanding sales rates around the world, emphasizing recent
9 growth in China and Europe following the successful launch
10 of the ZEV market in California.

11 An important milestone was surpassed in
12 September, global cumulative sales of zero emission
13 vehicles and plug-in hybrids reached one million vehicles.
14 Throughout this five-year period of ZEV sales, California
15 has been the leading leader pushing the market. With over
16 150,000 cumulative sales of ZEVs and plug-in hybrids in
17 California since 2010, vehicles in our State comprise 16
18 percent of this one million global ZEV fleet. This
19 represents a much larger fraction than our conventional
20 vehicle market share where California is only two percent
21 of global sales.

22 Additionally, a number of automakers and fuel
23 providers are making product announcements globally to
24 launch exciting vehicles and fuels. Along with the many
25 exciting plug-in electric vehicle announcements by varying

1 automakers, Toyota just announced a target of 30,000
2 global fuel cell electric vehicle sales by 2020, expanding
3 their technology.

4 At the same time a public-private partnership was
5 recently formed in Germany to help facilitate the roll-out
6 of 400 hydrogen stations by 2023 with strong participation
7 from industry.

8 --o0o--

9 ADVANCED CLEAN CARS BRANCH CHIEF CUNNINGHAM:

10 Finally, as you saw in the mid-term review
11 presentation earlier, this is a robust market with vehicle
12 sales in California surpassing three percent of the
13 light-duty vehicle market in 2014. These values will
14 continue to grow in the near future as technology costs
15 continue to decline, broader product diversity enters the
16 market, and the ZEV regulation stringency becomes
17 stronger.

18 I would like to now invite our first guest
19 speaker on the ZEV market enablers to present his
20 findings. Speaking remotely from ARB's Board room, Mr.
21 Wade Crowfoot is the Deputy Cabinet Secretary and senior
22 advisor to Governor Jerry Brown.

23 Mr. Crowfoot has overseen the establishment of
24 the Governor's ZEV action plan and coordination across
25 agencies.

1 Mr. Crowfoot.

2 MR. CROWFOOT: Thanks so much for the opportunity
3 to join you from Sacramento. I can assure you that Dr.
4 Sperling is paying close attention to all the
5 presentations despite being not in-person with the Board
6 in Diamond Bar today.

7 I first and foremost want to underscore the
8 Governor's priority for transportation electrification.
9 It's clear that this is a major priority for Governor
10 Brown. He established in 2012 the Executive Order calling
11 for 1.5 million zero emission vehicles on California
12 roadways by 2025. As you know, that largely tracks to the
13 ZEV mandate established by the Air Resources Board.

14 Earlier this year, in January, in his final
15 inaugural address, he mentioned ZEV expansion as part of
16 an ambitious target to reduce petroleum dependence by 50
17 percent in California by 2030. And then as recently as
18 last week, he spent time with auto companies, utilities,
19 infrastructure providers, and other major companies in Los
20 Angeles discussing how to continue to expand electric
21 charging infrastructure to enable more ZEVs on the road.

22 I'm here because this is a priority for Governor
23 Brown. I want to share with you the work that's been done
24 on an interagency basis since the Governor's Executive
25 Order almost four years ago.

1 We view the transportation electrification and
2 the expansion of ZEVs on California roads not to be a
3 project of ARB, but to be an administration wide project.
4 In 2013, we rolled out an action plan, the so-called ZEV
5 Action Plan, that specifically numerated all of the
6 actions that State agencies would take to facilitate
7 market expansion for these vehicles. And it's notable
8 that I believe over -- it was 14 agencies were
9 specifically identified in that action plan having central
10 responsibility for a concrete step action task that would
11 help build this market.

12 The 2013 action plan was split into four
13 categories, expanding consumer awareness and demand, which
14 we heard about today being an important priority,
15 continuing to build more infrastructure, charging
16 infrastructure, fueling infrastructure that enables these
17 cars to be driven, transforming fleets, particularly
18 public fleets really an early example of leadership that
19 we can provide in the State, and then lastly capturing
20 economic benefit from this transition within California.

21 The action plan listed over 100 specific tasks
22 that a specific State agency or department would take
23 responsibility for with time frame on when that task would
24 be completed. We were really focused, due to the
25 Governor's direction, to hold ourselves accountable for

1 actually making progress as a State government supporting
2 the market.

3 I'll give you a few examples of successes or
4 actions that were taken. One suggestion was made in the
5 formation of that action plan that the carpool stickers,
6 which are of such value to ZEV drivers, be provided when
7 the car is purchased at the dealership. Traditionally,
8 that sticker had been provided weeks after the purchase of
9 the vehicle once that -- the driver submitted an
10 application.

11 And we all know that instant gratification helps
12 sell consumer products. And so we heard that actually
13 making those carpool stickers available immediately would
14 help sales. The Department of Motor Vehicles, one of the
15 agencies that was part of the formation of plan, stepped
16 up and actually reformed their process and sent carpool
17 stickers in advance attached to VIN numbers to dealers, so
18 that that ZEV purchaser could actually receive the carpool
19 sticker on site when they purchased their vehicle.

20 Another example is improving the State's building
21 code to assure ZEV ready new homes, and new parking
22 structures and commercial buildings that actually have
23 electric vehicle charging built in as they're constructed.
24 That was leadership demonstrated by the State's Building
25 Standards Commission, another agency that helped form the

1 action plan.

2 And then lastly, you'll hear from -- last example
3 anyway is you'll hear next from a speaker named Tyson
4 Eckerle, in the Governor's Office of Business and Economic
5 Development. Tyson has done wonderful work helping to
6 facilitate and get on line this net wok of hydrogen
7 fueling stations. Well, Tyson's position was actually a
8 recommendation made in the ZEV Action Plan that we needed
9 somebody at a high level in the Governor's office
10 specifically focused on infrastructure roll-out on
11 hydrogen fuel stations. So those are just three examples
12 of actions that were called for in the plan that have been
13 achieved.

14 In order to actually implement the action plan,
15 we established an interagency working group comprised of
16 these 14 agencies meeting on a bimonthly basis out of the
17 Governor's office. Myself and colleagues within the horse
18 shoe convening and coordinating that work.

19 So it really has been an administration-wide
20 effort to get where we have as it relates to State support
21 for the market. I'm happy to announce that we're planning
22 to issue an updated action plan for 2015, early 2016,
23 based on the evolving market, and growing awareness of
24 other actions that the State can take to support market
25 growth.

1 Earlier this year at the ARB hearing room here at
2 the CalEPA building, we held a workshop, a public
3 workshop, with stakeholders on this topic to invite input
4 that would help us form the 2015 action plan. And as I
5 said, that's forthcoming. I'll note that there -- we're
6 expanding those four categories that I mentioned to seven
7 categories, reflecting growing priorities within the
8 administration and stakeholders. And those three
9 additional categories are, one, enabling broader access of
10 zero emission technology to Californians. In other words,
11 Californians of different income levels, really ensuring
12 that regardless of your income level, you have an
13 opportunity to experience zero emission vehicle
14 technology, whether it's on a bus, in a used car, in an
15 affordable new car. So we view that as very much a
16 priority.

17 Secondly is working to expand the use of zero
18 emission technologies within the medium- and heavy-duty
19 fleets, including freight and eventually rail, recognizing
20 the Governor and the State's and ARB's priority for
21 sustainable freight and developing a long-term path for
22 sustainable freight.

23 And then third, expanding the national market and
24 international market for zero emission vehicles. Governor
25 Brown likes to say we can't do it alone as it relates to

1 building the electric car, the hydrogen fuel cell car
2 market in California. We really need market growth in
3 other places. We're very fortunate to have close allied
4 states, which you'll hear from today, our ZEV 177 states.
5 And we think California can do even more to support the
6 expansion of sales in those states but then beyond,
7 including internationally.

8 So I'm very thankful. The CARB Board should know
9 you have excellent staff working on this, highly
10 committed, focused, and very well organized. They're a
11 pleasure to work with. And just know that the Governor,
12 as long as he remains Governor, will hold this
13 electrification of transportation as a core and central
14 priority.

15 Thank you.

16 ADVANCED CLEAN CARS BRANCH CHIEF CUNNINGHAM:

17 Thank you, Wade. I would like to next invite to
18 the podium our second guest speaker, Mr. Tyson Eckerle is
19 the ZEV Infrastructure Project Manager in the Governor's
20 Office of Business and Economic Development.

21 Mr. Eckerle.

22 MR. ECKERLE: Thank you very much, Joshua. And
23 it's great to follow Wade there. And I couldn't agree
24 more, the staff at ARB has been tremendous to work with.
25 And this is an incredibly exciting time to be working in

1 zero emission vehicle infrastructure. I think admittedly
2 infrastructure is not quite as sexy as the vehicles, but
3 they say you can't drive sexy without fuel.

4 (Laughter.)

5 --o0o--

6 MR. ECKERLE: And so what I wanted to do is go
7 through -- and let's see how does this -- so I can use
8 this thing.

9 Okay. We'll go through the -- you know, kind of
10 the status update of where we are with -- in terms of both
11 hydrogen and plug-in infrastructure, and where we need to
12 go. And so I think there's been a lot of great progress
13 out there.

14 --o0o--

15 MR. ECKERLE: So this is a snapshot here of where
16 we are currently in the network. And if I was really cool
17 about it, it would build up, but we've got the whole
18 snapshot right here. And so currently we have -- starting
19 from the bottom of the graph, we have two hydrogen
20 stations that are fully open to the public, one is within
21 walking distance, and it's not very often you get to say
22 that, right here in Diamond Bar. The second is in West
23 Sacramento.

24 If we kind of build our way up the graph, we have
25 six stations that are open, but they are non-retail, and

1 that means they don't accept credit cards. They have a
2 fuel by agreement between the automaker and the fueler --
3 and the fueling provider. Eight more stations have been
4 fully constructed, and so they're going through a variety
5 of commissioning. Four of those stations are just about
6 to open and become fully public retail.

7 And it's worth talking about that. There's been
8 a lot of collaboration of how do you go from a fully
9 constructed station to an open retail station? There's a
10 number of steps that need to take place. One of them is
11 the authority having jurisdiction, so the local community
12 has to verify that the station was built to the
13 specifications that they approved. The other one is the
14 Department -- Department -- Division of Measurement and
15 Standards from the California Department of Food
16 Agriculture, has to verify that a kilogram of hydrogen
17 sold is a kilogram received. And so they've been working
18 tirelessly across the state getting those stickers out
19 there and it's outgoing very, very well.

20 The third piece is that the station developer,
21 whoever developed the station, needs to say that they're
22 ready for this. And then finally, we've been working very
23 closely with the automakers to go there and actually
24 confirm that the station is performing to the protocol
25 that everybody has agreed to. And that's been a herculean

1 effort on the part of the automakers. So I want to thank
2 them and those in the room. They've been working very
3 hard to get these stations open.

4 So once all those pieces are in place, then we
5 call that station open to the public. And so you'll see
6 that number grow. So we have eight full constructed
7 stations, as I said, 15 more that are under construction,
8 two more that have full approval to build, and then four
9 more with planning approval.

10 And I'll stop there, so you know we're at 30
11 plus, 36. I should have added it before I got up here.

12 This is probably not 36 now that I'm looking at
13 it.

14 (Laughter.)

15 MR. ECKERLE: So -- but those are the stations --
16 you know, from there on down is where you can be fairly
17 confident those are going to become real stations. And as
18 you work your way down the list, it's more and more
19 certainty in terms of timing when they will become
20 stations.

21 The seven above that are in some form of
22 permitting. So they've submitted their permits, and then
23 you can kind of work your way up the list. One thing to
24 call attention to is the top 7 there is -- they're seeking
25 new sites. One of the major challenges, and this is -- it

1 spans across both the hydrogen and the plug-in is finding
2 locations for these cites where all the property lines up.
3 You can imagine any number of things. When it goes right,
4 there's usually one reason. When it goes wrong, there's a
5 myriad of reasons for why that might be.

6 And so -- so that's kind of the snapshot where we
7 are. So we're working our way towards 53. Just -- you'll
8 hear different numbers out there, and it depends on how
9 you count. There's 56 stations in total, if you add in
10 the bus-only stations that we have in the State. There's
11 42 fully public retail stations in development, so not
12 including -- if you subtract out those non-retail
13 stations. So you'll hear a variety of things.

14 --oOo--

15 MR. ECKERLE: But the fact is if you look at the
16 geography of it here, that's a pretty good coverage map.
17 These are all the stations that have planning approval or
18 better. So I mentioned that -- see you see we have San
19 Diego, L.A. and Orange County are very well covered.
20 Santa Barbara, working our way up into Coalinga. I
21 actually got to fuel there on Monday. We drove from Long
22 Beach up to Sacramento as a group, which was very
23 exciting, in the Bay Area, and Tahoe as well. So that's a
24 very good snapshot.

25 --oOo--

1 MR. ECKERLE: So where are we?

2 As we mentioned, the ARB staff has been
3 tremendous. This report, I'm sure you all are very
4 familiar with it, from AB 8 that came our in July of 2015.
5 Basically -- I mean, our network is on track, but really
6 post-2018, we are going to be running into a capacity
7 shortfall. So we really -- and the funding that we have
8 through the AB 8 program will not be able to keep up with
9 projected demands. We're really working on trying to
10 figure out how do we get above that and keep pushing this
11 market forward.

12 That brings in the Energy Commission and Air
13 Resources Board are working on the December report for the
14 AB 8. And this will focus a lot on kind of the financing
15 mechanisms. How do we start pulling in private capital
16 and other types of mechanisms that would help amplify what
17 the public has?

18 --o0o--

19 MR. ECKERLE: This is a snapshot of the
20 permitting time on there. I put that up there for a few
21 reasons. The first one is if you look at the funding, and
22 it got a little shifted, but the 2009 stations are to the
23 left, you know, followed by working our way to 2013. If
24 you look at the days, you know, it's about a year, plus or
25 minus, to permit one of these stations, which is

1 relatively in line with what a normal station might be, if
2 you were developing a gasoline station.

3 We've been going a lot of proactive outreach.
4 And many of you on these -- on the Board have helped us
5 with that with reaching out to local communities. So
6 thank you for that. But the local communities have been
7 very, very receptive.

8 The other thing to point out there is that the --
9 you know, the planning approval process, I mentioned, that
10 is usually one of the longest ones. And I think, you
11 know, as we've learned through time that, you know,
12 planning is really an art, and art is subjective. Whereas
13 once you get past the planning process and into building
14 and fire approval that has gone very, very smoothly. So
15 that's a snapshot.

16 So let me make sure here I didn't miss anything
17 that I wanted to say.

18 Yeah. Okay. Oh, yeah, well, of course, I put
19 that picture on the top. So we are putting out a
20 permitting guide book, capturing lessons learned. And
21 that should be published -- well, last week, but it will
22 probably be next week as far as when it finishes.

23 (Laughter.)

24 MR. ECKERLE: And that should be a good tool that
25 captured a lot of our lessons learned.

1 Okay. So that's kind of a snapshot of the
2 hydrogen network. Now, want to go into the electric
3 vehicle network.

4 --o0o--

5 MR. ECKERLE: And this -- I got to take this
6 slide from last year. And this is a reminder of kind of
7 what we're talking about. We have the Level 2 -- or Level
8 1 to start with. You know, the normal 110 outlet, the
9 Level 2 dedicated 220 volt, and then the DC fast charging.

10 So we will be talking mostly about Level 2 and DC
11 fast charging just for lack of -- for time purposes, but I
12 just wanted to highlight that Level 1 is still very, very
13 important here.

14 --o0o--

15 MR. ECKERLE: So this is a snapshot of where we
16 are in the marketplace. The currently installed table
17 there at the top has the workplace charger. So we -- and
18 we organized this as chargers, not stations. So there
19 could be more chargers -- you know, one station could have
20 multiple chargers. We did this to line up with the
21 projected need.

22 So before I get ahead. So you have workplace
23 Level 2. You know, we have about 1,700 chargers. You
24 know, and then about 6,000 Level 2 public chargers and you
25 work your way down the list. I don't have to read through

1 the numbers.

2 The projected need, we use the National Renewable
3 Energy Lab was contracted by the California Energy
4 Commission to do an assessment of if we had a million
5 plug-in ZEVs on the road by 2020, how many chargers would
6 we need? And they came up with two scenarios.

7 So the highest scenario is when we -- think we
8 might need the most. And that's a work -- what's the
9 word? Well, there's a home dominance scenario. And
10 then -- I can't think of what it is.

11 So the low scenario is when most chargers are --
12 most people are charging at home. The high scenario is
13 when -- high public access. Sorry. Thank you. It came
14 back.

15 So the high public access scenario is when a
16 lot -- when the home charging gets diminished a little bit
17 and people rely more on the public network. Now, I want
18 to point out that home charging in both of these scenarios
19 is ultimately the lion's share of this. So we're focusing
20 in though on the public and workplace for the rest of the
21 analysis.

22 But on the home charging note, I'm not going to
23 address multiple unit dwellings. And that is a big issue
24 and we need to figure out how to solve that. We just
25 don't really have any good solutions at the moment, aside

1 from just doing more of what we're trying to do. So
2 that's kind of a snapshot of where we are and where we
3 think we need to.

4 --o0o--

5 MR. ECKERLE: So next, I worked with PlugShare
6 and say, okay, what if we do this on a spatial -- spatial
7 scenario? So on the left-hand side, we have the home
8 dominant scenario pointed out. So we took the NREL
9 numbers and we also took where we think a million plug-in
10 vehicles would exist county by county, and then
11 distributed the chargers on that ratio county by county.

12 And if you look at the green counties, it says,
13 you know, a very high progress. We have more than 50
14 percent of what we were looking for in the 2020 NREL
15 projections have been met in that county as of today. And
16 you can -- you can look your way up, you know, so the
17 yellow counties have a little ways to go, you know, the
18 light green, 30 to 50 percent of that projected 2020 needs
19 are covered.

20 If you go to a high public access scenario there,
21 you'll see that the colors start to fade towards the
22 stopping sign of the stop light. So if we're depending
23 more on, you know, public charging, we have a little
24 further to go. So this is kind of a way to show a little
25 spatially where we are.

1 I didn't put up the workplace map there, because
2 basically that whole state is red, in both scenarios, with
3 the exception of the home dominant scenario. If you go
4 with the home dominant scenario, Santa Clara County is
5 actually doing pretty well. It's turned a light yellow,
6 relatively speaking. So we have a long way to go with
7 workplace charging.

8 The DC fast charging, that map actually looks
9 slightly better. There's been some talk that the NREL
10 numbers might be a little low, based on what we've learned
11 since 2014.

12 --o0o--

13 MR. ECKERLE: So another way of looking -- and
14 the purpose of putting this up is just to -- it's to look
15 at reliability. So the letters here are much too
16 difficult to read on this slide. But what this is is
17 looking at five counties -- and five most populated
18 counties in terms of chargers. And PlugShare has a
19 reliability score. And so when you get -- show up to a
20 station and you're using the PluShare App, you can either
21 check in, and it's neutral, or you can give a positive
22 review or a negative review.

23 A negative review is usually with, you know, if
24 it was congested, they weren't able to get their charge,
25 there was vandalism, the charger was shut off, or as

1 trivial as there was soda spilled on the handle.

2 So the -- a poor score, which is in the red
3 category is basically what they're saying is fewer than 80
4 percent of the check-ins were positive. And so according
5 to PlugShare, that's actually more than two times as many
6 negative reviews as the average overall network. So it's
7 a pretty poor performing station.

8 I asked the question looking at this, I thought,
9 okay, is the kind of squeaky wheel scenario? You know, if
10 you go on Yelp, the people who seem to have the most
11 complaints seem to write the most. And it turns out 90
12 percent of the PlugShare's reviews are positive or
13 neutral. And so that's kind of a good indicator. And
14 they also are well on their way to 60,000 check-ins for
15 the year. So it's a decent data set.

16 The point of bringing this up is even if you have
17 the numbers out there, that doesn't mean they're all
18 performing well. And they might not be in the right
19 place, or in -- so there's still a ways to go. So I just
20 wanted to use that as kind of -- throw up as a word of
21 caution in terms of just looking at overall numbers.

22 --o0o--

23 MR. ECKERLE: So now what I want to go into is
24 kind of some of the State agency actions that have been
25 done to help close the gap. We talked about the public

1 utilities. Wade already introduced the Building Standards
2 Commission, Energy Commission, and there's also some
3 private investment. And again commending the automakers
4 for stepping up to help out with that as well, and the
5 private charging networks.

6 So we'll start with the PUC proposals. I'm not
7 going to go into much detail at all here, but these -- I
8 think a lot of people are familiar that the
9 independently-owned utilities all have proposals in with
10 the Public Utilities Commission that are being heard. And
11 each of these utilities have ideas for how they might help
12 start filling the gap for chargers.

13 So what this shows here is really the proposals
14 vary from make-readies. So essentially, you know, you
15 have the piping and everything that the panels are set up
16 to full chargers. The circles there, so the dark circle,
17 represents the number of connectors, and the light circle
18 is the market size. So we're just trying to kind of
19 calibrate it and thanks to Noel at the PUC for putting
20 this together.

21 The magnitude of these proposals range from about
22 one-fifth to maybe one-third of the 2020 goals, based on
23 that NREL assessment, so you can -- it's a pretty big
24 magnitude.

25 None of this has been decided, so we can't count

1 on any of this yet. The Public Utilities Commission is
2 going through a big process to determine these things. So
3 the two on the left, the San Diego Gas and Electric and
4 Southern California Edison will be heard by the Commission
5 before the end of this year is the plan. And then PG&E
6 should be -- a decision should be issued by June 2016, so
7 that's kind of the time frame. We should have a little
8 bit more certainty on those.

9 --o0o--

10 MR. ECKERLE: The other key Public Utilities
11 Commission action was the NRG Energy crisis settlement.
12 They submitted -- you know, part of that settlement was to
13 do 200 Freedom Stations and 10,000 make-readies. So I
14 would argue the Freedom Stations are going pretty well,
15 especially with the experience I've had in hydrogen, in
16 terms of securing property and permitting and everything.
17 They have 127 stations out at 92 sites. These are DC fast
18 chargers and Level 2 systems.

19 The make-readies is taking a little longer.
20 They're trying some new approaches in terms of marketing,
21 but really it's the one-off negotiations take a long time.
22 So to get to 10,000 it's hard. You really need to have
23 that larger scale to get there. So that's been a little
24 slow. So you have about, you know, 1,200 sites that have
25 been done -- 1,200 make-readies have been done at about

1 187 sites.

2 --o0o--

3 MR. ECKERLE: So how does this all stack up?

4 If you look near the dark blue section, I'm
5 looking at the Level 2 charging network. Now, the dark
6 blue is where we are, and then the two dotted lines, you
7 have the low range and the high range. That's where we
8 want to be based on those NREL numbers.

9 So if you add in the proposals and all of those
10 go through, you can see we start to go over the low range,
11 which is a good thing. If you add in NRG's remaining
12 stations, which is the Freedom Stations, it hardly makes
13 it -- registers on the graph. They're working our way to
14 the Energy Commission. They have about \$12 million for
15 Level 2.

16 And then if we kept doing the Energy Commission
17 investments, not saying the Energy Commission is doing
18 this or anything, but then to say if we had about \$12
19 million in public funding year on year until 2020, then we
20 would potentially get to the high range. And so again, I
21 just want to take us back to the reliability.

22 So before declaring victory on any of this stuff,
23 there's a lot of uncertainty out there. And the other
24 thing is the NREL number is going to assume that this
25 charging network is distributed appropriately and people

1 can get a charge when they charge. So there's probably
2 some issues there.

3 --o0o--

4 MR. ECKERLE: This next thing is going into the
5 Buildings and Standards Commission. So the Air Resources
6 Board staff has done tremendous work with this. This is
7 part of the California CalGreen Code. It's Part 11 of
8 Title 24, The Building Standards Code.

9 And essentially what it does is, you know, all
10 new single and double, you know, so townhouse develop --
11 dwellings with a garage have to have make-ready installed.
12 So all new ones get that.

13 Multiple-unit dwellings same thing, if you have
14 17 or more parking spots, you have to have make-readies.
15 And then the workplace, they have to do three percent of
16 their parking spots, if they have 51 or more parking
17 spaces. ARB staff put together a gap analysis, which
18 we'll go into, where they recommended increasing this to
19 six percent of the parking spaces and decreasing the
20 threshold from 51 paces to 10 spaces. And we'll see here
21 in just a moment how that impacts things.

22 The other thing I want to point out is these
23 voluntary standards are really important, because there's
24 a lot of progressive communities. And I think that led a
25 lot by those counties that we saw up there earlier on the

1 reliability chart that are able to adopt these voluntary
2 standards as mandatory, and help ensure that their
3 communities grow.

4 --o0o--

5 MR. ECKERLE: So this is the workplace charging
6 analysis that ARB put together, and I edited just
7 slightly. So if there's anything wrong there, it's my
8 fault. But the -- you look at the bottom. So the dark --
9 the dark ones are existing stations. So we're about 3,000
10 total -- 1,700, 3,000 total.

11 So if you start adding in, you know, what -- what
12 ARB did -- I'm going to take a step back here. There's
13 essentially a gap of 64,000 to 134,000 chargers. And what
14 they did on the low range, they assumed we got the maximum
15 IOU -- and that's actually the maximum IOU, and then we
16 got the low scenario. So that -- you know, if you take
17 the low scenario, subtract what we think we have, we have
18 a 64,000 station gap.

19 If you do the high scenario, and we don't get the
20 IOU proposals at the volume that has been proposed, then
21 you're up to 134,000

22 So if you take these stations here -- if -- well,
23 I'll call your attention to the three percent thing. So
24 if you add in proposed stations on both of these, if you
25 add in three percent, you're getting -- you're still below

1 the low thing. So that's that purple bar graph there. If
2 you added the six percent requirement that's been
3 proposed, we start to perhaps address the low scenario
4 needs in the workplace charging.

5 So in terms of that workplace charging, that, you
6 know, nearly -- in terms of that proposal, nearly
7 three-quarters of new construction is projected to happen
8 in the six regions where we need it the most. So that's a
9 very positive thing.

10 And the other benefit, as you know, when you do
11 it with new construction, the cost is supposed to be about
12 a tenth of a percent of the cost of new construction to
13 add what they're projecting.

14 These proposed changes have been put out by the
15 Building Standards Commission are actually open for public
16 comment as we speak. I think it closes November 23rd.
17 And so the Building Standards Commission has taken that
18 next step to get this out there.

19 --o0o--

20 MR. ECKERLE: So those are kind of a summary of
21 the actions that are happening. You know, in summary, I
22 just want to say there's -- it's a big year ahead
23 especially -- well on both sides. Hydrogen is huge.
24 We're going to learn a lot. You saw the Mirai out in the
25 parking lot. And it's a very exciting time. We have

1 Hyundai has been out there in the marketplace. I just
2 drove with Mercedes across the state.

3 On the plug-in side, we need to make sure that
4 all these opportunities, especially the make-readies
5 become actual stations. If that doesn't happen, we're --
6 we have a long ways to go.

7 Reliability for both is absolutely critical and
8 customer satisfaction. And, you know, as Joshua had
9 pointed out, we need to make sure that customers are aware
10 of the incentives and everything, and so -- and that's
11 part of what we're working with through the ZEV Action
12 Plan and everything.

13 So thank you very much. And I guess that's it.

14 VICE CHAIR BERG: Thank you very much, Tyson.
15 That was really a fabulous report. I'm going to jump in
16 here, understanding that we've just got a couple of
17 questions for you, and great to see you again.

18 MR. ECKERLE: Yeah, you too.

19 VICE CHAIR BERG: Supervisor Gioia has a quick
20 question.

21 BOARD MEMBER GIOIA: Hi, Tyson. Good to see you
22 here. On the new green building standards, one of the
23 things, just to bring to your attention, which I think
24 makes some sense to look at from the local jurisdiction
25 standpoint, I've suggested, we're going to approve this in

1 Contra Costa here coming up shortly, an ordinance that not
2 just takes the voluntary numbers and makes them -- and
3 makes them mandatory, but actually requires the build-out
4 of the charging station, not just to make it ready,
5 because I know the Building Code says -- which I think is
6 great. It's a great start. It's building the conduit and
7 the electrical power, but doesn't require the installation
8 of the station itself.

9 So what we're doing is an ordinance that -- so
10 for new development, for the multi-family developments,
11 office, shopping, things -- you know, things like that,
12 and commercial retail, that the -- there be the minimum
13 number that would be based on the voluntary standard that
14 are in the Building Code, but then require the
15 installation of the actual charging station. I want to --
16 and I was wondering why that wasn't included in the
17 legislation, why just the electrical infrastructure,
18 because what happens then in a multi-family, where we
19 really need -- of course, this is with new and not
20 existing multi-family, of course, but we -- you leave it
21 up to the developer to decide whether to put the station
22 in, the developer of the housing project, whereas a local
23 jurisdiction requires it as part of the development, at
24 least you have it there.

25 MR. ECKERLE: Right.

1 BOARD MEMBER GIOIA: Do you know what the
2 reasoning was of why the actual station itself wasn't
3 required just the make-ready?

4 MR. ECKERLE: That -- for me, it would only be a
5 guess, so I don't want to --

6 BOARD MEMBER GIOIA: Yeah.

7 MR. ECKERLE: I don't know what happened with the
8 negotiation. I mean, there's --

9 ADVANCED CLEAN CARS BRANCH CHIEF CUNNINGHAM: I
10 can help with that, Tyson, if you'd like?

11 MR. ECKERLE: Yeah, sure.

12 ADVANCED CLEAN CARS BRANCH CHIEF CUNNINGHAM:

13 The -- part of it is to ensure that we were doing
14 the right amount of cost effectiveness in the policy.

15 BOARD MEMBER GIOIA: Right.

16 ADVANCED CLEAN CARS BRANCH CHIEF CUNNINGHAM: But
17 the other is that you want to make sure that when you make
18 that final equipment installation, you're doing it at the
19 right location on the property --

20 BOARD MEMBER GIOIA: Right.

21 ADVANCED CLEAN CARS BRANCH CHIEF CUNNINGHAM:

22 -- you have the right actual number of people
23 that have the vehicles ready to use it.

24 BOARD MEMBER GIOIA: So, I mean, the good news is
25 it's the local jurisdictions that are approving these

1 developments. So at the time of the project approval, we
2 would then be -- see, we're going to require under our
3 ordinance to actually put in the charging station. And
4 that can usually be determined on the site plans when
5 you're proposing a new development.

6 So it seems to me that that would be -- so we're
7 going to actually try to sell ours as a model ordinance in
8 the Bay Area to say that really other cities and counties
9 should adopt this as part of approving new development.

10 MR. ECKERLE: I was just going to ask if you
11 could send that.

12 BOARD MEMBER GIOIA: I will.

13 MR. ECKERLE: I do get people asking for examples
14 of that.

15 BOARD MEMBER GIOIA: Yeah, we'll send that.

16 MR. ECKERLE: That sounds great.

17 ADVANCED CLEAN CARS BRANCH CHIEF CUNNINGHAM:
18 Good. Thank you.

19 VICE CHAIR BERG: Great. Well, I'm sure there
20 will be more questions. And so we'll move along in the
21 presentation, but I know this was a burning one, so
22 thanks.

23 MR. ECKERLE: Thank you.

24 ADVANCED CLEAN CARS BRANCH CHIEF CUNNINGHAM:

25 Thank you, Tyson. I would like to invite to the

1 podium our next guest speaker, former Senator Christine
2 Kehoe is the executive director of the California Plug-In
3 Electric Vehicle Collaborative.

4 Mrs. Kehoe.

5 (Thereupon an overhead presentation was
6 presented as follows.)

7 MS. KEHOE: Good afternoon, Vice Chair and Board
8 members. And I'm going to be clicking my slides. Okay.
9 I'll do that.

10 Thank you very much for allowing me to join you
11 today and talk about one of my favorite topics, the
12 California Plug-In Electric Vehicle Collaborative.

13 And let me just get to the right...

14 --o0o--

15 MS. KEHOE: There we go. Thank you.

16 Again, my thanks to you for allowing me to attend
17 today and to update you on the California Plug-In Electric
18 Vehicle Collaborative.

19 My goal is to demonstrate that public-private
20 partnerships and collaboration are essential for growing
21 the PEV market in California.

22 --o0o--

23 MS. KEHOE: The Plug-In Electric Vehicle
24 Collaborative is a public-private organization focused on
25 accelerating the adoption of plug-in electric vehicles to

1 meet California's economic, energy, and environmental
2 goals. Using the expertise of our 45 members, the
3 collaborative convenes, collaborates, and communicates on
4 emerging PEV market trends and works to address challenges
5 and enables strong PEV market growth.

6 You can see that our membership is a unique
7 alliance of government agencies, NGOs, universities,
8 global automakers, California utilities, charging and
9 network providers, and others, and we're all working
10 together to identify PEV market opportunities, and to
11 develop solutions to overcome barriers.

12 ARB is a founding member of the Collaborative,
13 and provides three staff members on loan. Thank you. Our
14 entire staff is four people, including the executive
15 director, that's me, and all of our revenues are derived
16 from dues -- our member dues.

17 --o0o--

18 MS. KEHOE: We are very, very excited About the
19 progress being made in PEV sales since the collaborative
20 was launched in late 2010. We now have over 55,000 PEVs
21 on California's roads. This number grows by an average of
22 4,000 or more vehicles a month. And the PEVC uses a
23 conservative number that includes several different data
24 sets. So ours might be a little bit different than some
25 of the other numbers you'll see this afternoon.

1 Also, with more than 20 makes and models
2 available -- oops, I think I jump ahead a little bit --
3 consumers have more EV choices than ever. PEV drivers
4 know that their vehicles deliver great performance, reduce
5 overall fuel costs, and emit much fewer or no tailpipe
6 emissions. And one of our major challenges is getting
7 that message out to more and more Californians.

8 --o0o--

9 MS. KEHOE: Although PEV sales are steadily
10 increasing, we know much more needs to be done to inform
11 Californians about the many benefits of PEVs. Our market
12 is still fragile. Through our three member meetings a
13 year, we convene in order to examine market-moving trends
14 and set annual priorities for our organization.

15 --o0o--

16 MS. KEHOE: Working with our broad membership --
17 I keep hitting the wrong button here -- we identify -- our
18 members identify the top challenges to PEV market
19 adoption. And then we determine actions that the PEV
20 Collaborative can take to address these barriers.

21 The last couple of years the PEV Collaborative
22 has identified several high priority areas. And I'll
23 provide a few more details later. But to summarize, our
24 priority activities this year and into next year will be
25 supporting greater charging at work, apartments and

1 condos, charging public -- targeting public education
2 efforts, increasing corporate commitments for workplace
3 charging, and developing California and other partnerships
4 that share best practices to advance PEV sales.

5 --o0o--

6 MS. KEHOE: The Collaborative membership has
7 identified a robust and reliable network of charging
8 infrastructure as critical for supporting the PEVs that
9 are on the road today and those that are coming.

10 As you just heard Tyson mention, the growth of
11 charging, especially in the public -- on the public side
12 destinations and at work is critical. Two key areas that
13 we have identified in the collaborative for special
14 attention include workplace charging, and multi-unit
15 charging, that is apartments and condos.

16 Over 50 percent of Californians live in
17 multi-unit dwellings. And that is, as you've heard, a
18 particularly challenging scenario. It is really a
19 building-by-building discussion at this point. And that
20 may change, but for right now, it is -- it is a barrier to
21 PEV adoption. And it may be that workplace charging
22 becomes the second most used charging available for
23 people -- or rather, it becomes the primary charging
24 available for people who live in multi-family dwellings.

25 For those of us that have access to our own

1 parking spaces, of course, charging at home is still about
2 90 percent of the charging activity. We have also found
3 that there is significant demand from local government,
4 property owners, and managers, and small businesses for
5 information about all aspects of charging.

6 The Collaborative has developed content for and
7 hosted six webinars on key topic areas over the last five
8 or six months, each webinar having on average about 75
9 attendees, and several have had more than 120 attendees.

10 We're also meeting with large property owners in
11 California, speaking at key conferences and meetings,
12 publishing articles and industry publications, and
13 developing a series of case studies of charging solutions
14 in apartments and condos that illustrate best practices.

15 The Collaborative has identified some key areas
16 of guidance for workplaces as well. In November, we'll
17 publish a new document entitled, "Plugging In At Work: How
18 to Effectively Install, Share, and Manage Electric Vehicle
19 Charging Stations". And that includes current thinking
20 around management issues, such as planning for future
21 demand, developing etiquette policies, and designing
22 increasing for EV charging at the workplace.

23 --o0o--

24 MS. KEHOE: Our members have directed the staff
25 to develop a targeted education campaign of test drives

1 this year. They get customers into these terrific cars,
2 and they have a chance to experience firsthand the --
3 really, the thrill of electric drive.

4 We know that getting drivers behind the wheel of
5 a PEV is seen as the most effective way to convey the many
6 benefits of driving electric.

7 Our campaign is entitled, "Best Ride Ever". It
8 targets underserved and geographically diverse areas.
9 We've been in Fresno, Bakersfield, National City, Arcata,
10 and there will be several more. They've been extremely
11 successful. We've had dozens of people at each one. And
12 we're doing a drive-to-purchase metric after each of the
13 test drives. And we look forward to sharing those results
14 once they're tallied to see what the follow up is after
15 they've had the opportunity to drive the EV.

16 --o0o--

17 MS. KEHOE: To complement the work that we're
18 doing in California, in 2013, we signed an MOU with the
19 Netherlands, Coast to Coast E-Mobility group, which is
20 kind of a parallel organization in the Netherlands. We
21 agreed to share best practices and learn from PEV
22 successes in the Netherlands and to work on a project
23 together.

24 Since then, we've been actively sharing best
25 practices with Coast to Coast, and they have been sharing

1 with us. In addition, our Chair Janea Scott of the
2 California Energy Commission, and the PEVC Deputy
3 Executive Director have participated in delegations
4 traveled to Holland to learn more about the EV programs
5 there that are extremely successful and aggressive.

6 We also have a Dutch student intern with us
7 through the end of the year. And I can't mention our
8 Holland California connection without mentioning Peter Van
9 Deventer, who is assigned to the Dutch Consulate in San
10 Francisco and the Governor's Office of Planning and
11 Research in Sacramento. He is an active participant with
12 the Collaborative and a liaison between California and the
13 Netherlands.

14 --o0o--

15 MS. KEHOE: On slide eight, I just wanted to
16 mention our very exciting event last week in Los Angeles,
17 Drive the Dream 2015. Our high energy gathering was --
18 took place at the Creative Artists Agency in West Los
19 Angeles. And it was a very successful event, and fully
20 funded by the membership of the PEVC.

21 At the event, Governor Brown welcomed 40
22 corporate leaders and public sector partners to discuss
23 challenges and successes in the deployment of PEVs and PEV
24 charging at their worksites, new and substantial
25 commitments for workplace charging, employee purchase

1 incentives, and fleet purchases were announced by NBC
2 Universal, the U.S. Navy, and Honda. AT&T, CBRE, JP
3 Morgan, Fox Network, Vision Fleet, and many other
4 companies participated in the gathering. We will produce
5 a follow-up survey of all the commitments that we'll be
6 happy to share with you in the coming weeks.

7 Our final member meeting of the year takes place
8 in November in Sunnyvale. And our members will look at
9 the final approval of our 2016 workplan and next year's
10 budget. Our members remain focused on the priorities of
11 workplace and multi-unit dwelling charging, consumer
12 driving experience and education, and convening for the
13 purpose of candid and current conversation about the
14 California PEV market.

15 --o0o--

16 MS. KEHOE: Again, I want to thank you for the
17 opportunity to speak to you today about the collaborative.
18 ARB is a key member, and has always been one of our
19 biggest supporters. I look forward to continuing to work
20 with you to grow the PEV market in California.

21 And I just want to remind everybody, if you want
22 more information on the resources we offer, they're on our
23 webpage. You can see our web address there. All our
24 documents are public. So for you or anyone in the
25 audience download them, share them, get them around. We

1 also invite you to sign up eBlast where we'll keep you
2 involved in real time on the latest PEV news and
3 happenings of the Collaborative.

4 And I just want to thank you again for your time
5 and attention, and I appreciate all the support from ARB.

6 ADVANCED CLEAN CARS BRANCH CHIEF CUNNINGHAM:

7 Thank you, Mrs. Kehoe. Very helpful.

8 I would like to next invite to the podium our
9 next guest speaker, Mr. Bill Elrick is the executive
10 director of the California Fuel Cell Partnership.

11 Mr. Elrick.

12 MR. ELRICK: Thank you, Joshua. Thank you all
13 for the opportunity to be here. Very grateful to give a
14 high level -- thank you -- overview of the collaboration
15 and progress in the hydrogen and fuel cell vehicle market.
16 If you have any questions throughout, please, I welcome
17 them.

18 (Thereupon an overhead presentation was
19 presented as follows.)

20 MR. ELRICK: All right. It's an exciting time
21 for us. Our commercial product is now available. We're
22 the last, but hopefully one of the more exciting to the
23 market. Hyundai, as you heard, has been on the market
24 with a leased fuel cell vehicle since last year.
25 Yesterday, Toyota unveiled and actually gave the keys to

1 the first customers who will purchase a fuel cell electric
2 vehicle. You'll hear more to come. At the L.A. Auto Show
3 I expect to see a lot more excitement there.

4 Earlier today, we heard Chair Nichols talk a
5 little bit about fuel cell electric buses, and the
6 progress there what we heard this week at one of our
7 meetings. What was very exciting there was the updates on
8 the increased reliability, the longevity, the all American
9 buses being rolled out, and the expansion plans at the
10 two, not just California leading, but national leading
11 agencies at AC Transit, and SunLine. But even a step
12 further, when they spoke of their expansion plans, they
13 spoke of sharing these experiences and sharing these as
14 models for other transit agencies.

15 So we're really looking at leveraging what
16 they've done right and going from there. We also heard a
17 discussion earlier, and I want to take the opportunity we
18 heard about biogas and just remind everyone here that that
19 biogas can be the feedstock for renewable hydrogen or
20 electricity in the ZEV market. So there's many uses for
21 that.

22 --o0o--

23 MR. ELRICK: I won't spend much time here. You
24 heard earlier from Tyson on the progress of the
25 infrastructure. I just reinforce how exciting it is to

1 see the initial retail market coming together. And it
2 seems like weekly he's telling us more on the stations
3 that are opening. And we thought we might have some this
4 week, but I guess it may be next week another handful of
5 stations opening up.

6 So these products I just mentioned can -- now,
7 customers can go into the showroom floors and be more
8 confident in making the leases and purchases of these new
9 vehicles.

10 --o0o--

11 MR. ELRICK: So these new markets developing them
12 are a little bit like nesting dolls. It seems to be a
13 limit -- limitless amount of challenges to overcome. For
14 us, we have the major codes and standard in place, and now
15 we're working to communicate that to the local
16 jurisdictions and levels. So that's in play.

17 We have the major commitment of the automakers,
18 the infrastructure, and, of course, government to see this
19 through, and we have the different planning documents from
20 the roadmap we put out a few years ago to the new AB 8
21 reports to guide us in this coordinated effort going
22 forward.

23 This is -- the good news is that these -- again,
24 these larger ones that were meeting these and overcoming
25 these obstacles. And the obstacles that will be before us

1 now are relatively smaller, and we'll just keep on those.

2 --o0o--

3 MR. ELRICK: So the California Fuel Cell
4 Partnership continues its collaborative work on these
5 technical barriers. Again Tyson discussed the permitting
6 guide book for the AHJs that's coming out. We're very
7 excited that, as a tool, we're communicating that at the
8 local level.

9 The automotive -- another exciting part is the
10 automotive and infrastructure stakeholders have been
11 working more and more together in unison. They've worked
12 on a coordinated approach to station operability, so
13 they're not pushing against each other as much as working
14 together for the success. And they have been working
15 collaborative -- collaboratively as industry to feedback
16 to government on funding and programmatic activities,
17 again so it's a unified activity and unified effort to
18 bring all this technology to market.

19 The partnership also continues to take these
20 lessons and share these lessons and experiences with the
21 current and future stakeholders, and the consumers going
22 forward. Again, you heard awareness and education is
23 always one of the biggest challenges and resources to
24 getting the word out.

25 --o0o--

1 MR. ELRICK: Early in -- earlier -- I'm sorry.
2 Early next year, one of the expectations we have is to
3 publish a medium- and heavy-duty action plan. This is
4 exciting, because what we see as the release of this
5 document will help advance this sector, much like
6 previously in the light-duty sector we released action
7 plans and road maps to really put everybody on the same
8 page, point the same direction, and make some of the
9 advances we're now seeing coming to light.

10 So it's a great time. It's none too soon to see
11 this collaborative effort and publication coming out. So
12 anticipate earlier next year the action plan for this
13 market will come out.

14 We're seeing increasing consumer access -- or we
15 are increasing consumer access to station information.
16 That is one of our big activities within the partnership
17 and within the stakeholders. We'll be adding additional
18 upgrades and interactive pieces to our SOSS, or our
19 Station Operational Status System, which lets the
20 consumers know via phone app or their on-board navigation,
21 not only where the stations are, but that they're up and
22 running as they should properly be, as well as upgrades to
23 the station maps, so you can see the network as it's --
24 again it's developing in real time before our eyes. The
25 list gets greater and greater every year -- or every month

1 and week, so we want to report that in real time.

2 And then earlier this year, we released with the
3 Department of Energy -- or at least we supported the
4 Department of Energy's release of a national hydrogen and
5 fuel cell emergency response toolkit. It's part of a
6 broader package of safety information, and we're very
7 excited that this is now a uniform approach to safety, and
8 getting the awareness and education out there on a base
9 level for everyone. It creates a lot of harmony across
10 the Board.

11 --o0o--

12 MR. ELRICK: And then we work with our members
13 and other stakeholders and participate in hundreds of
14 events, and have been reaching tens of thousands of people
15 to get the word out.

16 In 2015, we've focused more on the cities where
17 the early stations are being deployed, and, of course, the
18 consumers in those communities that we're expecting and
19 looking forward to purchasing and leasing these new
20 vehicles.

21 --o0o--

22 MR. ELRICK: And I want to thank you again. You
23 know, it is an exciting time for us. As hydrogen and fuel
24 cell electric vehicles, you know, take the field, we're
25 coming to the commercial market, and we're looking forward

1 to this being part of ARB and the ZEV technology shared
2 economic and environmental goals that we all have.

3 BOARD MEMBER GIOIA: Thanks for the picture,
4 since Cal will be playing UCLA 30 miles from here tonight.
5 Go Bears.

6 (Laughter.)

7 BOARD MEMBER BALMES: And as a Cal Professor, I'm
8 especially pleased to see.

9 (Laughter.)

10 MR. ELRICK: Thank you.

11 BOARD MEMBER GIOIA: Go Bears.

12 ADVANCED CLEAN CARS BRANCH CHIEF CUNNINGHAM:

13 Thank you, Mr. Elrick.

14 For our last topic on the ZEV market enablers, I
15 would like to invite to the podium our next set of
16 speakers representing California's partnership with our
17 sister states on zero emission vehicle markets.

18 Mr. Rob Klee is a Commissioner of the Connecticut
19 Department of Energy and Environmental Protection.

20 Mrs. Christine Kirby is the Director of Air and
21 Climate Programs at Massachusetts Department of
22 Environmental Protection.

23 And Mr. Dave Nordberg is the coordinator of the
24 Low and Zero Emission Vehicle Program at the Oregon
25 Department of Environmental Quality.

1 And I believe Mr. Klee is beginning.

2 (Thereupon an overhead presentation was
3 Presented as follows.)

4 MR. KLEE: Hi there. My name is Rob Klee, the
5 Commissioner of Connecticut's Department of Energy and
6 Environmental Protection. We are the state agency in
7 Connecticut charged with protecting, conserving and -- our
8 natural resources and environment, and with bringing
9 cleaner, cheaper, and more reliable to the citizens of
10 Connecticut.

11 And I wanted to thank Vice Chair Berg and the
12 members of the Board.

13 And today my colleagues and I from Massachusetts
14 and Oregon are going to talk about some of our recent
15 successes in establishing market enabling mechanisms in
16 the ZEV MOU states.

17 --o0o--

18 MR. KLEE: So like California, our states are
19 committed to both reducing greenhouse gas emissions and
20 electrifying our transportation sector. All of our states
21 have adopted greenhouse gas reduction goals, which are
22 comparable to California's goals. We understand that
23 transitioning our transportation sectors away from fossil
24 fuels is essential if we're going to achieve these
25 ambitious goals.

1 As you can see on the indexed graph on the
2 left-hand side of the slide, like California, the ZEV 177
3 states are making steady and significant progress in
4 reducing overall greenhouse gas emissions. California and
5 the 177 ZEV states are clearly the nation's climate
6 leaders. And collectively, the 177 states have an
7 economy, population, and CO₂ emissions that are actually
8 nearly one and a half times greater than California.

9 Together, with California though, we are the
10 world's largest emitters of greenhouse gases and the
11 largest economies. All of this is to say that
12 California's success is tied to the success of the section
13 177 states.

14 We are vital partners with California in the
15 effort to set the nation on a climate path that will avoid
16 the worst effects of climate change, which as a
17 Commissioner in Connecticut who has suffered through three
18 recent significant storms, we are feeling those effects in
19 Connecticut as I know you are here in California.

20 While we made significant progress reducing our
21 emissions from the power sector, reducing emissions from
22 our transportation sector remains our biggest challenge to
23 achieve our climate goals.

24 --o0o--

25 MR. KLEE: As you can see from this pie chart in

1 this slide, the transportation sector accounts for nearly
2 half of the CO₂ emissions in the section 177 ZEV states.
3 We recognize that transportation electrification is
4 essential to achieving our emissions reduction goals, as
5 well as the 3.3 million ZEV target set by the ZEV MOU.
6 And we are committed to building robust ZEV markets in our
7 states.

8 Since the release of our multi-state ZEV Action
9 Plan nearly 18 months ago, we've been working on multiple
10 fronts to develop the market in our states. We don't have
11 time to talk about all that we're doing, so we're going to
12 highlight a few of the real key recent important programs
13 and activities just to give you a sense of what's going on
14 in our states.

15 --o0o--

16 MR. KLEE: Establishing vehicle and charging
17 station purchase incentive programs have been a high
18 priority for the 177 states. When the action plan was
19 released only one section 177 State offered purchase
20 incentives. Today five of the eight ZEV MOU states offer
21 vehicle purchase incentives. And all of the ZEV MOU
22 states are incentivizing charging station deployment.

23 For instance, in Connecticut, this year we've
24 piloted a new vehicle incentive program that we call
25 CHEAPR, the Connecticut Hydrogen and Electric Automobile

1 Purchase Rebate. CHEAPR offers Connecticut residents
2 point-of-sale rebates of up to \$3,000 for the purchase or
3 lease of a new ZEV.

4 The rebate program has been very popular and the
5 uptake rate is good. And I go around everywhere I speak
6 encouraging folks to come on down and check out the cars.
7 I feel like I am a car salesman at half the time that I'm
8 out talking.

9 Our neighbors to the north, Massachusetts, have
10 also established a point-of-sale vehicle rebate program,
11 the MOR EV program, Massachusetts Offers Rebates.
12 Massachusetts residents are eligible for a \$2,500 rebate
13 towards the purchase of a PEV.

14 --o0o--

15 MR. KLEE: A big focus of our efforts, of course,
16 has been on the deployment of infrastructure. In the two
17 years since the ZEV MOU was signed, the section 177 states
18 have added roughly 2,800 new public and non-residential
19 private charging stations. In the aggregate, the section
20 177 states now have more than 5,000 non-residential
21 charging stations. And that's the equivalent of one
22 charging station for every five ZEVs on the road.

23 And our states are continuing to invest in
24 infrastructure deployment. For example, New York is
25 installing DC fast chargers at their rest stations all

1 along the New York State freeway. Connecticut is also
2 supporting infrastructure for fuel cell vehicles. So I'm
3 proud to follow the previous speaker. The state has
4 allocated funding to leverage private investment in
5 hydrogen fueling infrastructure in the Hartford area,
6 which is our state capitol.

7 We've asked for private sector proposals this
8 year and received three bids for construction of two new
9 fueling stations. The proposals are currently under
10 consideration. We expect to make awards by the end of
11 this year, and have stations operational by 2017, and
12 access to hydrogen fueling stations to jump start the
13 market for fuel cell vehicles in our State.

14 Demonstrating my governor, Governor Malloy's
15 leadership in addressing climate change and moving to zero
16 emission vehicles just last Friday, Connecticut committed
17 an additional two and half million dollars to ramp up our
18 ZEV implementation in Connecticut, one million of that
19 will be added to our CHEAPR program, the incentive at the
20 point of sale to make sure we have sufficient dollars to
21 cover the ongoing -- the current State fiscal year, and
22 another million and a half dollars will be allocated
23 towards a new workplace charging initiative, and fleet
24 incentive program.

25 The grants application is for fleets. And

1 workplace chargers are going to be on line at our EV
2 Connecticut webpage next week, and we anticipate some good
3 uptake in both those programs.

4 --o0o--

5 MR. KLEE: And I'm going to close with actually a
6 picture of me without a beard. I'm the guy on the far
7 right in the picture there, and talk a bit about
8 dealerships. And the dealerships, particularly in
9 Connecticut, have been critical partners in our efforts to
10 increase ZEV sales. We've built -- been building
11 relationships with our dealership associations and
12 individual dealers in our states in a number of different
13 ways.

14 We're educating dealers about the federal and
15 State incentives. We're engaging our dealership
16 associations and stakeholder policy workgroups. We're
17 also providing sales incentives to the dealers. For
18 instance in Connecticut, we offer \$300 to the dealers for
19 each of the ZEVs that they sell or lease through the
20 CHEAPR incentive program. We're partnering with dealers
21 on ride and drive events, and we established dealership
22 recognition programs.

23 And this picture is from last year when my State
24 partnered with the Connecticut Auto Retailers Association
25 to establish a model dealership award program, the

1 Revolutionary Dealer Award, which Connecticut our State
2 motto is that we're still revolutionary, so it fits on a
3 number of levels, to recognize Connecticut dealers who
4 have leaders in selling and leasing plug-in electric
5 vehicles. And on November 20th, at our Connecticut auto
6 show, we would will recognizing another dealer who has
7 become a ZEV champion. And I can't reveal the name here.
8 I won't do it.

9 (Laughter.)

10 MR. KLEE: But a lot going on on the east coast
11 and in the ZEV 177 states.

12 Next, up is Christine Kirby from Massachusetts.

13 MS. KIRBY: Thank you, Rob. Good afternoon, Vice
14 Chair Berg and members of the Board. This is my third
15 October appearing before you. I'm happy to be back.

16 (Laughter.)

17 MS. KIRBY: So it's nice to be here from the east
18 coast.

19 --o0o--

20 MS. KIRBY: I'm going to cover our progress on
21 fleets, workplace charging, and partnerships.

22 First, on fleets, we recognize that
23 electrification of our public fleets is an important
24 state -- lead-by-example state initiative. Our states are
25 engaged in a number of efforts to electrify fleets. All

1 states are purchasing ZEVs and installing charging
2 stations at government buildings, and many of -- and ZEV
3 MOU states have established or are in the process of
4 establishing targets in line with the ZEV MOU targets.

5 We did make a commitment to electrify our State
6 fleets in the ZEV MOU. My State of Massachusetts is one
7 of five ZEV MOU states offering fleet incentives. And to
8 further our work promoting green communities, the
9 Massachusetts Electric Vehicle Incentive Program began two
10 years ago with the municipalities, and has since expanded
11 to include State fleets, driving schools, universities and
12 colleges, and car share companies.

13 The photo on this slide is a slide of the City of
14 New Bedford which held an event in June. They had
15 purchased 10 new Nissan Leafs. It was a very exciting
16 event. They applied for our funds. And the vehicles are
17 being set aside for the City's health inspectors, which is
18 a perfect application of battery electric vehicles.

19 --o0o--

20 MS. KIRBY: Workplace charging. We recognized
21 early on that access to workplace charging can be a
22 tipping point in a consumer decision to buy or not buy an
23 EV - you heard from earlier speakers that point as well -
24 especially, consumers didn't have access to at-home
25 charging. So in that vein, expanding workplace charging

1 is a high priority for all of our states.

2 To highlight some of the activities going on in
3 our states, a number of our states are funding workplace
4 charging. For example, New York State has helped fund
5 installation of workplace charging at more than 50
6 employer locations. And in my state of Massachusetts, we
7 held an employer event in 2014. We announced a \$1.4
8 million investment in workplace charging. We fund 50
9 percent of the charging station hardware at employer
10 locations. And earlier this week, we have funded 359
11 units at 176 separate addresses.

12 One interesting statistic for our MOR EV program
13 that Rob talked about, 35 percent of our applicants have
14 reported that they have access to workplace charging,
15 which is a great statistic, and hopefully helping EV
16 purchasing. And under this program we are now starting to
17 see original applicants reapply for funding as EV
18 awareness grows at their workplaces.

19 Our states are also working directly with
20 employers to promote workplace charging. In Vermont,
21 following the Plug-In Electric Vehicle Collaborative
22 successful model, Governor Shumlin participated in last
23 month's very successful Drive The Dream Vermont event.
24 And 21 major employers in Vermont made commitments to
25 promote plug-in vehicles in the workplace by taking

1 action, such as providing employee purchase incentives,
2 installing workplace charging stations, or adding plug-in
3 electric vehicles to corporate fleets.

4 And as you just heard from Commissioner Klee,
5 Connecticut is preparing to launch a \$1.5 million new
6 workplace charging fleet grant program, which is very
7 exciting.

8 --o0o--

9 MS. KIRBY: On partnerships, we've engaged with a
10 number of partnerships, and I'd like to talk about two of
11 them. To advance the ZEV market, we're working with a
12 wide range of partners. And first, the ZEV MOU states
13 have been working very collaboratively with the automobile
14 manufacturers since execution of the ZEV MOU, and we call
15 this our collaboration for ZEV success.

16 Automakers were active participants in
17 development of the ZEV MOU action plan that was released
18 last year. And the ZEV MOU states and automobile
19 manufacturers hold monthly calls to share updates about
20 relative -- excuse me, relevant state and federal
21 legislation, implementation of our state initiatives, new
22 product developments and automaker activities. And it's
23 encouraging to see many of these representatives on our
24 collaborative today here that are representative --
25 represented here today.

1 We also hold in-person meetings to do a deeper
2 dive on some issues, discuss sales data and other market
3 analyses with individual automobile manufacturers --
4 excuse me, automakers, about product offerings and
5 implementation of the action plan.

6 Second, the 177 states are partnering with the
7 U.S. Department of Energy in a number of areas that would
8 benefit from collaborative federal and state action,
9 including consumer outreach, which is very important and
10 needed, and utility engagement.

11 The 7 -- the 177 states intend to build on the
12 work that the California utilities and the California PUC
13 are doing to facilitate utility investment and
14 infrastructure deployment and consumer education on the
15 associated ratepayer benefits. And we are now in the
16 process of working with DOE to explore the establishment
17 of the west coast northeast collaborative and stakeholder
18 group to promote the deployment of rate-based charging
19 infrastructure and utility engagement and consumer
20 education -- consumer outreach and education.

21 I'm going to turn it over now to my colleague
22 from Oregon, and then I'm going to come back at the end to
23 talk a little bit about the travel provision.

24 (Thereupon an overhead presentation was
25 presented as follows.)

1 MR. NORDBERG: Consumer outreach and education is
2 another important area where we can and need to do more.
3 ZEV MOU states are engaged in a variety of outreach
4 activities, such as ride and drive events, as well as
5 others.

6 For instance, Oregon has partnered with
7 dealerships to train sales staff for selling EVs.
8 Oregon's tourism agency, called Travel Oregon, also
9 collaborates with Oregon wineries that have EV chargers by
10 designating an electric vehicle byway -- or byways, I
11 should say. Designated routes connecting wineries with EV
12 chargers allow EV owners to take a pleasant wine tasting
13 tour in the country knowing they have multiple
14 opportunities to recharge should they run low.

15 --o0o--

16 MR. NORDBERG: Despite these efforts, recent
17 studies and consumer surveys sponsored by the ZEV states
18 point to the need for a campaign to increase consumer
19 knowledge and understanding to plug-in electric vehicles.

20 --o0o--

21 MR. NORDBERG: The national multi-media campaign,
22 Go Ultra Low, launched in the United Kingdom to raise
23 consumer awareness and interest is a good model for a
24 similar effort in this country.

25 --o0o--

1 MR. NORDBERG: What's unique about the ultra low
2 campaign is that it's jointly funded by seven auto makers
3 and the United Kingdom office for low emission vehicles.
4 The campaign is now going into its third year and is
5 clearly making a difference in moving the needle on
6 consumer awareness and interest in electric vehicles.

7 Consumer surveys and internet analyses show that
8 50 percent of those who recognize the campaign are
9 thinking about buying an electric vehicle, as compared to
10 20 percent for the rest of the population -- the new car
11 buying population.

12 Seventy-five percent of new car buyers have taken
13 some action as a result of seeing the campaign. Seeking
14 more information, talking to friends, or visiting an
15 automaker's website. The twitter campaign has driven more
16 than 35,000 visitors to the go ultra low website, which is
17 at a very low cost. We think a similar effort in this
18 country could be very effective. While it's not clear
19 whether or not automakers would support such a campaign in
20 the U.S., we recognize the need to close the knowledge gap
21 and generate more interest in the technology. And we're
22 committing to do what we can.

23 --o0o--

24 MR. NORDBERG: Technological advances. In
25 addition to the word -- the work that the MOU states are

1 doing, there are other factors we can expect to
2 significantly boost ZEV sales. Technology and development
3 product offerings in additional market segments, such as
4 SUVs and light trucks, and the expiration of the travel
5 provision after model year 2017 are such things.

6 We are very excited about the GM and Tesla
7 announcements that they will be offering all electric
8 vehicles with a range of 200 miles at a price that is
9 similar to that of a Nissan Leaf.

10 With the introduction of the Chevy Volt and Tesla
11 model 3 in model year 2017, these vehicles can -- these
12 offer a range of affordable battery electric vehicles that
13 will have more than doubled in just five years.

14 The introduction of fuel cell vehicles is -- to
15 the market is also very exciting, where these vehicles can
16 provide consumers with a range of more than 300 miles. We
17 welcome their introduction.

18 These cars and others like them will help bridge
19 the gap between the early adopters and the mainstream
20 consumers by providing range, confidence, and addressing
21 cold weather concerns.

22 --o0o--

23 MR. NORDBERG: Trucks and all-wheel drive
24 vehicles, offering plug-in electric options for trucks,
25 SUVs, and vehicles with all-wheel drive will also boost

1 sales of ZEVs -- the ZEV markets. As you can see from
2 these pie charts, on the left, light-duty vehicles
3 comprises about half of the in-use fleet in both
4 California and the section 177 states. Offering ZEVs in
5 markets segments beyond passenger cars such as SUVs and
6 crossovers will enhance the overall ZEV market by
7 appealing to wide array of consumers. We're encouraged
8 that some automakers have plans to offer electric vehicles
9 in these growing market segments.

10 The pie charts on the right show a big difference
11 between California and the section 177 states in
12 preferences for all-wheel drive -- all-wheel vehicles. In
13 California, they comprise about one-sixth of the market.
14 Whereas, in the section 177 states, they're half of the
15 market.

16 We're pleased that some of the automakers are
17 already offering all-wheel drive vehicles and others are
18 planning to do so in the coming year. This will be a help
19 to boost the market especially in states where this is an
20 important feature.

21 --o0o--

22 MR. NORDBERG: Now, when it comes to all-wheel
23 drive range and performance, Tesla has demonstrated that
24 electric vehicles can be equipped with all-wheel drive
25 without compromising range or performance. In fact, if

1 you can see the figures on the slide comparison, the
2 all-wheel drive model S is actually improved on the
3 mileage and range of its rear-wheel drive version. These
4 are encouraging developments for the future of the ZEV
5 market in our states.

6 And, Christine.

7 MS. KIRBY: Okay. The last item is on travel.
8 And we want to emphasize that the expiration of the travel
9 provision in the ARB regulation for BEVs at the end of
10 2017 is another factor that will boost sales in the 177
11 states. As you know, the travel provision allows the
12 automakers to place BEVs and fuel cell vehicles in any
13 state with a ZEV program and travel the credits to every
14 State with a ZEV program and get credit in those states.

15 In other words, an automaker gets credit in all
16 of the other states without having to place a car in those
17 states. As described in previous ARB ZEV rule-makings,
18 the intent of the travel provision was to allow the auto
19 manufacturers to focus early development and marketing
20 efforts in California until electric vehicles where
21 commercialized.

22 During the rule-making for the 2012 ZEV
23 amendments, CARB staff recognized that extending the
24 travel provision for BEVs through 2017 would result in
25 significantly fewer BEVs being placed in the section 177

1 states through 2017. And that is exactly what has
2 occurred. Availability of vehicles in our states, in
3 terms of both numbers and models, has been spotty. We
4 talked about this last year when we were here and it's
5 still the case.

6 The graph on the slide depicts the ZEV sales
7 requirements in California and the 177 states from 2014
8 through 2018. For the sake of simplicity, it assumes
9 compliance achieves solely with 100-mile battery electric
10 vehicles and not with a large amount of banked credits
11 that have been amassed that you heard about earlier
12 through the CARB presentation.

13 To keep things in perspective, keep in mind that
14 the market in the 177 states is nearly 1.5 times greater
15 than California's market. Because the travel provision is
16 in effect for BEVs through 2017, there is no regulatory
17 obligation to place ZEVs in the section 177 states until
18 model year 2018.

19 However, almost all the automakers have elected
20 to follow the optional section 177 compliance path in the
21 ARB regulations, and this provides automakers with a
22 reduce ZEV obligation in 2018 through 2020, if they place
23 a modest number of BEVs in their states in 2016 and 2017.

24 The point is that in 2018 we expect significantly
25 more vehicles and a wider diversity of models that will

1 appeal to more car buyers with a corresponding increase in
2 sales.

3 In closing, it is clear transportation
4 electrification is essential to protecting the environment
5 and economy, and is a cornerstone of our long-term
6 greenhouse gas reduction strategies. We recognize that
7 the transformation we are striving for in the
8 transportation sector depends on the efforts of multiple
9 stakeholders.

10 As states we are firmly committed to doing our
11 part, but a robust ZEV program that drives technology
12 development and deployment and creates economies of scale
13 is also essential to our ultimate success.

14 In that regard, we grateful to the Board for its
15 critical leadership in setting the nation's sector on a
16 path toward a low carbon sustainable future. As states
17 with aggressive greenhouse gas reduction goals, we value
18 our partnership with California and look forward to
19 continued collaboration on our joint effort to electrify
20 the transportation sector.

21 Thank you for the opportunity to be here today.

22 ADVANCED CLEAN CARS BRANCH CHIEF CUNNINGHAM:

23 Thank you, Mr. Klee, Mrs. Kirby, and Mr.
24 Nordberg.

25 That concludes our Board briefing on the status

1 of ZEV market enablers. We welcome your input at this
2 time. Thank you.

3 VICE CHAIR BERG: Thank you very much, Josh.
4 That was a great program that you put together, a lot of
5 information, and really gave us a terrific update on the
6 enablers that are critical to making this program happen.

7 I think what I'm going to do, as a little Vice
8 Chair prerogative, take a little break right now while the
9 others staff comes in and brings on the final
10 presentation. And so let's say five, six minutes. Let's
11 not take long, but take a nice break and get back here
12 at -- well, by 10 till, by 10 till 3:00. Okay. Thanks.

13 (Off record: 2:38 PM)

14 (Thereupon a recess was taken.)

15 (On record: 2:50 PM)

16 VICE CHAIR BERG: Okay. If we can come back
17 please, take that one last stretch, and find your seat.
18 We're headed to finish up our program today.

19 Before we start the next staff presentation, I am
20 going to ask Professor Sperling for a few thoughts. He
21 has a time constraint and will not be able to stay with us
22 through the next presentation and our stakeholder
23 comments. So I thought we'd take a few minutes and have
24 his comments at this time.

25 Professor Sperling.

1 BOARD MEMBER SPERLING: Thank you very much. I'm
2 sitting here. I've listened to all these great
3 presentations by the staff and others. It's been a great
4 education and update, but I feel lonely here --

5 (Laughter.)

6 BOARD MEMBER SPERLING: -- without my fellow
7 Board members. Fortunately, there's some people here in
8 the audience to keep me company.

9 (Laughter.)

10 BOARD MEMBER SPERLING: And as Wade Crowfoot did
11 say, I am listening carefully. So I just wanted to offer
12 some summary comments from what we've heard so far, my own
13 personal summary. And then I have three thoughts or three
14 suggestions that I want to leave on the table as we move
15 forward, as the staff moves forward, and discussions
16 happen.

17 So here's my summary. Number one, engineers are
18 the heroes.

19 (Laughter.)

20 BOARD MEMBER SPERLING: That's because we've seen
21 huge progress in the internal combustion engines, we've
22 seen huge progress in batteries, we've seen high quality
23 ZEV vehicles being put on the road. So that's point
24 number one.

25 Point number two is I think we've seen that the

1 policies we've developed have been, for the most part,
2 well designed and implemented. They're performance based.
3 There's lots of incentives in terms of dollars, HOV lanes
4 for vehicles, and I especially want to endorse the plug-in
5 pinot program of Oregon.

6 (Laughter.)

7 BOARD MEMBER SPERLING: And -- but the third
8 point is that there is a real issue with consumers in the
9 markets. And, you know, we're going to -- partly my
10 comments here are anticipating presentations are going to
11 be made by different stakeholders, and are based upon some
12 of the comment letters that are put in, but that's clearly
13 where we need a lot more focus. And that's especially the
14 case if we see oil prices not rising significantly in the
15 future.

16 So anyway, that's my summary of what we've heard
17 so far.

18 So here's my three thoughts, three suggestions.
19 Okay. One of them is based upon a presentation that's
20 going to be made by a couple of the car companies based
21 upon research that Dr. Susan Shaheen did at UC Berkeley,
22 and that is a proposal to extend the credit program for
23 car sharing. And I just want to make -- I want to endorse
24 that. And I've always thought that we should do that,
25 and -- but it was kind of more of an intuitive sense, but

1 the study that was done by Dr. Shaheen shows that car
2 sharing and bringing people into the vehicles -- into the
3 car sharing vehicles is perhaps one of the most effective
4 ways of doing -- of marketing -- of doing the marketing of
5 the vehicles. We're seeing -- we're going to hear a lot
6 more about that, but we're having problems really getting
7 more vehicles out there.

8 You know, in some ways, it's a success, but in
9 other ways, I think given the incentives that are
10 available and the pricing, we would have expected a lot
11 more vehicles to be sold and being sold, and it's not
12 happening. In the New England states and the northeast
13 states, it's -- you know, they have a special challenge
14 because of other circumstances are a little different.

15 So anyway, I think -- I strongly endorse that
16 proposal to create some extra -- to extend the program
17 beyond 2017.

18 Number two -- my number two proposal or thought
19 is that -- and I suggest this as an immediate action. And
20 that is we have a category of transitional low emission
21 vehicles. And I'm going to suggest that that's an
22 ideological, inappropriate name to be using, calling them
23 transitional. There's a lot of evidence that if -- that
24 plug-in hybrid vehicles could play as much or as big a
25 role or even bigger role than pure EVs We just don't

1 know. And to call them PHEVs transitional I think is just
2 wrong. So I did notice the staff stopped using TLEV, and
3 I want to endorse that, and as we go forward, think about
4 how to create more flexibility in the program, because the
5 way it's designed now there is a strong bias towards pure
6 battery EVs. And at one point, that seemed like the right
7 thing to do, but I'm not sure that's correct anymore. And
8 I know there's a letter from New York State that states
9 the same thing.

10 And the number three item I want to suggest is
11 that we really -- as we think about flexibility -- a
12 little more flexibility, the way to anchor it or constrain
13 it is to say that we're strongly committed to the 1.5
14 million vehicle target for 2025, and that we even consider
15 the possibility of it being a little higher in a sense,
16 and as a reward, or as compensation for providing more
17 flexibility that we construct the formulas and so on, so
18 that there might be a few more vehicles, and to make it --
19 and do it in a way that's more performance based than we
20 have it now.

21 So those are my thoughts. And I thought great
22 presentations, and I wish I could hear testimony, but I
23 talked to many of the stakeholders and I've read all the
24 comment letters. So I have a good sense of what's going
25 to be heard. So thank you very much, Vice Chair Berg.

1 VICE CHAIR BERG: Thank you for joining us
2 Professor Sperling. We'll look forward to catching up
3 with you later.

4 Okay. Well, we'll get on with staff's final
5 presentation. And our last presentation for today is an
6 informational update on the Advanced Clean Cars
7 particulate matter, or PM, measurement feasibility.

8 Approved by the Board in January 2012 as part of
9 the Advanced Clean Cars program, the third generation of
10 low emission vehicle regulation known as LEV III set
11 ambitious but achievable reductions of criteria pollutants
12 and greenhouse gas emissions from passenger vehicles
13 through the 2025 model year.

14 The LEV III regulation included more stringent PM
15 standards for light- and medium-duty vehicles for model
16 year 2017 through 2025. Staff has committed to provide --
17 providing updates to the Board as part of the mid-term
18 review. Today's update will cover the progress on PM
19 measurement and the very low emission levels that our
20 future standards will require.

21 Mr. Corey, would you please introduce this item?

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

24 As you heard earlier today, meeting California's
25 multiple air quality and climate goals will require

1 significant reductions from mobile sources. Further
2 efforts to deploy cleaner technologies in the light-duty
3 sector will be an essential component of this overall
4 effort. Staff will provide the Board with their
5 assessment of the feasibility of measuring PM emissions at
6 the level required to comply with the one milligram per
7 mile standard, as part of the LEV III regulations.

8 As noted in 2012, the Board adopted new PM
9 standards of three milligrams per mile beginning in the
10 2017 model year, and one milligram per mile beginning in
11 the 2025 model year for passenger cars, light-duty trucks,
12 and medium-duty passenger vehicles. The standards will be
13 phased in incrementally with full implementation of the
14 one milligram per mile standard by model year 2028.

15 At the 2012 hearing, some concerns were expressed
16 over the lowered PM standards, particularly the one
17 milligram per mile standard. The two areas of concern
18 were, first, could the one milligram per mile standard be
19 measured in the laboratory consistently; and, second, was
20 the one milligram per mile standard achievable with the
21 evolving technology by 2025 or could it be done even
22 earlier?

23 Today, we'll address the first element of the
24 measurement feasibility of PM levels at and below one
25 milligram per mile standard. The second element, whether

1 the one milligram per mile standard is achievable with the
2 expected technology by 2025 or earlier will be before the
3 Board next year.

4 Inna Dzhema of the Emissions Compliance
5 Automobile Regulation and Science Division will now give
6 the staff presentation.

7 Inna.

8 (Thereupon an overhead presentation was
9 presented as follows.)

10 AIR RESOURCES ENGINEER DZHEMA: Thank you, Mr.
11 Corey. Good afternoon, Vice Chair Berg and members of the
12 Board

13 Today, I will be presenting an update on ARB
14 efforts to evaluate the capability to measure particulate
15 matter emissions from light-duty vehicles at very low
16 levels.

17 --o0o--

18 AIR RESOURCES ENGINEER DZHEMA: In 2012, the Air
19 Resources Board approved more stringent particulate matter
20 or PM standards for light- and medium-duty vehicles as
21 part of the Advanced Clean Cars rule-making.

22 Beginning with the 2017 model year, the PM
23 emission standards will drop from 10 milligrams per mile,
24 to three milligrams per mile. For 2025 and later model
25 years, the PM standard will drop to final value of one

1 milligram per mile.

2 These standards ensure light-duty vehicles will
3 continue to emit at the lowest possible PM levels, even as
4 new technologies are being introduced to simultaneous
5 reduce greenhouse gas emissions.

6 When adopted, industry expressed concerns about
7 whether the current method could reliably measure PM
8 emissions at one milligram per mile. As a result, the
9 Board directed staff to conduct a technical investigation
10 on measurement capability.

11 The Board also directed staff to evaluate the
12 feasibility of vehicles using new and emerging GHG engine
13 technologies to meet the one milligram per mile standard
14 and whether the standard could be implemented earlier than
15 2025 model year.

16 The focus on today's -- of today's presentation
17 is on the first task of looking at PM measurement
18 capability. Moving forward, staff will evaluate the
19 vehicle feasibility aspect including implementation time
20 of one milligram per mile standard and report back to the
21 Board in late 2016.

22 --o0o--

23 AIR RESOURCES ENGINEER DZHEMA: Before we get
24 started, I would like to walk you through the basic
25 elements of how we have traditionally measured PM

1 emissions from vehicles. This illustration shows the
2 major elements of the emission testing process. Starting
3 at the top, the exhaust from a vehicle is directed to a
4 sampling system where it's diluted with ambient air. The
5 diluted exhaust is then directed to the PM sampler where
6 PM is collected on a filter. The filter is then
7 transported to a clean room, where it's weighed to
8 determine the collected PM mass.

9 With that schematic in mind, let's turn to the
10 real world with a quick tour of ARB's laboratory where the
11 testing is actually done.

12 --o0o--

13 AIR RESOURCES ENGINEER DZHEMA: First, a test
14 vehicle is placed on the dynamometer to simulate typical
15 on-road driving. The driver follows a specific vehicle
16 speed profile for the emission test.

17 --o0o--

18 AIR RESOURCES ENGINEER DZHEMA: Vehicle exhaust
19 is transferred to the sampling system where it's diluted
20 with filtered air.

21 --o0o--

22 AIR RESOURCES ENGINEER DZHEMA: Before the test
23 starts, sample filters are placed in the PM sampler.

24 --o0o--

25 AIR RESOURCES ENGINEER DZHEMA: After testing is

1 done, the samples are transported to a clean room where
2 they are weighed with an automated system.

3 --o0o--

4 AIR RESOURCES ENGINEER DZHEMA: As I mentioned
5 before, industry has voiced concerns regarding PM
6 measurement capability. These concerns include, whether
7 the current matter is capable of measuring PM at one
8 milligram per mile level. And what are the sources of
9 variability in laboratory measurements? Can PM be
10 measured reliably at different laboratories? And more
11 recently, are the different sampling options allowed
12 actually equivalent?

13 --o0o--

14 AIR RESOURCES ENGINEER DZHEMA: So what did we
15 do?

16 As any good scientist or engineer would do, staff
17 methodically approached the problem and designed and
18 conducted multiple test programs to collect data that
19 would address each of these concerns. The test programs
20 also took the next step of evaluating alternative methods,
21 which determine PM by counting particle numbers, measuring
22 particle size, and measuring the black carbon content.

23 --o0o--

24 AIR RESOURCES ENGINEER DZHEMA: Over the past
25 several years, staff has done an extensive amount of

1 testing to better understand measurement capability at
2 very low levels. This has involved eight separate test
3 programs, encompassing more than 350 emission tests of 67
4 unique vehicles.

5 Analysis covered more than 2,000 individual
6 samples, and utilized 10 different instruments. This work
7 also led to publication of five peer-reviewed scientific
8 papers.

9 --o0o--

10 AIR RESOURCES ENGINEER DZHEMA: To summarize the
11 detailed findings of all this work, staff also prepared
12 and publicly released a detailed technical support
13 document. The TSD can be downloaded from ARB's website at
14 the link provide in the slide.

15 --o0o--

16 AIR RESOURCES ENGINEER DZHEMA: The first step in
17 investigating the mass-based measurement capability is to
18 quantify all the sources of measurement variability.
19 Staff identified three major potential sources of
20 variability.

21 First is the mass analysis, which includes the
22 actual weighing and processing of the filters. Second is
23 the sampling system, which includes dilution of the
24 vehicle exhaust and collection of PM filter on a filter in
25 the PM sampler. The third is the emission source itself,

1 namely the vehicle and the driver. For this measurement
2 evaluation, staff focused on quantifying the contribution
3 to variability from the first two of these three sources.

4 --o0o--

5 AIR RESOURCES ENGINEER DZHEMA: For the first
6 category of mass analysis, staff utilized data collected
7 over the last two years and found that the mass
8 measurement itself is very consistent and certainty is
9 less than two percent of the standard.

10 --o0o--

11 AIR RESOURCES ENGINEER DZHEMA: For the second
12 category of Sampling system, the contamination from the
13 ground air and sampling system was found to be
14 approximately ten percent of the standard at ARB's
15 laboratory. This appears to be comparable to that of
16 industry's labs, based on a survey of 12 separate labs.

17 Further, the regulatory test procedures already
18 allow a correction for background contamination that is
19 more than sufficient to account for these levels from the
20 sampling system.

21 --o0o--

22 AIR RESOURCES ENGINEER DZHEMA: After the
23 contribution from mass analysis and the sampling system
24 were determined, the next question to ask is what is the
25 precision of the measurement, or, in other words, how

1 different are the results of repeated measurements?

2 The schematic on this slide depicts the set-up
3 used for the precision determination. Five PM samplers
4 were used to simultaneously collect exhaust samples, and
5 the results were compared to each other. Testing was
6 repeated across multiple low PM vehicles using various
7 engine technologies and tested over different driving
8 cycles. The precision was found to be 11 percent, which
9 is comparable to other widely accepted scientific
10 measurements.

11 --o0o--

12 AIR RESOURCES ENGINEER DZHEMA: Next, staff took
13 steps to estimate the impact of using different test cells
14 or laboratories when measuring PM. That is, do we get the
15 same results when a vehicle is tested in different test
16 cells?

17 For this study, staff repeatedly tested a single
18 low PM vehicle across three of ARB's test cells as an
19 approximation of lab-to-lab variability. Different
20 sampling equipment, drivers, and operators were used in
21 each test cell.

22 So what did we find?

23 That there was no statistically significant
24 difference in the average emissions across all three test
25 cells. And, that the results showed that the test-to-test

1 variability is consistent across three test cells
2 indicating that the method is robust.

3 --o0o--

4 AIR RESOURCES ENGINEER DZHEMA: Recent
5 modifications in the federal test procedure allow the use
6 of different sampling options to collect PM for
7 measurement. Yet, there is limited data available to
8 ensure these options are indeed equivalent.

9 ARB staff evaluated the option allowing a single
10 sample per test rather than the conventional three samples
11 per test method. The single sample option is of great
12 interest due to a potential testing cost reduction, such
13 as a reduction of analysis time and material use.

14 The comparison study confirmed that both sampling
15 options generated equivalent emission results, and staff
16 expects this option will likely be used by ARB and
17 industry going forward.

18 --o0o--

19 AIR RESOURCES ENGINEER DZHEMA: With regard to
20 the regulatory method for measuring PM mass, staff's
21 findings, as a result of this technical evaluation,
22 include the following:

23 First, the conventional mass-based method is
24 still suitable and adequate for measuring PM emissions at
25 one milligram per mile levels.

1 Second, the existing regulation already allows a
2 subtraction that accounts for contamination that occurs in
3 the sampling system.

4 Third, the determined precision confirms that the
5 measurement capability is sufficient at the low PM levels.

6 And lastly, the test-to-test variability caused
7 by measurement is low and consistent among ARB's test
8 cells.

9 --o0o--

10 AIR RESOURCES ENGINEER DZHEMA: Now, I would like
11 to talk briefly about a few alternative methods that staff
12 also investigated as part of this technical assessment.

13 These methods include counting particles, sizing
14 them, and measuring the black carbon component of PM in
15 lieu of traditional mass-based methods. The European
16 Union's solid particle number method was also evaluated.

17 --o0o--

18 AIR RESOURCES ENGINEER DZHEMA: First and
19 foremost, the study of these alternative metrics included
20 their comparison to PM mass by simultaneously using the
21 alternative and a traditional measurement of PM mass. The
22 evaluation found several noteworthy observations.

23 Generally, a good correlation with PM mass has
24 been observed for each of the alternatives. Thus, as the
25 title of the slide says, as one goes, so do all others.

1 What we mean by this is that reduction PM mass also
2 reduces black carbon and particle number.

3 However, the exact relationship with PM mass can
4 vary significantly across vehicle technologies and test
5 cycles and is different for each of the alternatives.
6 That is, while we did see the same directional trends when
7 measuring higher or lower PM vehicles, the alternatives
8 did not give us equivalent test results to the mass-based
9 method.

10 We also found that the alternative methods had
11 similar levels of measurement repeatability to the
12 traditional mass-based method.

13 These alternative methods do utilize some form of
14 real-time data on PM emissions during the test, which can
15 be provide useful insight to better understand when PM is
16 being emitted. And, such an approach can provide near
17 immediate emission estimation, thus offering potential
18 coast savings associated with sampling and analysis
19 resources.

20 However, all of these alternative methods exclude
21 some PM constituents from their measurement, thereby
22 adding some uncertainty in determining total PM emissions.

23 And, critical for good laboratory measurements,
24 the instrumentation used for the these alternatives lack
25 an equivalent level of robust calibration procedures to

1 make sure the equipment maintains its quality control and
2 quality assurance and the results can be comparable.

3 --o0o--

4 AIR RESOURCES ENGINEER DZHEMA: While I have
5 focused today on the first task of confirming measurement
6 capability, I wanted to remind you that we still have work
7 to do on the second task. As part of the Advanced Clean
8 Cars mid-term review that you heard about earlier today,
9 we will be back next year to report on the second task.

10 Specifically, we are beginning work to reassess
11 the feasibility for future vehicles to meet one milligram
12 per mile standard. This evaluation will include looking
13 at vehicles utilizing newer technologies to reduce
14 greenhouse gas emissions and looking at the improvements
15 of PM control strategies to reduce vehicle variability.

16 As part of this feasibility assessment, staff
17 will also reevaluate whether it's possible to accelerate
18 implementation of one milligram per mile standard to
19 earlier than the 2025 model year.

20 --o0o--

21 AIR RESOURCES ENGINEER DZHEMA: At this point, I
22 would like to present the staff's conclusions on the
23 conducted technical work.

24 They are:

25 The conventional measurement method will remain

1 the approved test method for ARB's LEV III PM emission
2 standards.

3 Continue to use mass based standards for PM will
4 also achieve reduction in particle number and black carbon
5 emissions.

6 Consistent with ensuring our laboratory stays at
7 forefront of measurement capability, ARB will continue to
8 research alternatives sampling and measurement methods,
9 which may lead to potential quality improvements or
10 testing cost reductions. With that, I conclude my
11 presentation. Thank you.

12 VICE CHAIR BERG: Thank you very much. That was
13 a great presentation on a very technical issue. And very
14 nice job thank you very much for that.

15 So with the nod of my fellow Board members, I
16 think we'll go right to testimony. And this time, we're
17 actually going to start with Sacramento. Sacramento, can
18 you guys get up and ready. I think we have about four
19 people -- four or five people ready to testify in
20 Sacramento.

21 MR. MUFFETT: Yeah, we have five in Sacramento.

22 VICE CHAIR BERG: Okay. Five. So can we --
23 we'll take Sacramento first and we have 16 here.

24 MR. MUFFETT: Excuse me, actually four. We had
25 someone sign up twice. So we'll start with Will Barrett,

1 then Diana Vasquez and then move on to Bill Magavern.

2 VICE CHAIR BERG: Okay. And I'm asking that we
3 stay within the three minutes. And I'd appreciate that.

4 MR. BARRETT: Thank you, Chair Berg. I'm with
5 the American Lung Association in California.

6 Our organization has long championed the goals of
7 the Advanced Clean Cars program and the ZEV programs. We
8 view these programs as really just working to clean up the
9 air and limit community exposures to toxic traffic
10 emissions. We believe the mid-term review should really
11 continue to advance these benefits and appreciate all the
12 discussion here today.

13 We're in support of the 2012 adoption of the
14 Advanced Clean Cars package, along with dozens of health
15 organizations and hundreds of public supporters and
16 individual medical professionals. These policies really
17 are working to reduce smog, soot, and climate pollution.
18 And to spread the transition to a zero emission future,
19 they're all critical to improving health and protecting
20 our climate, both in California and throughout the United
21 States.

22 In particular, the zero emission vehicle mandate
23 is really necessary for a clean air future. California
24 has been leading the way on the ZEV program and ZEV
25 incentive programs. It was very exciting to see the

1 presentations from the other 177 states today, and really
2 want to stress that we have made tremendous progress, but
3 we have a long way to go to really achieve our clean air
4 future through the ZEV program.

5 There's really an urgent need to continue to ramp
6 up deployment of battery electric vehicles, fuel cell
7 vehicles as we work to achieve not only our ozone
8 standards, our particular standards, and our climate goals
9 in California and beyond, as all the other states noted
10 today.

11 We believe that the mid-term review should really
12 set a path for stronger ZEV and criteria pollution
13 emission standards, not only to meet the new goals but
14 really to put more ZEVs on the road. We can't continue to
15 focus on the credit aspect of it. We really need to see
16 more ZEVs hit the road and provide cleaner benefits.

17 We do agree with the commentary from
18 Massachusetts on the sunseting of the travel provision.
19 It's a top priority of ours here at the Lung Association
20 of California, but also among our colleagues and Lung
21 Associations throughout the country. We need to really
22 drive more ZEVs on the road into more states, rather than
23 just getting more credits on paper for the vehicles placed
24 here in California.

25 On the particle pollution standard, we really did

1 appreciate that presentation. Agree it's a technical
2 topic, but a really nice presentation. We want to really
3 thank staff for their continued focus on this and really
4 urge the continued efforts to understand the measurement
5 capacities and other methods going forward and really
6 bringing that standard on line as soon as possible to
7 provide the best benefits to the health of Californians
8 and folks in the other states.

9 We do believe also that ARB should continue to
10 move quickly towards expanding emission's testing on road
11 in use to ensure that all the benefits we're hoping to see
12 out of these programs really are being provided to the
13 people breathing traffic pollutants.

14 We can't afford to continue -- to continue on
15 without getting these benefits. We really believe that
16 the mid-term review is an important step to reaffirming
17 the commitment to all of these programs.

18 Thank you.

19 MS. VASQUEZ: Hi. Good afternoon in Diamond Bar.
20 This is Diana Vasquez. I'm here on behalf of Sierra Club
21 California.

22 And specifically, we just want to comment staff
23 amend again on the SIP mandate, what you guys have been
24 doing on this specific issue. And we're really proud to
25 really work with you on it. And one of the things that

1 the Club is actually working on, along with Acadia Center
2 in Conservation Law Foundation, is we really see a report
3 specifically to -- it's called, "Charging Up: The Role of
4 States and Utilities and Auto Industry", that is looking
5 at dramatically accelerating and increasing the ZEV
6 mandate throughout the ZEV states. And how do we actually
7 work with all -- multiple stakeholders throughout the
8 country, but specifically states, and see how can we
9 actually expand this mandate, not just in California, but
10 throughout the nine ZEV states.

11 And one of the things I really want to highlight
12 are the nine vital steps that we actually looked at. The
13 first one, we're looking into how these partnerships are
14 being build at the State level, specifically within the
15 State, but at the local as well.

16 The second one is consumer incentives to make EVs
17 less expensive and more convenient. Specifically, looking
18 at how can these programs actually work within low income
19 communities, and specifically how do we get these vehicles
20 into low-income residents.

21 The fourth one is looking at programs and
22 incentives to actually look at EV adoption and
23 infrastructure.

24 The fifth one is policies to promote widespread
25 availability and consumer friendly charging stations. And

1 then really have -- multiple emphasis has been done
2 throughout the presentation is how do we actually get
3 public education and awareness to everybody? And how do
4 we actually get individuals to adapt to this new
5 technology.

6 So we really hope that this report that is going
7 to come out at the end of this month can actually
8 highlight some of the things that other states,
9 specifically California, like I mentioned, the other nine
10 EV states can actually do. And hopefully, this is
11 something that at least the Club can actually advocate
12 here in California, but throughout the country in other
13 nine -- other ZEV states.

14 But with that, we really are really thankful for
15 everything that you have been doing. The mandate for us
16 has been going really well. We definitely see
17 acceleration, working into California. But again, our
18 emphasis is how do we actually get this throughout the
19 country, throughout the world? The more they're be
20 healthy would be more of help to really getting this
21 information to our consumers, to our members and
22 supporters here in California, but also other states.
23 Okay. So thank you for that.

24 MR. MAGAVERN: Good afternoon, Board members,
25 those that I can see, and those that can I can't see.

1 Bill Magavern with the Coalition for Clean Air,
2 and we really appreciate the efforts being made by all the
3 different entities who are trying to get our zero emission
4 vehicles out on the road. And, in particular, I noticed
5 that both Wade Crowfoot and Christine Kehoe talked about
6 trying to expand access to advanced clean vehicles to
7 those that have not had that access in the past,
8 particularly people in disadvantaged communities where the
9 air pollution is the worst, so the need for these cleaner
10 vehicles is the great.

11 And this is a key objective of the Charge Ahead
12 California campaign that we are a part of. And we all
13 know that there needs to be more education of consumers
14 and all sectors need to play a role in doing that. We're
15 trying to do our part by hosting a ride and drive in
16 Wilmington next month. But I think one sector that really
17 needs to step up that could be doing a lot better is the
18 dealers, where some are really -- are doing their job in
19 educating drivers about ZEVs, but a lot of them really are
20 not, and that's a gap that needs to be filled.

21 One thing that's very important as others have
22 mentioned is that the travel loophole needs to be allowed
23 to sunset as planned, so that we can see the full ZEV rule
24 take hold in all the states that have adopted it.

25 And in the staff report, I saw that it's

1 projected that the companies are well on their way towards
2 complying with the ZEV mandate. What wasn't clear to me
3 was whether we're also well on our way to having the
4 number of vehicles on the road that we're planning to. In
5 California, we have a statutory goal of a million by 2023,
6 and the Governor's Executive Order a million and a half by
7 2025. And if a lot of the compliance is by credits rather
8 than by cars, then we certainly would fall short of that.

9 For that reason, we agree with Board member
10 Sperling that we should be looking at a higher target for
11 vehicles and ways to actually get them on the road. And,
12 of course, one of those ways is through incentives. So
13 returning to a theme that many of us addressed this
14 morning, show us the money. We have incentive programs,
15 but in California, those are funded now until January at
16 best, so we need for the legislature and the Governor to
17 work together to make sure that the rest of the money is
18 passed.

19 Thank you very much.

20 MR. MUFFETT: Okay. And then our final speaker
21 is going to be John Shears.

22 MR. SHEARS: Good afternoon, Vice Chair Berg and
23 members of the Board. My name is John Shears. I'm with
24 the Center for Energy Efficiency and Renewable
25 Technologies based here in Sacramento. We're members of

1 both the PEV Collaborative and the Fuel Cell Partnership.
2 So needless to say, we support all the efforts now and
3 going forward on implementing and deploying as many ZEVs
4 and the necessary infrastructure to make those ZEVs sexy
5 and fueled on the roads going forward.

6 Given that, I'll focus my comments on the PM
7 issue. I just again want to thank staff and department to
8 have staff confirm my confidence going back to 2011 and
9 2012, when we were having the discussions about the
10 measurability of a one milligram PM limit. Glad to see
11 that that is turning out to be practical, at least in a
12 laboratory setting. And look forward to working with CARB
13 staff and likely having many conversations with members
14 from the auto industry going forward on how this will all
15 play out in terms of accelerating the compliance ramp to
16 earlier than completion in 2028, but also how this might
17 work in the OBD setting -- OBD II settings, and avoiding
18 the PM paradox that I mentioned at the last Board meeting,
19 and that John Storey at the Oak Ridge National Lab is
20 recommending that we seek to avoid in terms of the
21 differences in terms of how PM is being addressed on the
22 diesel cars versus what is the likely path that industry
23 would like to pursue on the GDI direct -- gasoline direct
24 injection path, especially given the recent SNAFU with
25 Volkswagen and in-use performance issues.

1 So look forward to working with staff on
2 addressing the issues also around that particulate matter.

3 So thank you.

4 VICE CHAIR BERG: Well, thank you very much to
5 all the witnesses in Sacramento. You've done a fabulous
6 job today participating with us, and the technology is
7 working great.

8 So with that, we'll turn back to our witness list
9 here at South Coast. And I'll turn it over to Lori.

10 BARCU MANAGER ANDREONI: Henry Hogo, Steven
11 Douglas and then following Julia Rege.

12 MR. HOGO: Good afternoon again, Vice Chair Berg
13 and members of the Board. I just want to make some
14 comments regarding the program. First, I want to thank
15 Mr. Corey and staff for a very comprehensive update on the
16 Advanced Clean Car program.

17 We, at the South Coast AQMD, have been working
18 very closely with the Plug-In Electric Vehicle
19 Collaborative and the California Fuel Cell Partnership to
20 really advance zero emission technologies. And of the 53
21 station -- fuel cell hydrogen stations that was mentioned,
22 30 of them will be in this region. So we expect to see
23 those on board within a year or so.

24 Our board recently approved \$1 million of fund --
25 local funding to help buy down electric vehicle charging

1 stations for home use, but we do recognize that the
2 challenges are in the workplace and with the multi-unit
3 dwellings.

4 So we have -- actually, our board adopted a
5 protocol for employers to generate credits for installing
6 electric vehicle charging units at the workplace. And
7 these credits are used in our ride-share equivalent
8 program. So we think that's a very good way of getting
9 more electric vehicle charging units into the workplace.
10 And we work very closely with our local utilities to
11 establish that.

12 I do want to point out that under the EFMP
13 Plus-Up, there is an element that allows consumers to
14 install a charging station at the home. And of the
15 handful that we have seen come across our desk, two of
16 them are actually in apartment units. So we've been able
17 to fund families, residents that live in apartments. So
18 it's a good start and we'll look more to that.

19 The last thing I just want to point out that
20 relative to the PM measurements, we're in full agreement
21 with the conclusions made by staff, that it is feasible to
22 measure PM at these levels. So with that, I thank you
23 again for allowing us to comment today.

24 MR. DOUGLAS: Thank you. I'm Steve Douglas with
25 Alliance of Automobile Manufacturers. I represent 12 auto

1 makers that produce vehicles for mainstream consumers.
2 These are the farmers, the teachers, the nurses, the moms
3 and dads who carry the kids to school and then drive to
4 work.

5 They don't read ZEV regulation. They don't track
6 the ZEV blogs. This is our market. And collectively,
7 this is our challenge. If we ever want to achieve the
8 goals of 15 percent or 25 percent or 50 or 100 percent
9 ZEVs, that's the market we have to achieve.

10 We're committed to the same goals as ARB, and
11 that's a successful, vibrant, growing ZEV market. And I
12 should say that a successful market is one where the sales
13 price of a ZEV covers the cost to produce it without
14 incentives from either the automakers or from government.

15 We offer 23 different ZEVs. There are over 20
16 different ZEV models this year. More are coming. We're
17 starting to see second generation ZEVs with longer range,
18 better performance. These vehicles are safe, reliable,
19 efficient. They're fun to drive. And moreover, they're
20 offered at unbelievable and, quite frankly, unsustainable
21 prices.

22 Just an example, the effective lease rate of one
23 well reviewed electric vehicle is about \$60 per month. So
24 that's -- you could get two of those for the price of a
25 cell phone -- a monthly cell phone plan. That's not

1 sustainable.

2 In terms of market share, ZEV sales are down in
3 California slightly this year. This is the first time
4 we've seen it drop. So I say all that to say this, the
5 ZEV market is still in its infancy. But if we ever hope
6 to achieve our goals of transitioning to a zero emission
7 transportation, we have to include those mainstream
8 consumers. And the sales price of the ZEVs must cover the
9 cost without incentives from the manufacturers or from
10 government.

11 So moving on, a couple of things in preparation
12 for next year. We'd ask the Board to look at two areas as
13 they relate to the ZEV regulations. The first Dr.
14 Sperling hit upon and that's the plug-in hybrid electric
15 vehicle credits and the credit cap.

16 For the credit, we think that the credits should
17 better reflect the zero emission miles of the vehicles
18 traveled. And for the cap, currently PHEVs can only make
19 up 25 percent of the total ZEV. And we think that plug-in
20 hybrids will appeal to a broader range of mainstream
21 consumers. And unnecessarily limiting that discourages
22 introductions and a growing ZEV market.

23 And finally, regional ZEV market differences.
24 Sales are still weak in the northeast, but we are working
25 collaboratively with the northeast states, and we hope to

1 improve the ZEV market. However, the mid-term review
2 should include a sober assessment of the market and
3 whether regional differences result in requirements that
4 are much more difficult to meet in one region compared to
5 the other.

6 So thank you.

7 MS. REGE: All right. I guess we're in the last
8 call here of the day. So Julia Rege with Global
9 Automakers.

10 Progress under the Advanced Clean Car program is
11 promising, but we are still in the early years of the
12 program. The standards are and will continue to be
13 challenging going forward. This year in particular we are
14 experiencing a lot of changes in the marketplace,
15 including overall total sales are increasing, lower gas
16 prices, and changing vehicle preferences.

17 There's also an ongoing disparity in ZEV sales
18 between different markets. And it's troubling to see that
19 there's a lot of volatility in ZEV sales as well with
20 decreases in California and across the U.S. as well this
21 year.

22 As the regulations become more stringent, the use
23 of credits becomes all the more important to provide that
24 margin for compliance for these new risky technologies.

25 But we have to say that ZEV technology is no

1 longer the barrier. The technology continues to improve
2 and advance. And our members are selling great products
3 today. Yet, a salesman mandate, regardless of the policy
4 intentions, will not by itself increase the ZEV market
5 share, and all stakeholders must play a role in developing
6 the market.

7 Additional State level efforts and investments
8 are needed to develop and grow the market, install
9 infrastructure, and increase consumer acceptance and
10 awareness. These are all critical aspects of enabling,
11 and ultimately creating a sustainable and successful
12 market.

13 We have increased our efforts working with
14 California and the section 1787 states, as part of the
15 State's MOU commitment to support ZEV markets, and to
16 evaluate market enablers and challenges that we face.

17 There's still a long road ahead, but we do want
18 to recognize the early progress with the creation of new
19 incentive programs in Connecticut, refunding of exist
20 programs like Massachusetts MOR EV.

21 And then more recently, the work that we did
22 through the Collaboration for ZEV Success to bring
23 vehicles to the national drive electric events across the
24 U.S. And this is part of our efforts to help increase
25 consumer awareness.

1 Typically, I get up here and I think I've said it
2 in past years, and I say we've spent billions of dollars
3 to develop ZEV technology, and that is absolutely true.
4 But our investments go far beyond just bringing these
5 vehicles first with hybrids and plug-ins and then fuel
6 cell vehicles, it's also all the other resources and time
7 that are spent by the automakers to enable the ZEV
8 markets.

9 And just a couple of examples, increasing product
10 offerings and availability, improving the technology over
11 time, marketing and promoting the vehicles through ride
12 and drive, State fairs, auto shows, and other public
13 forums, working in the public-private partnerships - and
14 we had great presentations from some of those partnerships
15 today - to build the markets and create consumer demand.

16 And then on the infrastructure side working with
17 charging providers, suppliers, utilities, and partnering
18 with hydrogen providers in California and the northeast.
19 Also, offering charging options for the customers, so once
20 the customer has the vehicle they have an option at home,
21 or free charging options, or a variety of ways that they
22 can fuel their vehicles.

23 And then finally working with the states to
24 implement incentives for vehicles, infrastructure, and
25 other market-driven options. So we're invested in ZEV

1 technology and we'll continue our efforts, but this work
2 can't be Done alone and we all have a shared
3 responsibility.

4 Thank you.

5 BARCU MANAGER ANDREONI: Amy Lily, Gill Castillo,
6 David Reichmuth.

7 MS. LILY: Good afternoon. My name is Amy Lily,
8 and I represent the Hyundai Kia Technical Center in Ann
9 Arbor.

10 Hyundai and Kia are strong supporters of ZEV
11 technology, and we'd like nothing more than to be able to
12 sell our ZEV vehicles throughout the country in mass
13 quantity. The technology is viable, and that can be seen
14 through the appreciation we've received from all of our
15 customers that have purchased at leased the Soul EV and
16 the Tucson fuel cell vehicle.

17 We just need to make sure that we can offer it at
18 a reasonable price, and that a sustainable infrastructure
19 network is in place to provide a reliable and positive
20 experience for our customers.

21 I would like to express our appreciation for all
22 the work that California has done to date to support the
23 ZEV program, providing for incentives, for vehicles and
24 infrastructure, and in taking a leadership position and
25 collaborative efforts with automakers and section 177

1 states.

2 As a result, we're starting to see a network of
3 fuel cell and electric vehicle charging stations that are
4 coming together in California. Also, despite some
5 promising strides, the section 177 states are only now
6 starting the same process they've begun in California some
7 years ago. We heard earlier some of the great things that
8 the section 177 states are doing, and we really applaud
9 the incentive programs in Connecticut and Massachusetts,
10 particularly at point of sale, and also some of the
11 rebates that Connecticut has provided for the dealers that
12 sell ZEV vehicles. We think that is really important.

13 We do struggle with our dealerships. While we
14 are seeing the implementation of methods to ensure the
15 quality of hydrogen, there are still some hurdles to
16 overcome in regards to the price of hydrogen and with
17 expanding the network quickly.

18 As for electric charging, we strongly support
19 efforts to incentivize workplace charging and to place
20 chargers in locations that provide customers the
21 confidence that they can go about their daily activities
22 without running out of fuel.

23 We've learned that workplace charging is key. I
24 think other people have said that before today, and we've
25 also believed that there's a need to incentivize DC

1 charging centers for reliable, safe, and convenient
2 charging to meet the upcoming array of longer range EVs
3 and larger batteries.

4 Furthermore, to support large volumes of ZEV
5 vehicles, we need a reliable, large, and well established
6 network that's scalable over time, because we're going to
7 see more and more vehicles come on to the market.

8 As OEMs, our challenge is to close the gap
9 between the cost of the technology and the price the
10 average consumer is able to pay. I think Steve touched
11 upon that a little bit about the difference in the price.

12 We know that economies of scale and technology
13 advances will reduce the cost of technologies over time.
14 However, until we can close those gaps, it will be
15 essential for California and the 177 states to continue
16 supporting the technology through incentives.

17 And while budget decisions are made on a yearly
18 basis, we need assurance that California and the states
19 will continue to support these incentives, as long as the
20 gaps exist. And we heard that a little bit this morning
21 when we talked about the CVRP funding.

22 Just real quickly, Gill Castillo was going to
23 testify next, but he was not able to make it, as well as
24 Steve Kosowski, but their comments are going into the
25 record. So I really hope that you can look at that,

1 because they have some real live examples from selling the
2 of Soul EV and the Tucson fuel cell vehicle.

3 Thank you.

4 DR. REICHMUTH: Vice Chair Berg and members of
5 the Board, my name is Dave Reichmuth. I'm speaking on
6 behalf of the Union of Concerned Scientists, and our over
7 69,000 supporters here in California.

8 I'm not supposed to do, but thank you staff for
9 your work on this update.

10 (Laughter.)

11 DR. REICHMUTH: We're really encouraged by the
12 process -- the progress that's been made in the market for
13 EVs. There's really no doubt in the last five years, that
14 there's been incredible progress in the ZEV program and
15 the manufacturer's response to it. We've begun to produce
16 a transformation in the vehicle market with over 350,000
17 EVs sold in the U.S. and 150,000 in California alone.

18 We're also seeing more choices, more than 20
19 models available to consumers -- plug-in models available
20 to consumers here in the State and fuel cell vehicles
21 coming to market even just this week.

22 These success are all evidence that the program
23 is beginning to lay the foundation for transformational
24 change in the light-duty vehicle market towards zero
25 tailpipe emissions and electric drive. In fact, the

1 progress in both volume and vehicle capability has been
2 much more than was anticipated. And this has significant
3 implications for the effectiveness of the ZEV program
4 going forward.

5 When the Board approved updates in 2012, staff
6 anticipated compliance would require ZEV sales in 2025
7 reaching over 15 percent with at least six percent true
8 zero emission vehicles, fuel cell or battery electric
9 vehicles.

10 Analysis by us and others and staff's
11 presentation today shows that meeting the ZEV
12 requirement will require -- will likely require much lower
13 sales due to both bank credits and vehicle technology that
14 is progressing much faster than expected. For example,
15 the 2015 Nissan Leaf already would receive more credits
16 per vehicle in the post-2018 scheme than were assumed for
17 the average 2025 BEV.

18 And technology advances over the next 10 years
19 will make this credit oversupply issue worse. And bank
20 credits will also reduce the number of vehicles that have
21 to be delivered. Staff's presentation today showed that
22 would be more than 100,000 vehicles in 2025 that would be
23 lost.

24 So the vehicles that will have to be delivered
25 under the ZEV program in 2018 onward will be much lower

1 than was anticipated in 2012, and also much lower than
2 what the mobile source plans anticipates. The goal of the
3 ZEV program is to ensure that California achieves the
4 transportation -- transformation in the light-duty vehicle
5 market to meet the State's long-term quality and global
6 emissions targets.

7 It's going to be necessary to have sufficient
8 volume and a variety of these vehicles on sale by the end
9 of 2025 to put us on a path to meet these goals. And we
10 urge the Board to investigate policies as part of the
11 mid-term review that would restore the type of market
12 transformation that was intended in the adoption of the
13 ZEV standard.

14 Just one more issue. The ZEV program is not the
15 only program necessary to meet our long-term goals. And
16 reducing carbon emissions from gasoline diesel vehicle
17 powered vehicles is an equally critical part of Advanced
18 Clean Cars.

19 I also need to raise concern over a discussion
20 draft recently released from the House of Representatives
21 that would award greenhouse gas credits for safety and
22 crash reduction technologies. This change would increase
23 emissions by at least nine grams per mile with no proof of
24 real world emissions benefit. For California, this would
25 increase emissions in 2025 by more than 1.4 million metric

1 tons of CO₂ per year equal to putting about 385,000 more
2 gasoline cars on the road.

3 And this legislation could also result in the
4 elimination of California's waiver under the Clean Air Act
5 jeopardizing many of ARB's vitally needed programs. We're
6 troubled by this proposal and we strongly oppose those
7 changes.

8 BARCU MANAGER ANDREONI: Simon Muni -- Mui,
9 sorry. Mike Hartrick and Diarmuid O'Connell.

10 MR. MUI: Good afternoon. You've almost made it.
11 Thank you. I'm Simon Mui with Natural Resources Defense
12 Council.

13 I'd just like to say amazing work, I think,
14 around the clean cars program and the progress being made
15 over the past six years. We are on track and we continue
16 to make rapid progress. As we embark upon the mid-term
17 review that is now already under way, I'd like to draw our
18 attention and echo some of the comments around emphasis on
19 real world performance. As we've seen over the past
20 month, real world performance is a critical issue.

21 As we are focusing on whether it's NOx, whether
22 it's the number of ZEV vehicles on the road, I encourage
23 and urge ARB to take greater vigilance and emphasis on
24 ensuring that the wonderful programs that we've developed
25 going forward that we keep on making sure that the issues

1 around crediting, the calls for special credits and
2 flexibility, that we do think about the performance -- the
3 real world performance.

4 As we've seen, if these flexibilities are at
5 times merged with automaker's intent on gaming the system,
6 it can lead to vast underperformance and erosion of the
7 emission benefits. Two cases in point, the ZEV program
8 today, as we've seen by ARB's analysis, but that NRDC has
9 now found as well through our analysis, the program will
10 need to be significantly tightened up in terms of the
11 credit system, if we are to deliver the 1.5 million
12 vehicle goals needed for ZEV compliance. ARB can work to
13 tighten up going forward our crediting system as it
14 considers the many, many different proposal being put
15 before it to reward additional credits into the system.

16 We need to make sure that we're looking at the
17 ZEV program in terms of real world vehicles on the road,
18 not this sort of paper credit vehicle approach.

19 I'd also like to echo my colleague Dave Reichmuth
20 and flag real concerns about this proposal in Congress now
21 seeking to legislate more paper credits for GHG emission
22 reductions. Not only is this eroding real world emission,
23 but even more egregious that same flawed proposal includes
24 amendments to the Clean Air Act that would, in a practical
25 sense, remove California's ability to retain its current

1 clean cars waiver.

2 This shot across the bow is not a helpful way to
3 start the mid-term review, either at the federal level or
4 the State level. And we do hope the more thoughtful
5 voices that are here today within the auto industry will
6 help us in convincing peers at the federal level to
7 reconsider this strategy.

8 Thank you.

9 MR. HARTRICK: Good afternoon, Board. Mike
10 Hartrick from FCA U.S., formerly -- or more well known as
11 Fiat Chrysler.

12 I want to take the chance to address you today
13 regarding the ZEV credit bank and analysis performed by
14 the staff. Appreciate the work that they did. It seemed
15 to be a pretty fair and balanced assessment. One note
16 that we've heard some other speakers today say that these
17 are paper credits. These are credits for vehicles that
18 have actually been put on the road, and actually have been
19 put on the road earlier than required by the requirements.
20 We should keep that in mind.

21 So a couple points here regarding that analysis.
22 First of all, this was an aggregated study looking at
23 manufacturers as a whole. So, as such, it can't
24 accurately reflect any particular manufacturer's status.
25 You know, so when we look at the credit banks that have

1 been built so far, just as an example, over two-thirds of
2 the bank credits that went into the banks in 2014 could be
3 attributed to two manufacturers alone.

4 Secondly, the credit banks are an important
5 flexibility for manufacturers. They help us manage many
6 risks in our production and design of vehicles. For
7 example, product development delays can occur, market
8 failures can occur, and general speaking, recessions can
9 occur. Remember that the regulation is based on previous
10 model year sales. So even if a recession occurs and the
11 entire market shrinks, we're still held to the same
12 volumes that we would have been required to meet based on
13 previous year's sales, not that current year's sales.

14 A couple of these speakers have suggested
15 manufacturers may choose not to build vehicles because of
16 credit banks. We happen to agree that -- with staff that
17 that's a pretty unlikely scenario. From a development,
18 manufacturing, and marketing perspective, it's unrealistic
19 to assume that we cannot build any vehicles and then all
20 of a sudden years later jump to a much higher volume than
21 we would have otherwise been required to meet to try to
22 catch up, if you will.

23 Finally, again, these were benefits to
24 California -- real benefits to California by having these
25 vehicles come into the State early. It's supporting more

1 rapid market development, and is providing cumulative
2 emission reductions that might not have otherwise occurred
3 if those vehicles weren't already in the market.

4 So thank you for the opportunity to address you
5 today. We look forward to working with the staff to talk
6 to them about our individual credit banks and compliance
7 strategies. And the ZEV credit bank has provided and is
8 expected to continue to provide much needed flexibility to
9 manufacturers to meeting these goals.

10 Thank you.

11 MR. O'CONNELL: Board members, how are you? It's
12 good to be here today. I'm doing to do something new.
13 I'm going to use some PowerPoints slide. So I hope they
14 come up here.

15 Okay. Good. I'm trying.

16 (Thereupon an overhead presentation was
17 presented as follows.)

18 MR. O'CONNELL: So as we went into the mid-term
19 review this year, we have invested, as all of you know, in
20 an evidence based and deeply analytical process here. We
21 want to stop -- we want to shift the focus from the
22 rhetoric to the actual facts of the matters, so -- but
23 before I do that, let me just character -- reflect some of
24 the comments we've heard from our competitor manufacturers
25 and their associations.

1 It basically boils down to the same version of
2 the old story, which is we're trying really hard. The
3 market is not ready. It would be really helpful if you
4 did X.

5 --o0o--

6 MR. O'CONNELL: Well, the effect of that kind of
7 lobbying, that kind of effort has been really insidious
8 over the course of time.

9 Here's a chart we did for a presentation in
10 Michigan earlier this summer, which showed that if we'd
11 actually held the line with CAFE 20 years ago, we'd
12 actually -- we'd be driving vehicles with corporate
13 average fuel economy of something on the order of 75 miles
14 per gallon. Now, it's really neat that we got to 34.2
15 this year, but we probably could have gotten there on the
16 same curve earlier in around 1990.

17 --o0o--

18 MR. O'CONNELL: The effect has been similar here
19 in California. I'm afraid to say that relative to the
20 original mission and requirements of the mandate through
21 lobbying and litigation, most of it successful, we've had
22 basically a 16-year delay in the performance as it was
23 originally specified. We finally achieved two percent
24 market penetration for electric vehicles, something that
25 was set out as a 1998 target in the former era.

1 --o0o--

2 MR. O'CONNELL: The problem that we have right
3 now with the mandate is fundamentally it's too weak. And
4 it's weak for a number of reasons. The bottom line, at
5 this point, is that even with the goals as set and
6 specified, which we should all feel good about, because
7 we've finally turned the corner up, we're still looking at
8 16 percent of total sales by 2025.

9 --o0o--

10 MR. O'CONNELL: That's in terms of credits. If
11 you translate that into vehicle sales, that actually means
12 two percent of vehicles on the road. The result -- this
13 is the result of basically cranking the printing press on
14 ZEV credits over the course of time. There have been many
15 appeals, and the result is this, you've got this sort of
16 Delta. That two percent number is going to sound
17 familiar, because it's basically where we are today.

18 So just to remind, by 2025, we're going to hit
19 two percent sales on the current track based on the
20 inflation of the credit system as created.

21 --o0o--

22 MR. O'CONNELL: To put that in further context,
23 we're talking about essentially 12,000 more vehicles than
24 are being sold today, if we stick to the current track,
25 42,000 vehicles in total, 40,000 of those, I would posit,

1 we're going to produce.

2 --o0o--

3 MR. O'CONNELL: So what do we do about this?

4 I'm not going to get there first.

5 We've talked about infrastructure. I think
6 infrastructure is helpful on the margins. We've certainly
7 seen the benefit of DC long-distance charging that we've
8 done on our own dime, something on the order 10,000 -- of
9 1,000 stations throughout the state of California. We
10 should do more of that. As others have said, we should
11 focus on workplace charging, and to the degree we can, on
12 multi-unit dwellings.

13 Incentives. There's already \$10,000 on the books
14 for California -- for citizens of the State of California.
15 That's pretty compelling, but not compelling enough to get
16 to true market adoption. If you wanted to go down that
17 path, I'd recommend Norway. Norway, you basically have 50
18 percent of the vehicle is returned to you. That's led to
19 vast penetration in the market, the leadership of electric
20 vehicles.

21 But it really comes down to compelling product
22 and mass market production. Compelling product means a
23 car that people want to drive that has high utility. Mass
24 market means true mass market production programs.

25 --o0o--

1 MR. O'CONNELL: To put this in context and to
2 make a final point, if we really wanted to get to our
3 goals, we would actually be looking at quadrupling the
4 current requirements of the market to take care of the
5 current requirements of the ZEV mandate to eliminate this
6 delta between credits and vehicles that sell.

7 So I'd urge our consideration of this issue, and
8 I offer all resources to staff as we go forward here to
9 consider the analysis that we produced. Thank very much.

10 BARCU MANAGER ANDREONI: Eileen Tutt, Michelle
11 Kinman and Michael Lord.

12 MS. TUTT: Good afternoon. Eileen Tutt with the
13 California Electric Transportation Coalition. I
14 represent -- our Board is made up of all of the largest
15 utilities in California, as well as some of the small
16 publicly-owned utilities. And we work very closely with
17 our automaker members, as well as others, who produce the
18 clean technologies that you've heard a lot about today.

19 We have a very long history of supporting the ZEV
20 program, and we are not going to change any part of that
21 history. So we look forward to working with all of you,
22 with the staff, with all of the other stakeholders over
23 the next year, a little over a year, as you build up to a
24 mid-term review and then consider any possible
25 modifications after that.

1 I want to just say there's a couple things that
2 I've heard today. We also very much support this idea of
3 linking zero emission miles to the Zero Emission Vehicle
4 Program credit. I noticed today on one of Ms. Wong's
5 slides, there is kind of -- you know, the pure battery
6 electrics got 100 percent. And I think the challenge
7 there is that they actually -- the people who own battery
8 electric vehicles, I would bet almost 100 percent of them
9 use a gasoline vehicle some times. So I think it's a
10 little -- I don't know how that comparison was made, but I
11 would say that I think we need to be a little bit more
12 transparent on how people drive, if they own a battery
13 electric, if they own a plug-in hybrid.

14 The plug-in hybrids may be the only option for
15 some people. We also think we need -- definitely need to
16 support the pure battery electrics and the fuel cell
17 vehicles. They're all really important technologies. But
18 as we compare the two, we want to make sure that we're
19 comparing them in a way that's fair. And I think it is
20 difficult to suggest that, you know, somebody who buys a
21 pure ZEV, at this point in time when we don't have the
22 needed infrastructure, would not ever use any other
23 internal combustion engine vehicle.

24 The other thing I want to say is that we also --
25 it was very good to hear from the northeast states and

1 Oregon today. Thank you so much for inviting them, and I
2 really want to thank them for coming. I think the
3 interesting thing that I heard from them and that we would
4 agree with is that the ZEV program is one of only a -- one
5 of a suite of policies that we're going to be -- need to
6 get to the goals, the one million goal and the 1.5 million
7 goal.

8 We can't hang that all on the ZEV program. The
9 ZEV program has never been a numerical goal for electric
10 vehicles. It is a credit goal. But if we want to meet
11 our numerical goal, we need our incentives. I totally
12 agree with what Bill Magavern said. We need the other
13 programs that California has put in place. We need ride
14 and drives, all the things the Plug-In Electric Vehicle
15 Collaborative is doing, and the Fuel Cell Partnership. We
16 need all of those things together. It cannot be just the
17 responsibility of the ZEV mandate.

18 I have more to say, but I'm out of time, so I --
19 this is a long process, look forward to working with you,
20 thank you.

21 (Thereupon an overhead presentation was
22 presented as follows.)

23 MS. KINMAN: Good afternoon. My name is Michelle
24 Kinman, and I'm the clean energy advocate for Environment
25 California Research and Policy Center.

1 I know I don't have to convince this Board that
2 global warming is happening and is happening now, or that
3 the single largest source of global warming pollution in
4 California is our transportation sector. And you
5 certainly know that Governor Brown has made reducing
6 global warming pollution a cornerstone of his
7 administration. And with all that in mind, I'd like to
8 applaud the Air Resources Board for your leadership in
9 advancing smart and needed programs to make zero emission
10 vehicles more accessible to more Californians.

11 --o0o--

12 MS. KINMAN: Now, you've got plenty of experts in
13 the room today who can give you highly technical bar
14 graphs and projections of future sales, and even the
15 occasional slide of Russian nesting dolls. But what I
16 want to share with you today are the faces of some of the
17 Californians across the State who I've met over the past
18 couple of years at EV test drive events that I've
19 organized in low income communities of color as part of
20 the Charge Ahead California campaign.

21 These are photo from events that we've organized
22 in Boyle Heights, Carson, Long Beach, Riverside, Stockton,
23 and other cities. And I can tell you that time and again
24 I've seen the huge smiles on the faces of Californians as
25 they emerge from their first test drive of an electric

1 vehicle. Let there be no doubt that Californians are
2 excited about driving electric, the benefits of electric
3 vehicles, and the critical State programs supporting EV
4 purchases.

5 --o0o--

6 MS. KINMAN: In addition to the excitement and
7 demand that is growing among the public, I am pleased to
8 share the over 150 mayors, city council members, and local
9 elected officials around the State have officially
10 endorsed the ZEV goal. Specifically, they've signed on to
11 say yes I endorse Governor Brown's pioneering vision to
12 place 1.5 million zero emission vehicles on California's
13 roads by 2025. By accelerating the deployment of clean
14 vehicles, we can clean up our air, reduce global warming
15 pollution, improve public health, save Californians money
16 at the pump, and stimulate economic growth.

17 --o0o--

18 MS. KINMAN: With all this momentum from the
19 public and locally electeds and diverse communities, it's
20 certainly not time to talk about reducing or slowing down
21 the ZEV program. Let's talk instead about improving and
22 expanding upon the program and working intentionally with
23 community partners to create more awareness in low income
24 communities of color.

25 And I want to leave with you a picture of the

1 gentleman there on the left of our screen, his
2 outstretched hands. I think that says it all. That's
3 Mark who lives in the South Coast, and who just recently
4 retired his high-polluting SUV and got his Chevy Volt
5 thanks to the EFMP Plus-Up Program. And he couldn't be
6 prouder of the State of California for putting him in the
7 driver's seat of the clean vehicle revolution.

8 And I look forward to the day with CARB's
9 continual leadership when Mark is but one of the 1.5
10 million Californians who are driving zero emission
11 vehicles.

12 Thank you.

13 MR. LORD: I'm waiting for the timer to reset.

14 Okay. Good afternoon, Vice Chair Berg, and Board
15 members. I'm Mike Lord representing Toyota. And first of
16 all, I just wanted to say that I echo support of Steve and
17 Julia's comments on what we'd like to see out of the
18 mid-term review. But mostly, I'd like to talk a little
19 bit about our vehicle we just launched yesterday, the
20 Mirai. The Mirai, which means Future in Japanese is
21 151-mile horsepower electric vehicle that gets over 300
22 miles on a five minute refuel.

23 A little more information about it. Initial
24 demand has exceeded expectations. We have more than 2,000
25 order requests since the site went live July 20th. The

1 first retail deliveries, as I mentioned, were yesterday to
2 a network of eight dealerships. The ownership experience
3 program includes significant incentives, extended warranty
4 and complementary fuel. We've announced that 3,000 Mirais
5 will be produced for the U.S. market for the end of 2017.
6 And the northeast launch is scheduled for calendar year
7 '16 for New York, New Jersey, Massachusetts, Rhode Island
8 and Connecticut.

9 So the hydrogen and the fuel cell future is here
10 today. Of course, Toyota and other fuel cell
11 manufacturers can't get Californians and others in other
12 states into these great vehicles without infrastructure to
13 fuel them. We definitely appreciate the efforts of the
14 California Air Resources Board, the CEC, the Governor's
15 office for the work they're doing. We're off to a good
16 start, but we need to move more quickly. And this is why
17 Toyota continues to work directly with fuel providers.
18 But we also believe California and other states must
19 consider the transition to hydrogen to be on a grand -- a
20 grand scale public effort worthy of State investment.

21 So as we announced last week in Tokyo -- this was
22 mentioned earlier -- Toyota has upped the ante again on
23 fuel cell volumes. We are now targeting 30,000 vehicles
24 per year globally starting around 2020. Although the
25 number that we can expect in California is still not

1 fixed, much will depend on the state of infrastructure and
2 consumer demand.

3 Ready access to stations and compelling
4 incentives are critical. We also announced that Toyota is
5 developing fuel cell buses for the Tokyo Olympics. This
6 is another example of the multi-faceted benefits of fuel
7 cell technology. And we encourage ARB and the State to
8 look at hydrogen, not just as something to fuel sedans and
9 SUVs, but also as a way for fuel cells to power a wide
10 range of transport as well as to provide stationary power
11 and energy storage opportunities.

12 This is the broader hydrogen society that Toyota
13 envisions, and we look forward to continuing to work with
14 ARB and California to make this vision a reality.

15 Thank you.

16 BARCU MANAGER ANDREONI: Azita Khalili, Elliott
17 Martin, John Tillman, and the last speaker would be Joel
18 Levin.

19 (Thereupon an overhead presentation was
20 presented as follows.)

21 MS. KHALILI: Good afternoon, Vice Chair Berg and
22 members of the Board. My name is Azita Khalili. I'm
23 environmental regulations manager with BMW.

24 Thank you for the opportunity to talk about the
25 ZEV enabling factors. I'm actually one of three speakers.

1 We're going to share the slides. Thank you.

2 So this slide -- I actually borrowed a lot of my
3 slides. So this is a slide from ARB staff from earlier
4 this year. And we couldn't agree more with them. We had
5 some commenters talking about the more stringent
6 regulation. But we couldn't agree more with the staff
7 that actually there's a number of drivers for the ZEV
8 market. And the mandate is one of them. The policy
9 tools, actually there's a bunch of other factors that play
10 a role here. And I want to focus on the consumer
11 awareness.

12 --o0o--

13 MS. KHALILI: The next slide I borrowed is from a
14 UC Davis researcher that was presented at the ZEV Summit,
15 Governor's ZEV Summit. And I want to look at the
16 consumer. We talk about consumer awareness. Awareness is
17 only the first step of a complex process where a consumer
18 is exposed to something new. They hear about it, then
19 they have to get some information about it, then they have
20 to experience it, then they build an opinion about it.
21 And, at that point, they will consider maybe owning it.

22 If I have owned this brand of smart phone for the
23 past nine years, I need to be convinced to consider a new
24 brand with a new operating system, because I'm actually
25 pretty happy with this one. So looking at the consumer,

1 and how we can actually access them.

2 --o0o--

3 MS. KHALILI: If I borrowed the ARB slide again,
4 on the right, what are the factors that we actually have
5 in the consumer awareness space? The communication of
6 OEMs, we have vehicle launches, that's just one factor.
7 Then the dealers do test drives, that's another factor.
8 Then we have outreach campaigns like the National Drive
9 Electric Vehicle. That's another factor. And then we
10 have education on infrastructure and incentives.

11 But what we have found out is that actually
12 putting electric vehicles in car-share fleets moves beyond
13 the space of just getting exposed about it and hearing an
14 ad.

15 --o0o--

16 MS. KHALILI: The dealer, the ride and drives,
17 they are moving in the first points in that chart, the
18 awareness and knowledge. But putting in extra vehicles
19 actually in the car-share fleet move the consumer closer
20 to trying it on and finding if it fits for themselves.

21 --o0o--

22 MS. KHALILI: So to that extent, actually we're
23 happy to see that the Governor's ZEV action plan also
24 agrees with us. Cost share programs were part of the
25 consumer awareness and outreach recent study that proceed

1 also outreach programs. There was a recent study that
2 Professor Sperling also mentioned. It was published by
3 the University of California, Berkeley. And I'm going to
4 invite Elliott Martin from that -- one of the co-authors
5 of the study to talk about their findings.

6 --o0o--

7 MR. MARTIN: Thank you. Good afternoon, members
8 of the Board. My name is Elliott Martin. I'm a research
9 engineer at UC Berkeley. I'll just give a brief summary
10 of this study that we did, evaluating what sort of impacts
11 have occurred due to exposures of EVs -- from consumers of
12 EVs to car sharing.

13 Sure. Thanks. So this study is available
14 on-line on our website. And basically, it was motivated
15 by the need to evaluate what impacts exposure through car
16 sharing has had on people's impressions of plug-ins and
17 electric vehicles. And we want to understand how those
18 impressions have shifted relative to car-sharing members
19 who have not had exposure to EVs.

20 So we did a bit of a paired survey with a control
21 survey and an experimental survey with car sharing members.
22 The control survey was -- consisted of car sharing members
23 that did not have exposure to EVs through their systems,
24 and then the experimental survey did have exposure to EVs
25 and plug-in hybrid electric vehicles.

1 --o0o--

2 MR. MARTIN: We found that there was a
3 demographic difference between sort of the standard
4 profile of what EV and plug-in hybrid electric vehicle
5 owners looked like. We found that those exposed to car
6 sharing through the experimental survey were more gender
7 balanced. It was roughly 40 percent female versus sort of
8 roughly 20 percent females owning the vehicles, and that,
9 in general, the members of the experimental survey were
10 younger.

11 --o0o--

12 MR. MARTIN: We also asked people as a result of
13 their exposure to these vehicles, plug-in hybrids and
14 electric vehicles, whether -- what their -- how their
15 desire to own had changed? And we found that most people,
16 say roughly 40 percent of the respondents considered their
17 desire to have increased, that they were greater or much
18 greater to own these vehicles, as a result of their
19 exposure to car sharing.

20 --o0o--

21 MR. MARTIN: We also asked directed questions
22 about whether people would recommend others try driving a
23 plug-in hybrid electric vehicle or an electric vehicle.
24 And we found that there was a difference in sort of the
25 degree to which people agreed with this statement within

1 the experimental survey. Those within the experimental
2 survey were far more inclined to agree with that statement
3 and be far more willing to actually recommend driving or
4 to recommend others consider buying such a vehicle.

5 --o0o--

6 MR. MARTIN: And we also asked about vehicle
7 purchase expectations, that is before and after. So
8 before people joined car sharing, what vehicles were they
9 interested in buying? What did they think they would buy?
10 And I'll just draw your attention to sort of the red box
11 there, where we showed this sort of shift between the
12 experimental group and also the control group, and that is
13 is that those within the experimental group seem to
14 indicate more broadly that they had a stronger desire that
15 their -- they had a greater increase in the percentage of
16 respondents interested and believing that the next time
17 that they would buy a vehicle it would be either of a
18 plug-in type or of a hybrid type, so -- or an all electric
19 type.

20 --o0o--

21 MR. MARTIN: So overall we found through the
22 results of this study and other questions, that car
23 sharing programs seem to be playing a role in promoting
24 greater appreciation of these technologies, and that they
25 facilitate long-term exposure to it. And that that's an

1 important mechanism for giving consumers exposure to these
2 vehicles. And then over time car sharing programs with
3 ZEVs would potentially act as gateways to improving the
4 penetration of PHEVs and EVs in this market.

5 Thank you.

6 MR. TILLMAN: Good evening, Vice Chair Berg and
7 members of the Board. My name is John Tillman. I
8 represent Mercedes-Benz. And today, I'm also representing
9 our car2go car sharing vehicle program.

10 As a conclusion to my previous two colleagues and
11 the associated car sharing study presentation that you see
12 here, Mercedes-Benz strongly supports the use of car
13 sharing programs to inform educate and engage consumers
14 about the use and value of electric vehicles. We realize
15 that consumer education on electric vehicles and the
16 associated infrastructure is crucial to the future market
17 growth, and therefore car sharing programs are a critical
18 component in our efforts to bring these vehicles to
19 market.

20 Essentially, what all this comes down to is a
21 simple ask. Our ask is that the Board consider extending
22 the current transportation system ZEV credits allowance
23 beyond its current 2017 sunset, and allow us to continue
24 to bring these vehicles and educate consumers on the use
25 and value of electric cars.

1 Thank you.

2 MR. LEVIN: Good afternoon. My name is a Joel
3 Levin, and I'm with Plug In America. Plug In America is a
4 national non-profit organization that works to accelerate
5 the roll-out of electric vehicles. One main focus of our
6 organization is outreach and education to the public.

7 We're big believers that because plug-in vehicles
8 are new and a different technology for the public. And in
9 order for people to get comfortable with them and discover
10 what great cars they are, it's important for people to
11 have the opportunity to experience the cars directly. The
12 sales effort, the sales -- the work that needs to be done
13 with people is a little bit more than typically just
14 selling a normal car to someone. There's a lot more that
15 needs to be explained.

16 So we do a lot of ride and drive events in
17 California and all over the country. And we've found that
18 these are extremely effective in changing people's
19 attitudes about the vehicles and dispelling myths that
20 people might have in getting the cars sold. And I think
21 this is a consistent with what you're hearing from a lot
22 of other folks as well about letting people experience the
23 cars directly.

24 So I just want to speak up for the critical
25 importance of public outreach and education on electric

1 vehicles. Even today, many California -- a lot of the
2 public is still unaware of the existence of these vehicles
3 at all. And for people who are aware that they exist,
4 there's still a lot of misperceptions that are out there
5 in the world. But once people understand the vehicles,
6 once they have a chance to really experience them, people
7 like them. People really value these vehicles.

8 And so I would encourage you to just think about
9 how to ratchet up your efforts on public outreach, and you
10 will see demand appear. And you'll see the market really
11 take off once people really have a chance to experience
12 the vehicles.

13 Thank you.

14 VICE CHAIR BERG: Thank you. And thank, everyone
15 for such great participation today. You know, we've had a
16 lot of information. There's been a lot of information
17 through our staff reports, through stakeholders coming,
18 and giving us updates. And this is a big deal. We're at
19 a cross-roads here that's really quite exciting. So I'd
20 like to turn it over now to my fellow Board members as we
21 have -- really have a chance to hear where we are, and
22 that we are in a possess of working through to the end of
23 next year and bringing this to a conclusion in how we're
24 going to obtain our goal.

25 And so, Supervisor Serna, I think I'll have you

1 start off.

2 BOARD MEMBER SERNA: Great. Thank you, Vice
3 Chair Berg. And thanks to -- certainly to all of our
4 staff for the -- all the information we received today,
5 and to all the presenters and speakers. It's a lot to
6 take in over the course of several hours, but I think it's
7 obviously very thematic. There's a common thread across
8 all the presentations, and I would even say from -- an
9 extension from our morning items.

10 And that's where I want to kind of start my
11 commentary is that -- while I understand most of today is
12 reserved for taking in a lot of information and
13 understanding the progress that's made and challenges that
14 remain in terms of our portfolio of programs and policies
15 aimed at reducing emissions and greenhouse gases
16 associated with light-duty mobile sources.

17 I guess what I'm trying to reconcile for myself,
18 and I suspect there's others in the room that might feel
19 similarly, is that we have this challenge that was
20 presented to us, or at least explained this morning in
21 terms of funding gaps. And the one that's most notable
22 for me is CVRP funding gap that we might be staring the
23 barrel -- staring down the barrel of next spring.

24 And then this afternoon we hear about some of the
25 great progress we're making on the ZEV mandate and the

1 clean cars as well. And I guess what I'm trying to
2 articulate here is, is there a way we -- if we're not
3 doing it as well as we think we could, impress upon the
4 legislature what we heard today? And maybe we are doing
5 that and I'd certainly ask staff to chime in and correct
6 me if I'm wrong.

7 But it seems to me if -- if, like me, you're
8 trying to reconcile those two things, the fact that we're
9 making great progress. We do have extreme challenges,
10 most notably I would argue is the infrastructure, whether
11 it be for hydrogen or for charging across the State of
12 California. We have some clear legislative directives
13 that we've had for years now in front of this agency to
14 implement. And then I find it very frustrating that we
15 don't have some of the ability to have the resources
16 available to do the implementation for something as
17 important as this.

18 And then we hear from our partners in the
19 northeast and in Oregon some of the great progress that
20 they're making. And understandably, they have some of the
21 same challenges and maybe slightly different ones
22 associated with climate and other factors. But that's
23 something I'd like to hear back from staff is if we're not
24 impressing upon the legislature the connection between the
25 need for resources, the need for, quite frankly, political

1 will to appropriate those resources timely to do what
2 they've asked us to do, what else can we or should we be
3 doing to make that connection for them?

4 EXECUTIVE OFFICER COREY: Yes, Supervisor. So
5 I'm going back up a little bit in terms of responding to
6 that. And I'm going to relate really the question you
7 raised. If I think about the ZEV targets, if I think
8 about the criteria pollutant, the ozone targets that we
9 talked about earlier today, the freight plan, short-lived
10 climate pollutant plan, as well as the GHG targets, 2030
11 and beyond, it's been crystal clear and the point was
12 emphasized here in terms of the role the transportation
13 sector plays with both of its contribution to GHG
14 emissions, as well as ozone precursors and toxics.

15 As part of those plans, there have been a number
16 of great things, legislatively, and we certainly have had
17 substantial support from the administration, and Wade and
18 others have been involved in those as well. But in
19 addition to that, as we advanced, for instance, one
20 example is the three-year investment plan in terms of the
21 greenhouse gas reduction plan. It clearly lays out the
22 role of transportation and the need for ongoing funding to
23 advance these efforts.

24 So in one perspective -- and I get the fact that
25 what happened the session was a partial appropriation.

1 There's clearly more discussion. I think there's
2 opportunity to continue those briefings, both by us but as
3 well as others. I mean, several folks here that have come
4 up to the mic underscored the same point that I'm making,
5 that you're making. I actually think what's -- honestly,
6 what's effective is multiple voices, multiple sectors
7 weighing in. It's important. And I get there's competing
8 issues, and that's the very nature of budget. And there's
9 never enough dollars, but I think there's recognition by
10 many, certainly us and many across the Board, in terms of
11 the importance role of funding for this sector and an
12 important -- an transition that we're really in at this
13 time.

14 So, you know, our hope, expectation is that we --
15 those funds will be available and we can continue to
16 implement.

17 So I -- the only thing I would ask or pose in
18 addition to the point that I made about the briefings that
19 have been taking place and the ongoing ones, kind of call
20 on folks here to continue to help from the Board in terms
21 of those conversations. I think it's a key point. It's a
22 key time. And I'm looking to even be one of those areas
23 where we can be even more effective from the
24 communications standpoint.

25 But I want to be crystal clear, those

1 conversations are certainly happening, and we're certainly
2 being as clear as we possibly can in terms of the role
3 that those funds need and can play in terms of moving us
4 forward.

5 BOARD MEMBER SERNA: And I appreciate that
6 Richard. I guess I'm -- and I'm sure there's others that
7 feel the same way. I guess I'm really sensitive to the
8 fact that many of the programs that we're asked to
9 implement are intended by design to affect consumer
10 confidence. And that can be a very fickle thing and it
11 can be a very delicate thing.

12 So when we are asked to do that, and do it with a
13 lot of thoughtfulness and be very deliberate about what
14 we're trying to incent in the marketplace, and then, quite
15 frankly, we're looking at the possibility of one of our
16 great tools having a gap unfulfilled that -- you know,
17 unfulfilled funding that permits us to do that, I get
18 pretty nervous about it. I'm sure others do.

19 And I think that again -- not to, you know, be
20 too aggressive with scare tactics, but I think that's
21 something that definitely needs to be emphasized. And I
22 agree with you, it can be emphasized in an individual
23 conversation with folks, from different agencies'
24 perspectives from different nonprofits that have those
25 relationships with decision makers at the Capitol, but

1 it's one that we shouldn't lose sight of, because I think
2 it's -- as the clock begins to tick closer to the spring,
3 especially we're going to have to very cognizant of what's
4 being said. If what's being said is not enough, we've got
5 regroup and figure out what to do next, but -- and I would
6 much rather not work in crisis mode. And I'm not
7 suggesting we're in crisis, but I think it's something
8 that has got to be one of our top priorities in the coming
9 months.

10 VICE CHAIR BERG: Thank you.

11 Supervisor Gioia.

12 BOARD MEMBER GIOIA: Thank you. It's always
13 great to hear the various perspectives. And I think what
14 we -- we always know is we've come a long way, but we've
15 got a long ways to go. And I think we say this with all
16 of our various experiences. As someone who owns an
17 electric vehicle and no longer actually has now a
18 registered gasoline car to drive, so I rely totally on the
19 electric vehicle, I represent in Contra Costa, communities
20 where I live that are disadvantaged communities and which
21 we're facing a lot of the same challenges about how to
22 have communities of color and low income communities get
23 expose to these vehicles. And then I'm on a local air
24 district that's funding grant opportunities for creating
25 more electric vehicle infrastructure. So we deal with

1 this many -- with all -- the many hats we wear.

2 And it's complex. It's not easy. And so I just
3 want to talk about two areas where I'm -- I think we
4 continue to need to focus attention on.

5 There wasn't a lot of discussion about point of
6 sail. Frankly, I can watch all the ads on TV about a
7 great product, I can get exposed to this product by a
8 friend who has it, but if I show up in the store and I'm
9 trying to find a salesperson, and they can't find the
10 product or know nothing about it, you're not going to have
11 a great deal of success.

12 So this is really a challenge to all the
13 manufacturers -- to all the car companies. And hearing
14 what -- I forgot which north east talked about the
15 incentives to dealers. I mean, we fail at the point of
16 sale, period. I mean, that's to me pretty obvious having
17 gone through that experience and talked to many others.

18 You can hardly find one salesperson that knows
19 something about how to sell the vehicle, what the vehicle
20 is, what the rebates are, the HOV sticker, and all of
21 that. And then you have to, you know, hope that that
22 person is working when you want to go in to buy it.

23 Think about it. If we're trying to go to a store
24 to buy a product in a large department store and we've got
25 to search around for the salesperson to sell us the

1 product we're looking for and we can't find it, we're not
2 going to be successful.

3 So, you know, I think we need to be talking about
4 that more and we need to come up with a strategy of how
5 we're going to get dealers at the point of sale at the
6 time when people are going in to make a decision of what
7 car to buy. We're so far relying on people walking into
8 the dealership wanting to buy an electric vehicle, because
9 of all the good work that's gone on out in the community,
10 by agencies, this and others, by advocacy groups to get
11 people to buy electric vehicles.

12 But we need to do a -- so the focus is what do we
13 do point of sale? So I just -- I'd like to see us really
14 look at how we can think about incentivizing that point
15 more.

16 And then the issue of the infrastructure,
17 especially in lower income communities. And I think we
18 heard a number that -- of the large number of people who
19 live in multi-family units. And, yes, we now can have
20 requirements in new multi-family units there will be the
21 charging infrastructure provided or the electrical
22 conduit. The fact is we've got all those units out there
23 now with millions of people living there. And, yes, they
24 have workplace as an option. So that issue of --
25 continues to need greater attention and hopefully the PUC

1 deals with that and the applications by the various
2 electric utility companies to build charging stations.
3 And so I just wanted to focus on two discrete areas.

4 Because there's -- the other good work that's
5 going on I don't think it's carrying over into lower
6 income communities very much as well. And I know that
7 while the rebate is greater, that rebate still alone is
8 not going to be the answer. And how we connect with
9 organizations and messages in those communities is going
10 to be important. So more focus in that area.

11 So those are sort of my general comments about --
12 there's a lot of things that we're all going to say and I
13 think all feel about this, but those are sort of the most
14 important ones for me about how to take some big steps.

15 VICE CHAIR BERG: Thank you.

16 Ms. Riordan.

17 BOARD MEMBER RIORDAN: Thank you very much. I
18 want to reiterate what was just said. You took my idea
19 away from me. We really do need in the room the
20 dealerships, and for them to totally understand what a
21 good story we have to tell about the product. And I would
22 bet that many of the dealerships, those people who are
23 actually charged with selling the vehicle, have not really
24 experienced the incredible quality of the vehicles that
25 are now on the market.

1 I may be wrong, but my instinct tells me that
2 we've kind of missed that boat. I don't recall a
3 dealership ever approaching me, as an individual who sits
4 on this Board, for any kind of input or comment. They
5 have been totally missing. And I don't know how we reach
6 them. I suspect the manufacturers could help us with
7 that. And I know that there's like a division of work
8 there that everybody says, well, the dealership does this,
9 and the manufacturer does this, then the twain doesn't
10 meet somewhere.

11 I really think we need to somehow corral those
12 people, and get their input and then go about telling them
13 how great this program is, because it truly is a great
14 program. So, Supervisor, thank you for giving my speech.

15 (Laughter.)

16 VICE CHAIR BERG: Thank you for backing it up.
17 Supervisor Roberts.

18 BOARD MEMBER ROBERTS: Thank you, Madam
19 Chairwoman. We've sat here so long that I've forgotten
20 what I wanted to say way back. But I do remember
21 something that Dan Sterling said that -- Sperling that
22 really, I think I would agree with. You may be shocked,
23 but in it's entirety --

24 VICE CHAIR BERG: I'll make sure to pass it on to
25 him.

1 (Laughter.)

2 BOARD MEMBER ROBERTS: He was talking about the
3 plug-in hybrids, I think, and that they're -- you know,
4 and I think he recognized them as the range -- the
5 all-electric range is increasing. That there should be
6 some recognition of that and they shouldn't be sort of
7 assigning this really minimal sort of position in our
8 overall planning, if I understood him correctly.

9 And I just agree with that wholeheartedly. You
10 know, sometimes we're so purist that we overlook the fact
11 that there are things out there that will pretty much get
12 the job done that we want. And I think that deserves to
13 really be underscored. So I would join wholeheartedly in
14 those comments.

15 Secondly, without even knowing about the Berkeley
16 study, we launched a program in San Diego. In fact, we
17 got a grant as part of the greenhouse gas money to put
18 green -- excuse me -- the GHG. We are putting a program
19 in one of the low income areas for car sharing. It's an
20 area where they would not have gone if we hadn't worked
21 with them. And we think it will have precisely the
22 impacts that the Berkeley study has suggested.

23 So we'll do another study when it's all done and
24 see if that's the case, but it seems to me, which is
25 overlooked, is that the resale price and I almost don't

1 want to say this publicly, and none of us have, but the
2 resale price on these cars is so bad. It drops like a
3 rock when you drive them out of the dealership, which
4 means they become very affordable in low income
5 neighborhoods and any other neighborhoods.

6 And I think that the exposure to these kinds of
7 cars, maybe on a rental basis, may help them to bridge
8 that gap. And then if you can make that final connection,
9 you know, there's a lot of these cars in very, very good
10 shape available at relatively low cost. I'm not talking
11 but Tesla, but those dropped too. Probably drop a lot
12 faster than anything else.

13 But this is some -- this is what's happening in
14 the marketplace. And it's something that can work to our
15 advantage. And that's -- we've had a trickle down effect.
16 Instead of saying we're going to try to put the most
17 expensive things in, let's see if we can get cars in so
18 people start to get used to them. I think that's worth
19 really taking a look at.

20 Pet peeve, the funding gap. We have so much
21 money coming in through the greenhouse gas program. If it
22 were prioritized, there would be no funding gap. There's
23 not a revenue gap. There's a priority gap. And it's
24 unfortunate, but that's the truth.

25 The effective programs that could be launched

1 that don't have money for -- are probably a result of
2 there not being a really comprehensive coordinated attack
3 using the resources that are available. And I think that
4 that's a very frustrating situation.

5 To correct some -- a comment that our Chair --
6 she's not here to defend herself, but she said that this
7 will be the first time that the State has gotten into the
8 funding of public transit operations. And that's not
9 true. If you o back just a few years ago, it used to
10 happen. And then the State really pulled the plug on all
11 those programs.

12 And it's being reinstated in a different way
13 from when it used to exist, but it has been there in the
14 past, and it's just part of the frustration running a
15 public transit agency where the money is there and then it
16 disappears and now it's coming back and not nearly as
17 robust as it was at one time.

18 Finally, a kudo for Chris Kehoe, who's not here
19 any longer. She had to run back to San Diego. She's been
20 tireless in promoting electric vehicles, that she's put
21 on, I can tell you, throughout the State. And I know
22 those that have worked with her in San Diego and trying to
23 introduce people to cars, shows where people can come and
24 drive the cars. They can kick the tires. They can hear
25 people. Unlike the criticisms I hear about going to the

1 dealerships, we have many very experienced people that are
2 out there who can talk to anyone that comes in and help
3 them better understand different manufacturers, different
4 models. Those things are really positive.

5 If you walk onto a dealership, the first thing
6 they ask you what are you interested in? And if you're
7 not -- you don't say electric vehicle right off the bat, I
8 guarantee you, they're not going to -- they want to know
9 what you're -- they're going to sell you what they think
10 you're interested in or else you've got to go next door
11 and find what you're interested in somewhere else.

12 So, you know, I don't -- I don't want to kick the
13 dealers too much, because I suspect there's some of that
14 going on, but there's a competition that, you know, if
15 you're going to sell something, you better know what
16 you're -- have a good idea what your customer wants.

17 And if they try to substitute something else, you
18 may find that the sale is going to go somewhere else also.
19 But Chris Kehoe has been doing a super job in heading the
20 coalition of companies that she shared with us here in
21 organizations as being one of them and trying to really
22 increase the awareness across all different brands of
23 electric cars.

24 And hopefully, that will increase the market in a
25 significant way. And I think awareness, education, these

1 are things that are so critical, because I think we're
2 reaching certain limits now of the first generation of
3 people that care about these things. And we're seeing
4 kind of a little kickback now in terms of the sales. And
5 I think you've got to -- we've got to reinvigorate sort of
6 another group, a little harder to reach group that's out
7 there. It's going to take a lot of different programs,
8 and it's going to take some -- I think some thinking
9 that's a little different that would be given instead of,
10 you know, kicking people and threatening people and having
11 penalties.

12 We've got to figure out how to get the consumer
13 educated and then get the acceptance. And I think the new
14 products still are going to do that. You know, I think
15 what General Motors is doing now with the Volt, I think,
16 is -- I'm very impressed with what they will be bringing
17 out. It's going to be a much better vehicle with a lot
18 longer range. And I think there are others that will
19 follow that lead. So the future is bright if we don't
20 mess it up and I -- you hear me, Richard --

21 (Laughter.)

22 BOARD MEMBER ROBERTS: -- be careful. You won't
23 have enough money to do everything, but we'll do what we
24 can and maybe we can also get some of the elected
25 officials to understand a little more help, a little more

1 focus on what priorities ought to be that will get us
2 there.

3 Thank you, Madam Chairwoman.

4 VICE CHAIR BERG: Thank you.

5 Mr. Eisenhut.

6 BOARD MEMBER EISENHUT: Yes. Thank you Chair
7 Berg. It's been said now, more than once, but it's
8 something that's strongly on my mind, and so I'll address
9 the same issue that my colleagues have addressed. And
10 that has to do with access and enabling. And I'll share
11 that in the last month, I set out to buy an electric
12 vehicle, a plug-in vehicle. I went to the dealers with
13 that intention. And one of the reasons I'm speaking is
14 because there are representatives from manufacturers here,
15 and it's really you folks I want to address.

16 My experience was -- ranged from the good, the
17 very good, to the very ugly. And if we're going to make
18 this a success, we're going to have to do better in that
19 arena, and I'll leave the message at that.

20 And I think also as a representative of the San
21 Joaquin Valley, now that I'm accessing my mobile app and I
22 have what some call -- what I will call a range awareness,
23 I'm --

24 (Laughter.)

25 BOARD MEMBER EISENHUT: I'm distinctly aware of

1 the very, very limited numbers of opportunities to extend
2 the range of my plug-in vehicle. We, in the valley -- San
3 Joaquin Valley generally -- I would say, I'm not aware of
4 workplace charging. I'm not aware outside of Sacramento
5 of parking lot charging. There are very, very limited
6 opportunities to extend the range beyond. For the most
7 part, those of us who have electric vehicles are home
8 chargers.

9 And if we're going to make this program and this
10 mandate a success in that part of the world, the
11 infrastructure -- I don't like to use the word enabling.
12 My wife is a drug counselor. It's kind of a charged word.

13 (Laughter.)

14 BOARD MEMBER EISENHUT: And so hopefully we can
15 find a different way to talk about this. But we're going
16 to have to provide access, and I think that needs to be a
17 strong part -- as it was in the staff presentation, a
18 strong part of our awareness. Thank you.

19 VICE CHAIR BERG: Thank you very much.

20 Ms. Mitchell

21 BOARD MEMBER MITCHELL: Thank you. Thank you to
22 staff and to everyone who came today to testify and for
23 all the materials that educate us and Educate the public.
24 I'm very excited about this market, about electric cars,
25 and where we're going with fuel cell vehicles. I think we

1 live in exciting times, and I'm gratified to be a part of
2 it.

3 There are some things that I want to talk about,
4 because as we approach the mid-term review, there's some
5 things that I'd like staff to take a look at. One of the
6 things that I think will be important is to evaluate the
7 battery market, as we move forward. What are the costs in
8 that market, what are the improvements in the market, and
9 how will that ultimately affect the cost of vehicles, and
10 the quality of these vehicles?

11 The other thing that I'd like staff to look at
12 more closely is what are the emissions of the hybrid
13 vehicles? We need to delve into that a little bit better.

14 And if we're going to look at granting credit for
15 eMiles, I think it's really important that we know what
16 we're getting into, what that will be.

17 Third, I would like our staff to look at the
18 credit market and how credits are going to affect our
19 actual sales. We've heard some testimony from people that
20 the credit market being what it is, we are not going to
21 get the number of vehicles, the actual vehicles, in the
22 real world that we want on the road.

23 So that is something I think that ought to be
24 looked at closely, and how do we do that? Do we increase
25 our target of vehicles we want on the road, do we reduce

1 the credits, or do we do a combination of those, and what
2 would that look like? I think we need to be kind of
3 headed in that direction.

4 For the MOU states, I think it's important we
5 continue with that sunset date. I wouldn't be persuaded
6 to extend that. I think, you know, getting more cars in
7 the northeast states helps us. It helps us here too. It
8 helps the national market, which we need to be thinking
9 about.

10 There was also discussion about car sharing. And
11 maybe we can look at some incentives for car sharing. I'm
12 not sure that we want to go to extending more credits in
13 that market, because we're looking at maybe we have too
14 many credits out there. So I think we need to kind of
15 sort of finesse that and massage it and see what we might
16 do there.

17 The other thing that was mentioned earlier today
18 was we really need more money. We need more money in our
19 AQIP funding. The Air Resources Board is doing the heavy
20 lifting job of reducing carbon, reducing pollution, and
21 all of that for the benefit of the public to improve
22 health and to clean the air.

23 And as we said earlier, it's discouraging when
24 there's an interruption in that funding. But we need to
25 keep looking at that, and getting the money that we need

1 for the incentives and to push this market forward.

2 So those are basically the things that I'd like
3 our staff to take a look at as we move into the mid-term
4 review in 2016.

5 Thank you.

6 VICE CHAIR BERG: Thank you, Ms. Mitchell.

7 Dr. Sherriffs.

8 BOARD MEMBER SHERRIFFS: My colleague here poked
9 me. Since she mentioned the credit for eMiles. If we're
10 going to look at that, then I think we -- well, we really
11 need to think about household miles, if we're going to
12 look more broadly at what happens with the car. In
13 fact -- and we have to think about what happens with the
14 household, how all of the transportation is being done
15 within a household, if we're going to drill down that way.

16 I can't remember was the incentive for dealer
17 \$300 or a bottle of pinot, which was it that we were --

18 (Laughter.)

19 BOARD MEMBER GIOIA: They can choose.

20 (Laughter.)

21 BOARD MEMBER SHERRIFFS: They can choose.

22 Maybe we send the voucher to the buyer and then
23 they can give it to the dealer when they get sold. I
24 don't know.

25 You know, going back to the legislative

1 awareness, and in some ways I think this involve is kind
2 of hokey suggestion, maybe it's a very good suggestion.
3 You know, Plug In America, the Governor's office working
4 together. We need to be sure every legislators have an
5 opportunity to ride in a hydrogen fuel car or a battery
6 electric car. That is a great way to raise their
7 awareness and to change their perspective as they are
8 considering these things, thinking about the funding,
9 thinking about how important ongoing reliable funding is
10 to the work that they've asked us to do and that everybody
11 here is struggling to do.

12 VICE CHAIR BERG: Dr. Balmes.

13 BOARD MEMBER BALMES: Last, but hopefully not
14 least, I have the benefit of following the sage comments
15 of my fellow Board members, so I will be brief, especially
16 following Ms. Mitchell, because she said almost exactly
17 what I wanted to say.

18 I want to emphasize I, too, think we should look
19 carefully at the credit market. And with regard to the
20 northeast where we need to have more zero emission
21 vehicles, you know, given the weather in the northeast --
22 I lived in Connecticut for a number of years, lived in New
23 York for a couple of years. I'm from Chicago, so I know
24 about cold weather. And I think the batteries don't do as
25 well in cold weather. Maybe there will be technologic

1 improvements, so that will change over time. But I think
2 fuel cells are a way to go in the northeast that might be
3 more palatable to driving habits and the weather
4 conditions there.

5 So I really think that the northeast states need
6 to work hard in developing a hydrogen fueling
7 infrastructure.

8 VICE CHAIR BERG: Thank you very much. Well, I
9 will wrap-up this session with I think the comments from
10 my fellow Board members have been extremely thoughtful.
11 And as we look at the next year -- and Richard, maybe
12 before I finish up my comments, maybe you could give some
13 final comments as to how you see the timings working,
14 remind the Board what we have coming forward, and then
15 I'll close.

16 EXECUTIVE OFFICER COREY: Sure, Vice Chair. So
17 if anything, it was clear from the discussion today both
18 by staff and the presentations and the presentations by
19 the speakers, the presenters, was the comprehensiveness of
20 the program, comprehensiveness of the overall Advanced
21 Clean Car program, both in terms of the GHG element, the
22 ZEV, element and the discussion on the PM measurements.
23 Very comprehensive studies that are underway that are
24 going -- that will continue to go forward leading up to
25 the report back to the Board in December 2016.

1 But there are a number of milestones that will
2 lead up to getting us there. And at that point, that will
3 be proposed -- that will be a discussion in terms of the
4 assessment of the comprehensive evaluation that has gone
5 on, and an engagement and discussion with the Board, in
6 terms of direction going forward with the program.

7 But leading up to that, leading up to December
8 2016, we'll be releasing a number of studies that are
9 underway. In fact, a number of the studies that
10 Supervisor Mitchell referred to, battery technology,
11 consumer acceptance, secondary market uptake, and the
12 secondary market in terms of the value of the vehicles,
13 the continued collaboration with the -- our MOU state
14 partners all clearly are part of this assessment. And
15 there are a number of studies that will be released as
16 they're completed.

17 The collaboration with the EPA and NHTSA and the
18 release of the technical assessment report will be -- it's
19 targeted for mid-2016. There will be an extensive public
20 comment period on that document.

21 We made reference in our staff presentation of a
22 technical symposium that we'll have after the release of
23 that document for further engagement, all leading to an
24 overall staff assessment and some recommendations that
25 will be discussed with the Board that will inform

1 subsequent actions in 2017.

2 So very busy between now and the report to the
3 Board and the engagement the latter part of 2016 with a
4 number of interim steps.

5 VICE CHAIR BERG: Wonderful. And I guess I would
6 like to close with the fact that this is a very exciting
7 time, and we are at a crossroads. And the crossroads, in
8 and of itself, is very exciting as well.

9 These markets aren't developed overnight. For
10 those of you -- Ms. Riordan, Supervisor Roberts, who can
11 go back a long time, many, many of these ZEV updates that
12 you have done, but also the actual regulations and going
13 through the fight, we're in a much different place today
14 than we certainly were even the 10, 12 years ago when I
15 joined the Board. And from that perspective, it's very,
16 very exciting.

17 I've been really encouraged by participating and
18 going to the Plug-In Collaborative meeting and some of our
19 other sister stakeholders that are doing incredible
20 things, and really engaged and fighting their way through
21 their barriers and their challenges.

22 But nevertheless, we're still at the beginning,
23 and we're still at the tipping point. And when I read
24 on -- that iPhone sold 10 million phones in three days of
25 the 6 and the 6 plus, three days, 10 million phones. But

1 if we go back to six, seven years ago when they first
2 started, how did they build that brand? How did they get
3 people so excited about things?

4 And I do think it's time to bring some really
5 smart people in the room and challenge people as to how
6 we're going to overcome some of these very specific
7 barriers, because the car companies have said to us, we've
8 built the cars. We've got them. We need the customers.
9 No questions. We've got to bring those dealers around.
10 They are separate entities. They are owned separately,
11 and we've got to bring them in the loop.

12 But all this comes together, it is a perfect
13 storm for success. And then we've gotten over that hump
14 and into commercial -- commercialization.

15 So I'm very excited. I think a few years ago, I
16 could say that I was more nervous about more of these
17 pieces. I am much more encouraged about all of the
18 pieces. But like my fellow Board members, we need to see
19 how this is going to come together and what role do we
20 need to play through this mid-term review to really get
21 the sense that we have what we need in order to push and
22 push all stakeholders, because we still need to push. And
23 there's no question about that.

24 So thank you very much to my Board members for
25 really hanging in there with our agenda this afternoon.

1 Thank you very much, staff, and especially to all of the
2 sister agencies and fellow stakeholders that came, and the
3 rest of you.

4 We do have one person that is signed up for
5 public testimony. And so I'm going to take that now. If
6 John Craig would come up. We have three minutes for you,
7 and -- on the greenhouse gas.

8 MR. CRAIG: I guess this is the last one.

9 Thank you very much. My name is John Craig.
10 Good afternoon. I am running a grass roots non-profit
11 called Recompost. That's we as in you and I.

12 I started this non-profit because I was extremely
13 concerned about the effects of climate change on the
14 planet. By composting our organic waste, we achieve a
15 number of goals that benefit the environment. Not least
16 of these benefits is its ability to offset greenhouse gas
17 emissions. According to the Marin Carbon Project,
18 applying one ton per hectare of compost increases the
19 soil's ability to sequester carbon by 25 to 75 percent.

20 Extrapolating that number is very possible to
21 completely offset the annual emissions for commercial and
22 residential energy use in California.

23 To bring awareness and promote the benefits of
24 composing organic waste, I have colorized the recycling
25 symbol. I believe each one of you have a copy of that?

1 That's it.

2 Blue representing the air and water, brown the
3 humus, the composting's end result, and green representing
4 the enormous amount and diversity of life in the soil.

5 It is my hope that the ARB adopts this symbol to
6 help promote composting as a means to clean the air and
7 combat climate change. This symbol is completely free and
8 available to you.

9 Thank you for your valuable time.

10 VICE CHAIR BERG: Well --

11 MR. CRAIG: And I have I think a minute. Do you
12 have any questions?

13 VICE CHAIR BERG: Yeah. Thank you very, very
14 much for coming. And I know you came earlier and that you
15 came back, and I really appreciate that. And we'll make
16 sure that Chair Nichols also gets one of your stickers,
17 and passes on this information.

18 MR. CRAIG: Thank you.

19 VICE CHAIR BERG: Thank you.

20 So with that, do I have any other business before
21 our Board?

22 Seeing none. Then I will close the meeting and
23 thank you very much. See you next month.

24 (Thereupon the Air Resources Board meeting
25 adjourned at 4:58 PM)

C E R T I F I C A T E O F R E P O R T E R

I, JAMES F. PETERS, a Certified Shorthand Reporter of the State of California, do hereby certify:

That I am a disinterested person herein; that the foregoing California Air Resources Board meeting was reported in shorthand by me, James F. Peters, a Certified Shorthand Reporter of the State of California, and was thereafter transcribed, under my direction, by computer-assisted transcription;

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

IN WITNESS WHEREOF, I have hereunto set my hand this 4th day of November, 2015.



JAMES F. PETERS, CSR
Certified Shorthand Reporter
License No. 10063