

BOARD MEETING
STATE OF CALIFORNIA
AIR RESOURCES BOARD

JOE SERNA, JR. BUILDING
CALIFORNIA ENVIRONMENTAL PROTECTION AGENCY
CENTRAL VALLEY AUDITORIUM, SECOND FLOOR
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SACRAMENTO, CALIFORNIA

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9:00 A.M.

JAMES F. PETERS, CSR, RPR
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PETERS SHORTHAND REPORTING CORPORATION (916) 362-2345

APPEARANCES

BOARD MEMBERS

Dr. Alan Lloyd, Chairperson

Dr. William Burke

Mr. Joseph Calhoun

Ms. Dorene D'Adamo

Supervisor Mark DeSaulnier

Professor Hugh Friedman

Dr. William Friedman

Mr. Matthew McKinnon

Mrs. Barbara Riordan

Supervisor Ron Roberts

STAFF

Ms. Catherine Witherspoon, Executive Officer

Mr. Tom Cackette, Chief Deputy Executive Officer

Mr. Mike Scheible, Deputy Executive Officer

Ms. Lynn Terry, Deputy Executive Officer

Ms. Kathleen Walsh, General Counsel

Dr. Alberto Ayala, Manager, Alternative Strategies
Section, MSCD

Ms. Analisa Bevan, Manager, ZEV Implementation Section,
MSCD

Mr. Richard Bode, Chief, Health and Exposure Assessment
Branch, Research Division

APPEARANCES CONTINUED

STAFF

Mr. Craig Childers

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

Mr. Bob Cross, Chief, MSCD

Ms. Krista Fregoso, Air Pollution Specialist, Planning and Regulatory Development Section, MSCD

Mr. Tom Jennings, Senior Staff Counsel

Ms. Diane Johnston, Senior Staff Counsel

Dr. Norman Kado, Air Pollution Specialist

Ms. Renee Kemena, Manager, Planning and Regulatory Development Section, MSCD

Mr. Jack Kitowski, Chief, On-Road Controls Branch, MSCD

Mr. Bob Nguyen, Air Resources Engineer, Alternative Strategies Section, MSCD

Mr. Chuck Shulock, Vehicle Program Specialist, MSCD

Dr. Barbara Weller, Manager, Population Studies Section, Research Division

ALSO PRESENT

Mr. Tom Addison, Bay Area Air Quality Management District

Dr. Menahem Anderman, Consultant

Ms. Marilyn Bardet

Ms. Clare Bell, E-Vet

Mr. John Boesel, Calstart/Westart

Mr. Thomas Bradley, Self

Mr. Scott Briasco, Los Angeles Department of Water and Power

APPEARANCES CONTINUED

ALSO PRESENT

Mr. Kelly Brown, Ford Motor Company

Dr. Louis Browning, ICF Consulting

Dr. Nicholas Carter

Mr. Steve Casner, Self

Mr. Michael Coates, Green Car Group

Mr. Michael Conlon, Automotive Engine Rebuilders

Mr. Steven Dibner

Mr. Armando Flores, Latino PAC, Stansilaus County Hispanic Chamber of Commerce

Mr. Tom Fulks, Green Car Marketing & Communications

Mr. Andrew Frank, U.C. Davis

Mr. S. David Freeman

Mr. Tom Gage, AC Propulsion

Mr. Marc Geller

Mr. Robert Gibney, Avestor

Mr. Tim Hastrup

Mr. Steve Heckerth, 02

Mr. David Hermance, Toyota

Mr. Henry Hogo, SCAQMD

Mr. Steve HOEK, Automotive Engine Rebuilders

Ms. Bonnie Homes-Gen, American Lung Association

Mr. Steve Hurd, Caterpillar

Mr. Rolad Hwang, NRDC

APPEARANCES CONTINUED

ALSO PRESENT

Mr. Carl Johnson, NYS Department of Environmental
Conservation

Mr. Mike Kane, Self

Dr. Douglas Kerr, Self

Ms. Christine Kirby, Massachusetts Department of
Environmental Protection

Mr. Robert P. Kittell, Electricab Energy

Mr. Ed Kjaer, SCE

Mr. Ben Knight, American Honda

Ms. Gretchen Knudsen, International Truck and Engine
Corporation

Ms. Patricia Lakinsmith, Monterey Technologies

Ms. Elaine Lissner, EV Driver

Mr. Jason Mark, UCS

Mr. Daniel McCarthy, Evercel Inc.

Mr. Rick McCourt, Company Construction

Ms. Amanda Miller, EPRI

Mr. Clayton Miller, Construction Industry Air Quality
Coalition

Mr. Diego Miralles, EV Works

Mr. Bill Mirth, Federal-Mogul

Mr. David Modisette, California Electric Transportation
Coalition

Mr. Dana Muscato, Phoenix Motor Cars

Ms. Mary Nickerson, Toyota

Mr. Mark Nordheim, WSPA

APPEARANCES CONTINUED

ALSO PRESENT

Councilman Henery Perea, City of Fresno

Ms. Kimberly Rogers

Mr. Serge Roy, Capitech

Ms. Bev Sanders

Mr. Paul Scott, PEVDC

Ms. Zan Dubin Scott, Self

Mr. Bill Smith, Virtual Agile Manufacturing

Ms. Sandray Spelliscy, PCL

Mr. Dan Sturges, Mobility Lab

Mr. Dean Taylor, SoCal Edison

Mr. Mike Thompson, Self/Air Breather

Mr. Edward Thorpe, PEVDC

Mr. Joe Tomita, Toyota

Mr. Jay Wagner, Dana Corporation

Mr. Bill Warf, SMUD

Mr. Reagan Wilson, Stanislaus County

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1 PROCEEDINGS

2 CHAIRPERSON LLOYD: Good morning. The March
3 27th, 2003 public meeting of the Air Resources Board will
4 now come to order.

5 Mr. Calhoun, would please lead the Board in the
6 Pledge of Allegiance.

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

9 CHAIRPERSON LLOYD: Thank you.
10 Will the clerk of the Board please call the roll.

11 BOARD CLERK DORAIS: Dr. Burke?

12 BOARD MEMBER BURKE: Present.

13 BOARD CLERK DORAIS: Mr. Calhoun?

14 BOARD MEMBER CALHOUN: Here.

15 BOARD CLERK DORAIS: Ms. D'Adamo?

16 BOARD MEMBER D'ADAMO: Here.

17 BOARD CLERK DORAIS: Supervisor DeSaulnier?

18 BOARD MEMBER DeSAULNIER: Here.

19 BOARD CLERK DORAIS: Professor Friedman?

20 BOARD MEMBER HUGH FRIEDMAN: Here.

21 BOARD CLERK DORAIS: Dr. Friedman?

22 BOARD MEMBER WILLIAM FRIEDMAN: Here.

23 BOARD CLERK DORAIS: Mr. McKinnon?

24 BOARD MEMBER MCKINNON: Here.

25 BOARD CLERK DORAIS: Supervisor Patrick?

1 Mrs. Riordan?

2 BOARD MEMBER RIORDAN: Here.

3 BOARD CLERK DORAIS: Supervisor Roberts?

4 BOARD MEMBER ROBERTS: Here.

5 BOARD CLERK DORAIS: Chairman Lloyd?

6 CHAIRPERSON LLOYD: Here.

7 Thank you.

8 Good morning again.

9 First of all I would like to welcome our new
10 Executive Officer, Catherine Witherspoon. It's her first
11 Board meeting.

12 So we're delighted to have you here, Catherine,
13 and we're delighted to be working with you. It's a tough
14 start to a career in this job, but I know you can handle
15 it.

16 EXECUTIVE OFFICER WITHERSPOON: Thank you.

17 CHAIRPERSON LLOYD: Before we get started, just
18 note about today's proceedings.

19 We are postponing Agenda Item 03-2-2 until next
20 month regarding appointments to the Research Screening
21 Committee, to give staff a little more time to talk to
22 potential candidates.

23 So after our regular health update we'll go
24 directly to Agenda Item Number 3, the Carl Moyer, school
25 bus Item. We're expecting that discussion to take about

1 an hour, as we're hoping. So if you're here for the Zero
2 Emission Vehicle Regulation, which obviously is the
3 highlight of the day for many of us, you have a bit of
4 time to get some coffee, work on testimony, talk to staff,
5 et cetera.

6 Then once we get started with ZEV, we proceed
7 straight through the rest of the day, only taking short
8 breaks for the court reporter every two hours.

9 That's to accommodate the large list of witnesses
10 we're expecting today. We don't have an idea of the
11 number of witnesses at this time, but obviously in the
12 next few hours we'll have a pretty good idea.

13 If need be we'll extend the hearing to tomorrow.
14 But my colleagues now will have to gauge that to see how
15 long and how fast we can get along. And clearly, in that
16 context, I'm already under significant pressure by my
17 colleagues here to limit the testimony, given that we may
18 have a large number of people. And so, as you can see the
19 pincer movement here, it's likely that I will have to
20 exert three minutes or so if we have a large number of
21 witnesses. But we won't know that, and I've give the
22 witnesses plenty of time. Clearly, the testimony up front
23 from the major stakeholders, that will not be impacted by
24 the three minutes because these are some critical issues,
25 and we'll need adequate response to the staff presentation

1 as well.

2 I'd also like to ask anyone in the audience who
3 wishes to testify today, as I indicated, keep comments as
4 brief as possible. The other part of it I think, and
5 consistent with this, you know, we've had hundreds of
6 letters, many of which repeat the same message. So people
7 who are testifying who all have the same message, it would
8 be helpful, in fact, if you just highlight any
9 differences. Believe me, as I've indicated when I was
10 flooded the last time with E-mails, it's like a dessert.
11 You know, the first few teaspoons or tablespoons are
12 excellent. But after, you know, a truckload of that, it
13 doesn't have the same impact.

14 So I think it's important that we focus some of
15 those so we add on. And the Board again has read a lot of
16 the material here, and I think we're smart enough to be
17 able to digest the key parts.

18 But as I indicated, until we know the number of
19 people signed, we will not have a good idea of where we
20 are.

21 So with that I guess we will proceed to the first
22 agenda item today. Reminding anybody who wishes to sign
23 up, please see the attendant outside. And if you have
24 copies of the written statements, provide 30 copies if you
25 can.

1 The item here is the recent health research
2 conducted in the Netherlands regarding the association
3 between traffic-related air pollution and mortality in an
4 elderly population.

5 At this point I'd like to turn it Ms. Witherspoon
6 to introduce the item and begin staff's presentation.

7 EXECUTIVE OFFICER WITHERSPOON: You're going to
8 have to get used to saying that. It's a longer name.

9 Good morning, Dr. Lloyd and members of the Board.

10 This a particularly interesting health study
11 because it adds to our understanding of particulate matter
12 and its effect on the elderly. Over the past few years we
13 have talked to you many times about children's unique
14 vulnerability to air pollution. This study reminds us
15 that there are other sensitive populations at risk.

16 This study also has an environmental justice
17 angle because it involves near-roadway and near-highway
18 exposures, something that many California communities are
19 concerned about.

20 We talked about some of these issues at the
21 January meeting, and we will be addressing the subject of
22 environmental justice research and data needs again in
23 April.

24 Dr. Norman Kado will make the staff presentation
25 this morning.

1 Dr. Kado?

2 DR. KADO: Thank you very much, Ms. Witherspoon.

3 Good morning, Chairman Lloyd and members of the
4 Board.

5 (Thereupon an overhead presentation was
6 Presented as follows.)

7 DR. KADO: Investigators have previously reported
8 associations between long-term exposure to particulate
9 matter, air pollution and mortality. The Air Resources
10 Board has recently adopted new annual PM10 and PM2.5
11 standards and continues to review the latest information
12 to protect the most sensitive members of the public from
13 chronic and acute health effects related to particulate air
14 pollution.

15 The presentation this morning is a discussion of
16 a study evaluating the association between long-term
17 exposure to traffic-related pollutants and cardiopulmonary
18 mortality in a cohort of individuals, age 55 to 69.

19 --o0o--

20 DR. KADO: Results of three previous studies
21 presented in an earlier health update have suggested that
22 long-term exposure to particulate matter air pollution is
23 associated with increased mortality from respiratory and
24 cardiovascular disease and from lung cancer.

25 For estimating exposure to air pollutants in

1 these studies, investigators compared several large,
2 usually metropolitan regions with different ambient air
3 pollution concentrations, with the assumption that
4 exposure is uniform within each region. This assumption,
5 however, may not accurately reflect exposure, especially
6 for pollutants with important local sources.

7 Investigators in Europe reported that
8 concentrations of nitrogen dioxide, an important
9 traffic-related pollutant, for example, varied between
10 small regions within cities. They indicated that traffic
11 intensity and distance to major roadways are important in
12 assessing long-term exposure to this pollutant.

13 Investigators have further reported that chronic
14 respiratory disease in children is associated with living
15 near major roadways.

16 --o0o--

17 DR. KADO: The focus of today's health update is
18 a study recently published by Hoek and Colleagues in the
19 medical journal Lancet. In the article they reported an
20 association between mortality and indicators of
21 traffic-related air pollution in the Netherlands.

22 The subject for the study -- the subjects for the
23 study consisted of 4500 residents randomly selected as a
24 subset from the Netherlands cohort study on diet and
25 cancer, which is an ongoing study started in 1986 on over

1 120,000 residents.

2 The investigators specifically evaluated
3 cardiopulmonary mortality and its association with
4 traffic-related air pollution.

5 The pollutants of interest in this study were
6 black smoke and nitrogen dioxide. These pollutants were
7 used as indicators of exposure to traffic pollutants.

8 The investigators determined background levels
9 for the entire region and for their urban environment.
10 Further, the investigators used living near major roadways
11 as an index for exposure to local traffic-generated
12 pollutants. This was defined as living within 100 meters
13 of a freeway or within 50 meters of a major street in
14 their evaluation.

15 --o0o--

16 DR. KADO: Over the course of this study there
17 were 185 cardiopulmonary deaths. After adjusting for
18 confounding factors, such as smoking and background
19 exposure to black smoke and nitrogen dioxide, those living
20 near a major roadway or a freeway had higher relative risk
21 for cardiopulmonary mortality. This corresponded to
22 approximately twenty cardiopulmonary deaths for
23 individuals living near major roadways in this study.

24 Interestingly, when the population was limited to
25 those who lived in the same location for ten years or

1 more, the risk for cardiopulmonary mortality increased for
2 those living near a major roadway. This implies that
3 longer periods of exposure to traffic-related pollutants
4 may increase the risk to cardiopulmonary deaths.

5 --o0o--

6 DR. KADO: This study agrees with findings from
7 three previous cohort studies conducted in the United
8 States, demonstrating an association between exposure to
9 air pollution and cardiopulmonary mortality. The
10 consistency of the association across different countries
11 gives credence to the idea that air pollution is
12 associated with mortality in both the United States and
13 Europe.

14 The results from this study indicate that there
15 is a consistent association between cardiopulmonary
16 mortality and living near a major roadway, and further
17 indicates the importance of assessing exposure at a finer
18 scale especially with regards to a local source pollution
19 such as vehicular traffic.

20 The finding of increased risk for those living
21 near roadways is important to the State of California
22 where many of our citizens live in close proximity to
23 major roads and freeways. Motorized traffic emissions
24 result in small scale spatial variations with high
25 concentrations at short distances from major roads. This

1 exposure could result in adverse health effects.

2 Although black smoke and nitrogen dioxide were
3 used as indicators for traffic-related air pollution,
4 these components may not be directly responsible for the
5 observed mortality. It is possible that some other
6 traffic-related pollutants such as ultrafine particles or
7 diesel particulate matter, for example, is responsible for
8 the health effect -- of the effect observed in this study.

9 This concludes the health update. And we would
10 be happy to answer any questions.

11 Thank you very much.

12 CHAIRPERSON LLOYD: Thank you.

13 I think that's an excellent background setting
14 and rationale for the subsequent items today.

15 Questions from the Board?

16 Dr. Friedman.

17 BOARD MEMBER WILLIAM FRIEDMAN: Well, just a
18 comment.

19 This is one of a growing number of reports on the
20 same subject that -- in which this association exists.
21 And it places a premium on two things: First, the efforts
22 that we're trying to make with respect to environmental
23 justice. And, second, on trying to identify or getting
24 the research done to identify the constituent parts of
25 particles that may be responsible in an ultimate sense for

1 the causation. We're still pretty far from that, but
2 there clearly is a direction that we must traverse to get
3 the answer to that. There's no question that there is a
4 relationship between mortality and what it is we're
5 breathing. We need to find out exactly what component
6 part is the culprit.

7 CHAIRPERSON LLOYD: Dr. Burke.

8 BOARD MEMBER BURKE: I agree with Dr. Friedman in
9 part of his statement and disagree with him in another
10 part.

11 At South Coast we're obviously concerned about
12 the causal relationship to illness. And, therefore, we
13 are undertaking some studies in groundbreaking areas,
14 including the cause of brain cancer from air pollution, as
15 well as some of our asthma problems.

16 But, you know, environmental justice is a very
17 precious term to me. And you know, having a study like
18 this and saying it has impact on environmental justice
19 doesn't -- isn't relevant to me, because saying the
20 freeway runs by it, I mean a freeway runs by -- through
21 west L.A., and we know they're not environmentally
22 challenged. Runs through Encino, and we know they're not
23 environmentally challenged. So having a freeway run
24 through your neighborhood does not necessarily mean you're
25 economically or environmentally looking for environmental

1 justice.

2 And to slap that label on a study like that to
3 people of color I think is offensive. Just one personal
4 opinion.

5 EXECUTIVE OFFICER WITHERSPOON: If I might
6 respond since I'm the one who brought the issue up.

7 The exposures that we're talking about are very
8 proximate to the freeway, in very close distance. And so
9 even when the freeways are running through more wealthy
10 communities, the land uses immediately adjacent to the
11 freeway tend to be industrial, mixed use, lower income.
12 And so I don't think we've violated the principle of
13 environmental justice, because lower income people do tend
14 to end up in housing that might be immediately adjacent to
15 freeways and roadways.

16 BOARD MEMBER BURKE: Well, you know Sunset
17 Boulevard? Are you familiar with Sunset Boulevard in
18 Beverly Hills? Do you think they're economically
19 challenged?

20 BOARD MEMBER WILLIAM FRIEDMAN: I haven't seen a
21 diesel truck on Sunset Boulevard since I've lived there.
22 And I lived on Sunset Boulevard --

23 BOARD MEMBER BURKE: Have you seen any on the
24 405?

25 CHAIRPERSON LLOYD: Please. I think that --

1 BOARD MEMBER WILLIAM FRIEDMAN: Yeah. But --

2 BOARD MEMBER BURKE: Well, we're talking about
3 freeways here. We're not talking about surface streets.
4 Sunset Boulevard and the 405 is the most highly congested
5 freeway in the State of California with 435,000 cars and
6 trucks a day. So I mean --

7 BOARD MEMBER WILLIAM FRIEDMAN: Billy, I live 400
8 yards from there, not 200 feet from diesel, which is what
9 these studies are talking about.

10 And, believe me, there's no -- my comments had no
11 intent to offend any specific group of individuals. I
12 think -- what I said was there's an implication. And
13 there is an implication, and it needs to be studied
14 further. That's what these studies mean to me, that there
15 is -- there's a fruitful area for further inquiry.

16 BOARD MEMBER BURKE: Well, I happen to live less
17 than -- have for the past twenty years, probably eight
18 blocks from there. And if -- you know where Arrow Street
19 is?

20 BOARD MEMBER WILLIAM FRIEDMAN: Yes, I do.

21 BOARD MEMBER BURKE: That's the street after the
22 405 on the east side?

23 The houses in that area have been diminished in
24 value because of the proximity to the 405. Now only
25 because of sound pollution. Because of the pollution from

1 the trucks and the cars going by.

2 I just -- you know, environmental justice to me
3 means people who don't have a voice. Just because a
4 freeway runs by your place I don't think means that you
5 don't have a voice.

6 That's, you know -- I didn't mean your comment
7 was offensive, Doc, you know. But I just -- all my life
8 people have been slapping labels on things for people who
9 are environmentally or economically challenged and calling
10 them, you know, things that we need study for those
11 people.

12 Well, this is not a key element. Maybe an
13 element, but not a key element in what you need to study
14 for poor and environmentally challenged people as far as
15 I'm concerned. And maybe it's just a difference of
16 opinion.

17 EXECUTIVE OFFICER WITHERSPOON: Staff would agree
18 with that assessment. It's just one element. And I
19 didn't mean to imply that this was the entire
20 environmental justice story. It's just one piece.

21 CHAIRPERSON LLOYD: Mr. McKinnon.

22 BOARD MEMBER McKINNON: Yeah, I think there's
23 probably less contradictions between what folks said to
24 each other. I think both are sort of important
25 perspectives, as kind of working through what we're seeing

1 in and discussing in the environmental justice area.

2 It is true that it's more than freeways and
3 trucks, because there's lots of stationary source
4 problems. There are retail commercial problems like gas
5 stations and laundries and laundromats. There are some
6 small things like Barrio Logan situation where we're
7 looking at plating.

8 And in some EJ communities there is heavy truck
9 traffic, not only on freeways, but also on surface
10 streets. I think of the Alameda corridor. On freeways I
11 think of Boyle Heights where there's a bunch of freeways
12 that sort of come together in interchanges sort of with a
13 neighborhood.

14 And I guess it seems to me that if we're going to
15 do what's right for Californians in all communities, one
16 of the things we're going to have to do is get better at
17 measuring how all those impacts come together. And I
18 think that what we're going to find, and I think there's
19 sufficient evidence actually at this point, that a lot of
20 the stationary source, commercial source, and even freeway
21 location impacts neighborhoods of color.

22 And I think we have to get better at measuring
23 those impacts so that we can have a discussion about what
24 we're going to do about it and what measures will begin to
25 correct the problem. If we don't measure it, we won't be

1 able to correct the problem. We may do a lot of things
2 that work and we may do things that don't work.

3 Finally, I'm real concerned -- and one of the
4 things that seems to happen is school districts tend to
5 buy land where it is cheapest. And one of the places
6 where land is the cheapest is next to freeways. And that
7 seems to be a reoccurring pattern. I'm not sure how we're
8 going to get at that, but we certainly need to figure out
9 a way, because it isn't a good way of siting a school.

10 And I think that is beyond EJ. I think that
11 happens in all communities. I think it's just really a
12 common occurrence because that's where the land is least
13 valuable.

14 Thanks.

15 CHAIRPERSON LLOYD: Thank you.

16 Supervisor Roberts.

17 BOARD MEMBER ROBERTS: I don't want to interrupt
18 any of this, but I'd like to ask a question about the
19 presentation.

20 CHAIRPERSON LLOYD: Please do.

21 BOARD MEMBER ROBERTS: You made reference to
22 major roads and freeways without giving us any definition
23 as to what that means in levels of traffic. What's a
24 major road, to begin with, as per this study? I'd like to
25 get some perspective in this. Because, believe it or not,

1 we're building some of most expensive housing in our
2 community right next to major roads and freeways. I'd
3 just like to have some understanding of this because I
4 think it's bigger than any one community. It transcends
5 all of that.

6 And I thought this Board was about cleaning up
7 the air, period. Okay?

8 Could you help me? What's a major road?
9 Everybody up here knows except for me, so please help me.

10 DR. KADO: It was defined in a number of -- there
11 are companion papers in this -- related to this study.
12 And freeways, they had specific number in the thousands.
13 I don't remember the exact number. Major roads were a
14 little bit less than that. I can't give you the exact
15 number.

16 BOARD MEMBER ROBERTS: Would you for me
17 personally get that information, because I'd like some
18 perspective. Because a major road get involved a little
19 bit with transportation planning, and that has no meaning
20 whatsoever. And we've got a lot of things I would
21 describe as major roads. And I'm not going to tell you
22 how close I live to one, but it's very close -- or how
23 close I live to a freeway.

24 But I think beyond that -- I think the
25 implications here is that, you know, there's something to

1 be concerned with and there's some additional studies that
2 probably we're going to have to do. And I don't think it
3 does any -- if it comes as a surprise to anybody, I'll be
4 surprised over that.

5 But I'd like to have some perspective in terms of
6 what they found, what this environment really looked like
7 that they were studying.

8 CHAIRPERSON LLOYD: You might have to pay a site
9 visit to answer that question comprehensively.

10 BOARD MEMBER ROBERTS: I'll be available in June,
11 if that's an option.

12 CHAIRPERSON LLOYD: Thank you very much. Thank
13 you.

14 Seeing no further comments or questions, we'll
15 bring that item to a close and thank the staff. Thank you
16 very much.

17 And I guess we look forward next month to the
18 discussions on the new RSE members.

19 Thank you.

20 CHAIRPERSON LLOYD: So with that we'll move on to
21 the next agenda item. I'll just speak as staff turns
22 over. And this one is Agenda Item 03-2-3, public meeting
23 to consider Prop 40 and related amendments to the Carl
24 Moyer Program and the School Bus Program guidelines.

25 Again, thanks for everybody passing off on -- the

1 public passing off on Prop 40. We have some funds
2 actually for this very important program.

3 I had the pleasure of knowing Dr. Carl Moyer
4 personally. And he truly was a visionary ahead of his
5 time, who recognized the prolonged life of diesel engine
6 meant that old high-polluting vehicles and equipment were
7 going to be around for a very long time and would present
8 an air quality challenge. This foresight in fact was the
9 genesis of the Moyer Program, which is passed by the
10 Legislature.

11 Carl believed that a collaborative effort between
12 private entities and government could promote cleaner
13 engines and have a significant positive impact on air
14 quality. And clearly that vision has proven to be true.
15 The continuing success of his program demonstrates again
16 how right he was. And now we have a parallel program for
17 lower-emission school buses that applies the same
18 philosophy to those vehicles.

19 Something that Dr. Moyer may not have anticipated
20 is how environment justice would come to be part of his
21 effort. We now have laws that direct 50 percent of all
22 Carl Moyer and school bus monies to the areas that are
23 heavily impacted by air pollution.

24 The other thing that's changed is our options for
25 cleaning up diesel engines. When the Carl Moyer Program

1 began, replacement, rebuilds, and alternative fuel
2 subsidies were the only options. Now we have
3 after-treatment possibilities as well, and have learned a
4 lot more about the relative benefits of all the different
5 strategies.

6 Ms. Witherspoon, are you ready to begin staff's
7 presentation?

8 EXECUTIVE OFFICER WITHERSPOON: Yes. Thank you,
9 Dr. Lloyd.

10 Last year California voters approved Proposition
11 40, the California Clean Water, Clean Air, Safe
12 Neighborhood Parks and Coastal Protection Act, thus
13 providing the funds for the Carl Moyer and Lower-Emission
14 School Bus Programs to continue for two more years.

15 Under the Carl Moyer Program, truck drivers,
16 forklift operators, farmers, commercial fishermen, and
17 many other hard working Californians have gotten the
18 financial assistance to replace older, higher-emitting
19 diesel equipment with newer and cleaner technologies.

20 All Californians have benefited from the
21 cumulative air quality improvements of these projects.
22 During the first three years of the Carl Moyer Program
23 smog-forming NOx emissions have been reduced statewide by
24 over 11 tons per day.

25 The Lower-Emission School Bus Program provides

1 similar benefits. Through this program, California school
2 districts are providing direct public health benefits to
3 their students by reducing NOx and diesel PM from the
4 vehicles that bring the children to school. In addition,
5 thousands of school children are now being transported in
6 new buses meeting the most current safety standards.

7 Over the past two years more than 500 old,
8 high-emitting school buses have been removed from service
9 and replaced with new, cleaner models. In addition, about
10 1500 buses have been equipped with retrofit devices to
11 date and more than 3,000 will have such aftertreatment
12 when the retrofit component of the existing program is
13 completed this fall.

14 The guideline revisions staff are proposing today
15 will update these programs and allow us to continue
16 achieving real and quantifiable reductions of NOx PM.

17 With that, I'll now ask Dr. Alberto Ayala and Ms.
18 Krista Fregoso to proceed with the staff presentation.

19 (Thereupon an overhead presentation was
20 Presented as follows.)

21 ALTERNATIVE STRATEGIES SECTION MANAGER AYALA:

22 Thank you, Ms. Witherspoon.

23 And thank you, Dr. Lloyd and members of the
24 Board.

25 Staff are here today to propose to you revisions

1 to the existing guidelines for two clean-air incentive
2 programs in California, the Carl Moyer Program and the
3 Lower-Emission School Bus Program.

4 These revisions we believe improve on the past
5 success of these programs and allow us to move forward
6 with the funding made available by proposition 40.

7 --o0o--

8 ALTERNATIVE STRATEGIES SECTION MANAGER AYALA: I
9 will briefly discuss Proposition 40 and the funding made
10 available to the Carl Moyer and the School Bus programs.
11 Then I will present an overview of the changes made to the
12 existing guidelines for the Carl Moyer Program, which you
13 approved on November 16th, 2000.

14 I will then turn it over to Ms. Krista Fregoso,
15 who will discuss for you the proposed revisions to the
16 Lower-Emissions School Bus Program.

17 These are separate incentive programs with their
18 own distinct guidelines, but they come together under the
19 funding umbrella of the voter-approved Proposition 40.

20 Finally, since release of the documents for
21 public comment, the staff have identified some corrections
22 and clarifying changes to both sets of guidelines. We
23 will describe these further changes and ask for your
24 consideration and approval.

25 --o0o--

1 ALTERNATIVE STRATEGIES SECTION MANAGER AYALA:

2 Proposition 40 is a California Clean Water, Clean
3 Air, Safe Neighborhood Parks and Coastal Protection Act
4 approved by California voters in March 2002. It provides
5 the only current source of funding for the Carl Moyer and
6 School Bus Programs.

7 This proposition provides funding for eligible
8 projects that affect air quality in the state and local
9 parks and recreation areas.

10 ARB has been allocated \$25 million for the
11 current fiscal year, and a similar amount of funding is
12 expected for Fiscal Year 2003-2004.

13 Of this, Assembly Bill 425 directs that 20
14 percent be allocated for the purchase of new, clean, safe
15 school buses. Funding must be allocated to eligible
16 projects that meet the approved program guidelines,
17 including environmental justice requirements.

18 --o0o--

19 ALTERNATIVE STRATEGIES SECTION MANAGER AYALA: In
20 the four years that the Carl Moyer Program has been in
21 existence, approximately \$114 million have been allocated
22 for projects. We are currently nearing the end of the
23 reporting cycle for year four, and districts tell us that
24 all funds have been allocated to eligible projects.

25 The Carl Moyer Program has been widely successful

1 in its goal to deploy cleaner than required engine
2 technology and has resulted in significant near-term
3 reductions of emissions of nitrogen oxides and particulate
4 matter.

5 The program has been over-subscribed with
6 significantly more eligible projects than there is funding
7 for. The success of the Moyer Program is illustrated by
8 the statistics for the first three years. Results for the
9 fourth are still coming in from the districts, and the
10 Board will hear a status report on these results in the
11 fall.

12 The program has resulted in average reductions of
13 11 tons of NOx emissions per day, at an average cost
14 effectiveness of \$4,000 per ton of NOx reduced. This
15 compares very favorably to the current cost effectiveness
16 limit of \$13,000 per ton.

17 The program has funded more than 4300 engines,
18 with a fairly even split between diesel and alternative
19 fuel.

20 --o0o--

21 ALTERNATIVE STRATEGIES SECTION MANAGER AYALA:

22 The new finding made available by Proposition 40
23 and a number of recent developments prompted staff to
24 revise the existing guidelines. The revisions to the
25 Moyer guidelines include the following:

1 First, we're proposing new district requirements
2 for matching funding allocations. The staff is also
3 proposing a new provision which allows districts to fund
4 projects that reduce PM emissions only as long as it is
5 with district match funds.

6 These first two revisions will be discussed in
7 more detail with the next few slides.

8 Other changes to the Moyer guidelines include an
9 increase in the maximum cost effectiveness from 13,000 to
10 13,600 per ton of NOx reduced. This is done to account
11 for cost-of-living increases relative to the last update
12 of the guidelines in November of 2000.

13 Although environmental justice requirements with
14 part of the funds allocated last year, they were not
15 formally spelled out in the current guidelines, which were
16 approved in 2000. We have added this language to the
17 proposed revisions. We have formalized the reporting
18 requirements for the districts. This is important since
19 we have already been informed that the Department of
20 Finance will formally audit both the ARB and the districts
21 in the implementation of these Proposition 40 funds.

22 And, finally, the majority of the changes to the
23 guidelines are technical updates related to new emission
24 factors and inventories as well as new emission standards
25 that recently came into effect. ARB and district staff

1 have also worked closely and consider the lessons learned
2 in the four years of the Carl Moyer Program
3 implementation.

4 This experience is reflected in a number of
5 clarifying statements throughout the document. One of the
6 proposed technical updates relates to a specific guidance
7 for projects that involve engine repowers. In The public
8 document staff proposes that only rebuilt engines and
9 parts offered by the original equipment manufacturer shall
10 be eligible for Moyer funding.

11 We will present to you a proposal to include more
12 flexibility and allow for a wider variety of rebuilt
13 engines to qualify for participation so long as they
14 result in real, quantifiable and enforceable remission
15 reductions

16 --o0o--

17 ALTERNATIVE STRATEGIES SECTION MANAGER AYALA:

18 Per Proposition 40 language, each district is
19 eligible to receive no less than \$100,000 a year. The
20 staff proposes that smaller districts which based on
21 population only qualify for this minimum disbursement may
22 request a waiver of the matching requirement so long as
23 sufficient district resources are committed to
24 administration of the program.

25 In addition, new participating districts must

1 receive appropriate training from ARB for program
2 implementation before receiving their allocation.

3 For the larger districts the matching requirement
4 is the same as in the past. For every \$2 from proposition
5 40, they must commit \$1 from funds under their authority.
6 Up to 15 percent of this match requirement can be made by
7 a district's in-kind administrative costs.

8 --o0o--

9 ALTERNATIVE STRATEGIES SECTION MANAGER AYALA: In
10 the current fiscal year Proposition 40 has made available
11 a total of \$19.5 million for projects. Each California
12 air district is eligible for a minimum allocation of
13 \$100,000. Districts with either populations of
14 approximately 330,000 or more or a nonattainment of
15 federal lows in the standards are eligible for additional
16 funding determined based on equal weight for each of these
17 factors.

18 --o0o--

19 ALTERNATIVE STRATEGIES SECTION MANAGER AYALA:
20 The program will continue the goals and
21 requirements for reduction of PM emissions recommended by
22 the Carl Moyer Advisory Board. Areas in nonattainment of
23 the federal PM standards must fund projects that result in
24 a minimum overall PM emission reduction of 25 percent.
25 Currently the San Joaquin Valley and South Coast

1 Districts have this requirement. The rest of the
2 districts must attempt to meet this goal.

3 The staff proposed additional flexibility be
4 added to the program. Districts may use matching funds
5 for projects that result in PM emission reductions only.
6 This could be projects like diesel particulate filters or
7 oxidation catalysts. Although these projects do not offer
8 NOx reductions consistent with the original focus of the
9 Carl Moyer program, reductions of toxic PM emissions are
10 critical and the staff believe offering this flexibility
11 to districts to fund these projects is important.

12 --o0o--

13 ALTERNATIVE STRATEGIES SECTION MANAGER AYALA:

14 The final slide in the staff presentation of the
15 Moyer Program provisions is a summary of further proposed
16 modifications. Since the release of the guideline
17 document for public comment on the 27th of last month, a
18 number of minor points requiring further clarification and
19 correction have been identified. The staff will submit an
20 amended document to the executive officer for final
21 resolution and approval.

22 Lastly, in an effort to ensure real emission
23 reductions over the useful life of an engine, the staff's
24 original proposal codify an existing policy requiring the
25 use of OEM engines and parts. We are now proposing to

1 allow the use of non-OEM rebuilt engines and parts as long
2 as they can be demonstrated to ARB to be functionally
3 equivalent from an emissions and durability standpoint to
4 the OEM engines and components being replaced.

5 Staff has worked with the independent rebuilder
6 stakeholders who concur with the proposed language and
7 approach. The staff will also continue to work with all
8 other stakeholders to determine the specific aspects of
9 this demonstration.

10 I will now turn it over to Ms. Fregoso, who will
11 present the revisions for the Lower-Emission School Bus
12 Program and conclude the staff presentation.

13 PLANNING AND REGULATORY DEVELOPMENT SECTION AP
14 SPECIALIST FREGOSO: Thank you, Dr. Ayala.

15 I will now present the staff's proposal for
16 revisions to the Lower-Emission School Bus Program.

17 --o0o--

18 PLANNING AND REGULATORY DEVELOPMENT SECTION AP
19 SPECIALIST FREGOSO: The purpose of this incentive program
20 is to reduce school children's exposure to toxic PM
21 emissions and smog-forming NOx emissions.

22 --o0o--

23 PLANNING AND REGULATORY DEVELOPMENT SECTION AP
24 SPECIALIST FREGOSO: First, let me begin with a brief
25 status summary of the existing Lower-Emission School Bus

1 Program.

2 In December 2000, the Board adopted the original
3 guidance document for use by the California Energy
4 Commission and the local air districts in implement the
5 program. The program has been a success since its
6 inception two years ago. A total of \$49.5 million has
7 been used to purchase new lower-emitting school buses
8 meeting the latest federal motor vehicle safety standards.

9 An additional \$16.5 million in funding is being
10 used to equip in-use diesel buses with retrofit devices
11 that reduce cancer-causing PM emissions. With this
12 funding over 500 old, high-polluting buses have been
13 removed from service and replaced with new, safe,
14 lower-emitting models. The retrofit component is ongoing
15 and is scheduled for completion in the fall of 2003. At
16 that time we expect that about 3,000 in-use diesel school
17 buses will be equipped with ARB-verified retrofit devices
18 that significantly reduces PM emissions.

19 --o0o--

20 PLANNING AND REGULATORY DEVELOPMENT SECTION AP
21 SPECIALIST FREGOSO: Dr. Ayala has already discussed that
22 Proposition 40 is the only current funding source for the
23 Carl Moyer Program and the Lower-Emission School Bus
24 Program.

25 Assembly Bill 425 directs that 20 percent of the

1 Proposition 40 funds available to the ARB be used to
2 purchase new school buses. For this fiscal year a funding
3 allocation of \$4,920,000 is available to continue the
4 Lower-Emission School Bus Program. This means we will be
5 able to replace at least 45 old school buses throughout
6 California with new lower emitting models.

7 In the next fiscal year a similar amount is
8 expected to be available. Neither Proposition 40 nor
9 Assembly Bill 425 provided funding to continue the
10 retrofit component of the program.

11 --o0o--

12 PLANNING AND REGULATORY DEVELOPMENT SECTION AP

13 SPECIALIST FREGOSO: Now I will discuss the staff's
14 proposed revisions to the program, most of which are
15 administrative revisions.

16 First, we are updating the funding allocations
17 for regions throughout California. Seven of the largest
18 air districts will receive distinct funding allocations.
19 The remaining funds will be pooled for distribution to
20 school districts in the rest of the State.

21 As done in the previous two years of the program,
22 the funding allocations are based on population.

23 Next we are updating the program timetable, which
24 with include an enforceable delivery deadline with a
25 penalty provision for the late delivery of school buses.

1 I'll discuss this penalty provision in just a few minutes.

2 We are also proposing that fewer air districts
3 self-administer the program this year. Instead we are
4 focusing more program administration at the California
5 Energy Commission, which has extensive experience in
6 implementing the program. The three air districts that
7 have requested to continue to self-administer the program
8 may do so under our proposal.

9 The staff believes this proposed revision is
10 appropriate due to the smaller pot of funding available
11 and the increased auditing requirements associated with
12 Proposition 40.

13 And, finally, our proposal reduces the match
14 funding contribution for school districts severely
15 impacted by transportation service costs. In the previous
16 two years of the program school districts with bus fleets
17 comprised with at least 20 percent pre-1977 model year
18 in-use buses could qualify for a reduced match funding
19 amount capped as \$15,000. Our proposal now caps this
20 reduced match funding amount at \$10,000 and is applicable
21 to any qualified new bus purchase that replaces an in-use
22 pre-1977 model year bus.

23 --o0o--

24 PLANNING AND REGULATORY DEVELOPMENT SECTION AP
25 SPECIALIST FREGOSO: In addition to the administrative

1 revisions I just discussed, we are proposing two
2 significant changes to the current program guidelines.

3 First, our proposal includes updated eligibility
4 criteria for funding new school buses with 2003 model year
5 engines.

6 Next, our proposal includes a mechanism for
7 assessing a monetary penalty on the business entity
8 responsible for a delay that results in school buses being
9 delivered late to school districts.

10 I'll now discuss each of these revisions in more
11 detail.

12 --o0o--

13 PLANNING AND REGULATORY DEVELOPMENT SECTION AP
14 SPECIALIST FREGOSO: We are updating the eligibility
15 criteria for funding new school buses to account for more
16 stringent NOx emissions requirements that took effect on
17 October 1st, 2002. Because of these more stringent
18 requirements, the Lower-Emission School Bus Program is in
19 a transitional period for 2003 model year.

20 Our proposed eligibility criteria reflect this
21 transitional period for NOx requirements and also require
22 that engines in funded school buses provide reductions in
23 toxic PM emissions.

24 There is one thing we want to clarify for the
25 Board based on recent information. There are two engine

1 manufacturers that supply engines for natural gas school
2 buses. Cummins currently has an oxidation catalyst. And
3 John Deere will be certifying with an oxidation catalyst
4 by this July.

5 Our proposal will not provide any funding for
6 school buses equipped with engines that are subject to the
7 October 2002 requirements and that require the payment of
8 a nonconformance penalty.

9 Our proposal maintains the program's funding
10 split of two-thirds of the funding for new alternative
11 fuel purchases and one-third of the funding for new diesel
12 purchases as a statewide goal.

13 And, finally, this proposal is only applicable to
14 2003 model year engines. We will again consider guideline
15 revisions when the 2004 standards become effective for all
16 engine manufacturers. At that time, we will be looking to
17 reinstate the program's requirement for NOx reductions.

18 --o0o--

19 PLANNING AND REGULATORY DEVELOPMENT SECTION AP
20 SPECIALIST FREGOSO: The final significant revision to the
21 Lower-Emissions School Bus Program is the staff's proposal
22 to add a mechanism for assessing a monetary penalty on the
23 business entity responsible for the failure to deliver
24 school buses to school districts by the September 1st,
25 2004 deadline. This mechanism will level the playing

1 field for business entities such as school bus
2 distributors that stand to profit from the Lower-Emission
3 School Bus Program. The previous program guidelines did
4 not include any mechanism to mitigate situations in which
5 school buses were delivered to school districts after the
6 program's delivery deadline.

7 In the staff's proposal released for public
8 comment on February 27th, we originally proposed that
9 either the California Energy Commission or the air
10 districts that self-administer the program be the agencies
11 to enforce the penalty provision. These are the agencies
12 signing the funding contracts with school districts.
13 However, based on public comment we are now modifying the
14 proposal to place the responsibility for enforcing this
15 provision on the ARB rather than on the Energy Commission
16 or the air districts. The staff will submit this modified
17 revision to the executive officer for final approval once
18 the public record for this item is closed.

19 This slide concludes the staff presentation. We
20 have provided for you an overview of staff's proposed
21 revisions to the guidelines of two important incentive
22 programs. The funding made available by Proposition 40
23 precipitated these changes which have built on these
24 programs' previous successes. The proposed revisions
25 offer the necessary tools for deployment of projects at

1 the local district level based on the latest information.

2 Staff believes the revisions and further
3 modifications will result in significant improvements to
4 the guidelines governing the Carl Moyer and the
5 Lower-Emission School Bus Programs. Thus, we recommend
6 approval.

7 Thank you. And the concludes our presentation.

8 CHAIRPERSON LLOYD: Thank you very much.

9 Comments, questions for the staff?

10 Mr. Calhoun.

11 BOARD MEMBER CALHOUN: I have two questions, one
12 of which I will hold off on until we get some testimony.

13 But have we ever denied funding to a local
14 district because of its inability to match the required
15 funds?

16 Don't all of you speak at once now.

17 PLANNING AND REGULATORY DEVELOPMENT MANAGER

18 KEMENA: This is Renee Kemena with the Mobile Source
19 Control Division.

20 Are you speaking in relation to the Moyer Program
21 or the School Bus Program?

22 BOARD MEMBER CALHOUN: Both.

23 CHAIRPERSON LLOYD: Simple question. Is there
24 any where we denied any application because the district
25 had not local matching funds, that we know of?

1 PLANNING AND REGULATORY DEVELOPMENT MANAGER

2 KEMENA: The match fund on the School Bus Program was a
3 requirement of the program, and they were all able to come
4 in with match funding.

5 ALTERNATIVE STRATEGIES SECTION MANAGER AYALA:

6 That is the experience that we've had with the
7 Moyer Program as well.

8 CHAIRPERSON LLOYD: So the answer is no?

9 ALTERNATIVE STRATEGIES SECTION MANAGER AYALA:

10 Correct.

11 BOARD MEMBER CALHOUN: The second question, I'll
12 wait until we hear some testimony.

13 CHAIRPERSON LLOYD: Are you sure?

14 Then Professor Friedman.

15 BOARD MEMBER HUGH FRIEDMAN: I have a couple of
16 quick questions too.

17 CAPCOA's concerned -- wrote about their concern
18 for the matching fund requirement for the smaller
19 districts receiving the minimum 100,000. And the proposal
20 would revise the guidelines for a one-year waiver. But
21 what happens after that one year?

22 ALTERNATIVE STRATEGIES SECTION MANAGER AYALA: I

23 think initially the staff recommends that we look at
24 implementation of the program over the first year and
25 consider either extending or modifying the proposal based

1 on the one-year experience.

2 BOARD MEMBER HUGH FRIEDMAN: There's also, I
3 guess -- what, a 15 percent credit for administrative --
4 absorption of administrative --

5 ALTERNATIVE STRATEGIES SECTION MANAGER AYALA:
6 That's correct. Which is currently in the existing
7 guidelines, and we're not changing that requirement,
8 that's correct.

9 BOARD MEMBER HUGH FRIEDMAN: Okay. And as I
10 heard the revisions, the Errata, those appear to me --
11 although I'm not technically adroit -- but it seems to me
12 that that pretty much responds and takes care of the
13 concern expressed by the automotive engineer rebuilders,
14 by recognizing and allowing in the standards non-OEM that
15 are equivalent. Is that what the intent is?

16 ALTERNATIVE STRATEGIES SECTION MANAGER AYALA:
17 That's correct. As we stated in the staff
18 presentation, we are at a point where we are ready to move
19 forward and work with all of the stakeholders to determine
20 how we're going to proceed. But essentially allows both
21 the OEM and the non-OEM manufacturers to potentially
22 participate in the program, yes.

23 BOARD MEMBER HUGH FRIEDMAN: Thank you.

24 CHAIRPERSON LLOYD: Supervisor DeSaulnier.

25 BOARD MEMBER DeSAULNIER: Thank you, Mr.

1 Chairman.

2 I don't like to sound parochial, and I've always
3 tried to be collegial particularly in regards to our
4 downwind neighbors from the Bay Area, but I'd like to hear
5 staff's rationale in terms of the Moyer Program and the
6 shift from more of a population-driven formula; and in
7 relation to the letter from ARAPCO, I'd like some
8 comments.

9 Don't all jump in at once.

10 EXECUTIVE OFFICER WITHERSPOON: The original
11 allocation was defined by statute that both population and
12 the need for the district to receive emission reductions
13 under the M4 measure of the 1994 SIP, which is really a
14 code for being a long-term ozone nonattainment area. And
15 so we have an nonattainment status plus population in the
16 formula that we have been implementing for several years
17 now.

18 There is a lot of discussion going on about
19 whether that should be revisited. And there are bills in
20 the Legislature this year, I think more than one, that may
21 address future Carl Moyer criteria, because a lot of this
22 is driven by statute, be it the cost-effective threshold
23 or funding allocations.

24 And, also, the program has always been about NOx.
25 And many people believe now that it should embrace

1 particulate matter as well. And when you start looking at
2 particulate matter and ozone, your view about
3 nonattainment areas shifts; where for particulate matter,
4 urban density, roadways, that sort of thing, comes back
5 into higher prominence than regional wide-scale ozone
6 types of considerations.

7 So I think that the Legislature will be taking
8 that up. And we're certainly open to a change in the
9 criteria. It's necessary to look at it. But for the time
10 being for prop 40, we continued with the status quo until
11 there is a change in statute.

12 BOARD MEMBER DeSAULNIER: Catherine, I don't mean
13 to be a pest, but I will be for this instance.

14 When we went through smog check, I was reminded
15 by the Chairman several times to be agnostic when it comes
16 to which kind of public health issue we were dealing with.
17 And this is a problem for us obviously in the Bay Area.
18 So the question is: How much flexibility do we have as a
19 Board regarding the statute? And what can we do to
20 rectify what at least I perceive to be an inequity and
21 creates problems as I've mentioned to you in other
22 relationships that we have with our downwind neighbors?

23 EXECUTIVE OFFICER WITHERSPOON: Well, the Bay
24 Area believes that we do have discretion to interpret how
25 M4 is read and to put more or less emphasis on it.

1 But, again, we're operating from the precedent
2 that's been in place for several years now, mindful that
3 big changes could be coming in how Carl Moyer is
4 administered in the future. But not wanting to step out
5 ahead of the entire debate in the Legislature because
6 there are settled expectations now over years of time that
7 this is how the formula will play out. And any time
8 dollars come in, they flow back out in this way.

9 BOARD MEMBER DeSAULNIER: Well, does that formula
10 contradict in the statute the drive toward consideration
11 of EJ and in terms of the total cost effectiveness in the
12 25 percent goal? There seems to be some contradictions.
13 And whether that was in the statute that needs to be fixed
14 or whether administratively or by legislative action of
15 this Board, we can at least move -- is my question then
16 secondarily: How does this Board engage with the
17 Legislature, if necessary, to correct the problem?

18 EXECUTIVE OFFICER WITHERSPOON: We're
19 recommending as a staff that you don't move today. But
20 we've already begun those discussions with numbers of
21 stakeholders to find out where they all are on the issue
22 of NOx versus particulate matter, on cost effectiveness
23 ceilings. And we'll engage them as well on allocation
24 criteria for the future. And so we're very happy to do
25 that.

1 And I'd be happy to keep you apprised of every
2 discussion that's going on in that regard and the status
3 of the bills.

4 BOARD MEMBER DeSAULNIER: So is that a, yes,
5 there are contradictions between the goals stated in the
6 statute?

7 EXECUTIVE OFFICER WITHERSPOON: I don't think
8 there are contradictions in the statute. I think the
9 statute's out of step with where we are now, shifting from
10 a pure ozone emphasis to more emphasis on particulates.
11 So it's out of step with reality and real life of both
12 pollutants matter a great deal and the money matters for
13 cleaning up particulates as well as NOx. But the statute
14 was about ozone and it was about NOx.

15 CHAIRPERSON LLOYD: Can I ask, now that we only
16 have one lawyer on the front row, can we have our legal
17 counsel. Because the way I heard the question was that
18 there was the Bay Area's interpretation, presumably based
19 on their legal counsel.

20 Ms. Walsh, how do you -- I presume you concur
21 with the EO?

22 GENERAL COUNSEL WALSH: Right. This Board has
23 the authority to balance the various factors that the
24 statute directs you to consider in determining how the
25 money will be passed out.

1 And there are some, not inconsistencies, but some
2 of those factors are looking at the issues from different
3 points of view. And so this Board has the responsibility,
4 and staff has presented you with a proposal that exercises
5 that responsibility to balance those factors.

6 BOARD MEMBER DeSAULNIER: I'm done for now, Mr.
7 Chairman. I appreciate the staff's response, although I
8 don't necessarily agree.

9 CHAIRPERSON LLOYD: Okay. So do you need a later
10 response from the staff following up the meeting or are
11 you satisfied --

12 BOARD MEMBER DeSAULNIER: No, I was going to
13 wait -- we do have some public comment, I take it, and
14 we've got discussion on other issues from what I
15 understand. So --

16 CHAIRPERSON LLOYD: Okay. Thank you.

17 Any other questions?

18 With that, thank you.

19 I'd like to now call up the first three witnesses
20 who are signed up to speak on this item. And they're
21 Michael Conlon, Steve HOEK, and Bill Mirth.

22 MR. CONLON: Good morning. You all hear me?

23 CHAIRPERSON LLOYD: Yes.

24 MR. CONLON: My name is Michael Conlon. I am the
25 legal counsel for the Automotive Engine Rebuilders

1 Association. I'm here representing them and also six
2 other associations in the heavy duty engine field,
3 including the National Engine Parts Manufacturers
4 Association and the Association of Diesel Specialists.

5 We're here on one issue only this morning related
6 to the Carl Moyer guidelines, and that's the addition of
7 restrictions on what parts in engines can be used under
8 the Carl Moyer Program. We are here to offer our support
9 for the revised language regarding the repowering that
10 staff presented this morning.

11 Originally we filed extensive comments with
12 respect to the original language, which would have granted
13 a monopoly on repowering projects to engines and parts
14 produced by the original equipment manufacturers. That
15 original proposal had no technical, environmental, or
16 financial justification.

17 As a fact, emissions problems are not caused by
18 rebuilding, and there's a 1987 ARB study that indicates
19 that.

20 It says that heavy-duty engine rebuilding
21 practices do not significantly impact engine emissions.
22 And it also says that there is no evidence that the use of
23 aftermarket parts increases emissions.

24 CHAIRPERSON LLOYD: I think you've been heard,
25 your support, and the staff has agreed with you. The only

1 thing you can do now is alienate the Board.

2 So I think, you know, you've made your point.

3 MR. CONLON: All right. The only thing that --
4 well, first of all I would like to praise the staff, if I
5 could, because this issue came up very quickly. They met
6 with us. We went very quickly and resolved this problem.

7 And there is one concern that we had, and that is
8 testing. As independent rebuilders, we do not build and
9 rebuild the number of engines that the OE's do. We do
10 rebuild them to the exact same specifications and we do
11 use direct replacement parts. In those circumstances we
12 don't think that testing should be required. And if it
13 was required, it would amount to a prohibition on our
14 being able to do it.

15 In discussions with the staff, we understand that
16 this Board has a right to require testing at any time in
17 order to ensure clean air, and we don't fight that. But
18 we have asked, and it is our understanding that staff is
19 not going to be looking towards testing as the primary or
20 maybe even the secondary way for us to demonstrate
21 compliance, but will only use testing if and when we can't
22 show in any other way that this is emissions equivalent.
23 And I was just wondering if the staff would comment on
24 that.

25 BOARD MEMBER CALHOUN: Before the staff comment

1 let me ask you a question, Mr. Conlon.

2 MR. CONLON: Yes, sir.

3 BOARD MEMBER CALHOUN: How would you propose to
4 convince the staff that it is functionally equivalent to
5 an OEM part?

6 MR. CONLON: There are -- all of the replacement
7 parts that are used are designed to the exact
8 specifications of the OE parts. And those are the parts
9 that are used. Also the rebuilding will be done to exact
10 OE specifications. If those two things are complied with,
11 then we believe that the emissions will be exactly the
12 same.

13 BOARD MEMBER CALHOUN: Is that true for all of
14 the parts that you're talking about?

15 MR. CONLON: We believe so, yes, sir. And I have
16 people here from the parts companies who can speak to that
17 more directly.

18 BOARD MEMBER CALHOUN: Bob.

19 MOBILE SOURCE CONTROL DIVISION CHIEF CROSS: Bob
20 Cross with the staff.

21 I think that the problem which has kind of
22 stirred this up in the first place and caused the
23 negotiations to be so extended is that the parts industry
24 typically does what's called consolidating parts. And so
25 that they'll in many cases have, you know, one part which

1 would fit where maybe three or four different ones from
2 the original engine manufacturer would. And there's
3 probably been a 30-year argument about whether or not
4 those parts are in fact equivalent. And the staff has
5 always sort of felt, "Well, gosh, if the engine
6 manufacturer chose to make three different ones, they must
7 have had a reason for it." And then the consolidation
8 folks have usually said, Well, yeah. But maybe we know
9 how to make the parts functionally identical. And,
10 therefore, we can save the owner or rebuilder some money
11 by doing a parts consolidation."

12 And I think that both sides have merit. I think
13 our concern as the staff is that the practice of parts
14 consolidation can get carried away to the point where it
15 does start to have a very significant impact.

16 For example, if you had turbochargers that were
17 consolidated -- or maybe injectors that were consolidated,
18 you would be emissions concerned. And I think that what
19 the staff wants to do with the language here is ensure
20 that if we have that concern of a specific rebuilder's
21 application, we'd like to be able to have the rebuilder
22 have to prove basically that the engine's emissions
23 equivalent.

24 And clearly if the engine is rebuilt with OE
25 parts, there isn't going to be a problem. If they can

1 demonstrate clearly that the parts consolidations that
2 they've done are functionally identical, I think we don't
3 have a problem. But we don't want to have a situation
4 where our hands are tied if we have the engineering
5 concern I just mentioned.

6 MR. CONLON: And I think we would agree with
7 that.

8 I think consolidating can describe two different
9 situations. One is where you do take parts that are
10 different and they -- and there is a part that's combined
11 to function the same as both of them. But sometimes a
12 manufacturer will give the same part two or three
13 different part numbers for use in different applications.
14 And one part is put out by the aftermarket to cover what
15 is exactly the same part, but just different part numbers.

16 So in a latter case we couldn't think there's any
17 difference. But in the former case I would agree with Mr.
18 Cross, that there does have to be some proof that that
19 consolidation has not done anything to change the
20 emissions effect of that part.

21 BOARD MEMBER CALHOUN: I don't think the reg
22 requires that the part be identical. I think it states
23 that it must be equivalent from an emissions and
24 durability standpoint. And I certainly see the staff
25 maybe in some cases may want to ask the manufacturer of

1 that part to demonstrate that that is in fact the case.

2 CHAIRPERSON LLOYD: Mr. McKinnon.

3 BOARD MEMBER McKINNON: Yeah, we're talking about
4 using taxpayer money to subsidize cleaning up engines
5 here. And I think it is important that we have some
6 bottom-line way of measuring whether or not the rebuilds
7 work.

8 But the thing I'm not very clear on is, what does
9 that mean? Does that mean that we certify each rebuilder
10 on each kind of engine they rebuild, or does that mean we
11 do some sampling method?

12 Can you map out for me what it looks like and
13 what it costs?

14 MOBILE SOURCE CONTROL DIVISION CHIEF CROSS:

15 Well, basically we already have an existing
16 process that we use to look at aftermarket parts. And
17 typically the process looks at speed equipment or
18 non-OEM-type parts. But it's a process that can also be
19 applied to this use.

20 And in the light -- well, let's see. I won't go
21 there.

22 The concern that I guess we would have is that --
23 or the way we would do this is that the rebuilder, if they
24 use the exact part that the engine manufacturer specifies,
25 we would presume that they're doing it correctly.

1 If they have a an engineering basis for what the
2 gentleman here has explained, that there is -- you know,
3 that they've got a Cummins drawing, for example of a
4 piston that's got five part numbers on it that apply to
5 that piston. Then clearly you would be able to say by
6 looking at the Cummins drawing, "Yeah. That's okay."

7 I think when we get into the injectors and
8 turbos, we're going to look more closely.

9 So let me backup.

10 So for the short block stuff I think we would
11 work with them to try and buy off on an engineering basis
12 that they're using the right parts. And we'd probably do
13 it through spot checking, if you will. I don't think
14 that -- the staff doesn't have the wherewithal to try and
15 tear -- you know, mentally tear apart every engine that
16 they rebuild. I think we just need to look at their
17 practices and say, okay, do they typically use the right
18 parts?

19 I think when we get into emissions parts and
20 parts that are not exact replacement for the OEM, then we
21 start having to look more closely. And as the engine gets
22 further and further from an exact OEM rebuilt engine, our
23 concern gets greater. At some point we're going to say,
24 "You know, that doesn't really look like an OEM engine,
25 and we want you to test it and so we really -- and that

1 discretion is already exercised for speed equipment now.
2 I mean basically -- an intake manifold that basically
3 works the same as a factory manifold, they say, "Fine,
4 it's a replacement part." You know, if it's a whole new
5 fuel-injection system, they say, "Yeah, better test that."
6 So I think we would just use that same process for this
7 application.

8 BOARD MEMBER McKINNON: Thank you.

9 CHAIRPERSON LLOYD: Thank you very much indeed.
10 Thank you.

11 MR. CONLON: We did have originally six people
12 who were going to testify this morning. But in keeping,
13 Mr. Chairman, with your remarks, I've asked two of them
14 not to. But I would like to just at least identify them.
15 Mr. Mike Jeffries of Lane Parts, who is a rebuilder, who
16 would like to participate in the Carl Moyer Program; and
17 also Mr. Bob Rasmussen, who is the Chairman and Founder of
18 IPD Parts of Torrance, California, who is one of the three
19 major parts suppliers in the heavy-duty aftermarket.

20 And the other three I've asked to be very, very
21 brief.

22 Thank you very much for your time.

23 CHAIRPERSON LLOYD: Thank you very much indeed.

24 I would ask if you could keep your comments to
25 three minutes. And I guess I will enforce that. If we

1 have questions, obviously that's added on. But,
2 particularly, when again you're speaking in favor of the
3 staff proposal.

4 Thank you.

5 MR. HOEK: Good morning. My name's Steve Hoek.
6 I'm the Vice President of North State Truck Equipment up
7 in Redding, California. We've been in business since
8 1978. And we're a rebuilder engines, transmissions, and
9 rear-ends for the heavy-duty truck market.

10 Being an independent rebuilder, we build all
11 different makes and all different brands. We've supplied
12 about 20 engines to the Carl Moyer Program since the year
13 2000. I just wanted to give you some background on how we
14 build engines.

15 We build engines back to the OE specs. We
16 actually have a dyno facility and a test cell where we
17 check all the parameters. Our engines carry the same, if
18 not better, warranties as the OEM's.

19 But the cost savings on engines that come from us
20 versus the OE dealers up in our area is quite a bit
21 difference in price. The average price on a Cummins
22 repower from our company is approximately \$19,000 versus
23 24,000 by the OEM truck dealers. And on a Cat engine
24 repower our company's price is approximately \$21,000
25 compared to \$28,000 by the same OE truck dealer. And

1 these prices were verified by the Shasta County Air
2 District. So our numbers are correct.

3 I'd also like to let you know what our company is
4 doing even though we are an independent rebuilder. We're
5 in the process of right now of upgrading our dyno to
6 sample oxides of nitrogen, hydrocarbons, carbon dioxide.
7 We've been doing PM for a long time.

8 CHAIRPERSON LLOYD: This is really an
9 advertisement for your company, and I appreciate that.
10 But I think again keeping what we're trying to address
11 here, if you could just be specific in terms of addressing
12 the staff proposal.

13 MR. HOEK: As a non-OE we have supplied quite a
14 few engines for you. And what brought us to here is
15 hearing the wording that we were going to get cut out of
16 the loop.

17 CHAIRPERSON LLOYD: Staff was heard you, and
18 we're very pleased that they did.

19 Thank you.

20 Mr. McKinnon.

21 BOARD MEMBER McKINNON: Do you use the OEM's
22 parts when you do your rebuilds or do you manufacture and
23 machine --

24 MR. HOEK: I don't manufacture. I am a
25 rebuilder.

1 I have been -- we have been a Cummins dealer
2 since 1979, until January. We were let go as a Cummins
3 dealer because we deal in the aftermarket parts industry.

4 We have been with Federal-Mogul since 1989. We
5 have approximately -- I would say we've sold over 4,000
6 engine kits with their product. Very good product.

7 BOARD MEMBER McKINNON: So you use an aftermarket
8 supplier that supplies to lots of folks. So --

9 MR. HOEK: Absolutely.

10 BOARD MEMBER McKINNON: Okay. You don't
11 manufacture your own parts?

12 MR. HOEK: No. No, we assemble, we assemble.

13 BOARD MEMBER McKINNON: Great. Thanks.

14 CHAIRPERSON LLOYD: Thank you very much.

15 So we've got Bill Mirth, Jay Wagner, Steve Hurd.

16 MR. MIRTH: Thank you.

17 My names is Bill Mirth. I'm the National Sales
18 Manager for the FP Diesel brand of parts offered by
19 Federal-Mogul.

20 Federal-Mogul is a global supplier of engine
21 components and subsystems. We serve the world's OE and
22 aftermarket markets. We employ 49,000 people worldwide.
23 And we're close to a \$6 billion corporation.

24 We have a unique mix of 53 percent of our
25 products go to our OE customers, while 47 percent go to

1 our aftermarket customers.

2 And we also have over 200 manufacturing
3 facilities worldwide. We do produce the liners and the
4 pistons and the valves and gaskets and so forth.

5 And FP Diesel is our brand offering, and our
6 headquarters is in Westminster, California, where we
7 employ close to 100 people.

8 We support and we thank the Board for considering
9 our proposal of changing the wording, because we provide
10 equal specifications in qualities for our OE and
11 aftermarket customers alike. And since aftermarket
12 components are less expensive than OE, the Carl Moyer
13 Program can go farther in supplying product for engines.

14 CHAIRPERSON LLOYD: Thank you very much. I thank
15 you for keeping the time.

16 Jay Wagner, Steve Hurd, Clayton Miller.

17 MR. WAGNER: Good morning.

18 I'm Jay Wagner, and I'm here representing Dana
19 Corporation.

20 Dana Corporation is based in Toledo, Ohio. And
21 we're operating and reproducing automotive parts for both
22 the original equipment manufacturers and the aftermarket
23 for nearly 100 years.

24 In 2002 Dana reported sales of \$10 billion in
25 sales and employs over 60,000 people throughout the world.

1 Our goal is to generate sales for about 50
2 percent of the aftermarket and 50 percent of the OE.

3 Currently we produce axles, brake systems,
4 chassis, bearings, liners, filtration systems, camshafts,
5 for both the aftermarket and the OE.

6 The list of people that we are currently
7 producing -- and I'll try to keep this very short -- are
8 John Deere, Ford Motor Company, Caterpillar, Cummins,
9 Daimler-Chrysler, Detroit Diesel, Fiat, General Motors,
10 Honda, Mack, Navistar, Nissan, Toyota, Wakishaw. The same
11 technology that we place into the OE product is placed
12 into our aftermarket product.

13 Dana became involved when we had heard that there
14 was a change in the way the wording was on the Carl Moyer
15 Program. And we feel though we've been working very
16 closely with the staff to change that wording so that we
17 will have a level playing field.

18 We support the new wording. And we want to thank
19 you for the time. Thank you.

20 CHAIRPERSON LLOYD: Thank you very much indeed.

21 Next, Steve Hurd.

22 MR. HURD: Good morning. I'm Steve Hurd from
23 Caterpillar in Peoria, Illinois.

24 Caterpillar has been actively participating in
25 the Carl Moyer Program now for a few years and we are

1 committed to this success of this program. And really I'm
2 here to support these changes. Most of them are going to
3 improve the program. I just realized this morning though
4 about this OEM-only wording. And I guess -- I don't want
5 to belabor the point or argue here in front of the Board.
6 I think -- we have not yet met with the staff. I don't
7 represent our reman program. But we will meet with the
8 staff in the near future on this issue of OEM-only
9 remanufactured engines.

10 I guess I could make a few comments.

11 The way it was written where the parts must be
12 procured from the OEM, you know, this will help assure
13 that the expected emissions reductions do occur, without a
14 lot of excess effort. Basically, only Caterpillar knows
15 Caterpillar specifications. All the recent engineering
16 upgrades are going to be included in our remanufactured
17 engines as well.

18 We're prepared to run a complete eight-mode
19 emissions test in an EPA certified lab for our Cat reman
20 emissions repower engine arrangements. And I guess
21 basically -- we're prepared next month to meet and discuss
22 this issue with the ARB staff.

23 Thank you.

24 CHAIRPERSON LLOYD: Thank you. And I encourage
25 you to do so there.

1 Thank you.

2 Next we have Clayton Miller, Rick McCourt,
3 Gretchen Knudsen.

4 MR. MILLER: Good morning, Chairman Lloyd and
5 members of the Board. My name is Clayton Miller. And I
6 am representing the Construction Industry Air Quality
7 Coalition.

8 CIAQC is comprised of the four major construction
9 and home-building industries in southern California, which
10 include the Associated General Contractors of California,
11 Building Industry Association of Southern California,
12 Engineering Contractors Association of Southern
13 California, Contractors Association, representing
14 approximately 3300 member companies.

15 I am here this morning to express CIAQC's support
16 for the proposed revisions to the Carl Moyer Program
17 guidelines. CIAQC believes that this is a very important
18 program that provides meaningful incentives for projects
19 that result in real quantifiable and cost-effective
20 emission reductions.

21 Many CIAQC member companies recognize the value
22 of this program and other incentive-based programs
23 operating in the South Coast AQMD. To date grants to
24 CIAQC member companies have resulted in repowering of over
25 270 off-road diesel powered engines since mid-2001, with

1 resulting NOx emission reductions of about 1.9 tons per
2 day.

3 With me this morning is Rick McCourt with Sukut
4 Construction, a company that has shown tremendous
5 initiative and has repowered 57 heavy-duty off-road
6 engines.

7 CIAQC supports staff's recommendations for
8 technical revisions, including calculation method
9 revisions, emission factor adjustments for older engines,
10 and allowing local air districts to consider the
11 cost-effectiveness of reducing PM when selecting
12 proposals.

13 CIAQC also supports what we believe to be as
14 staff's recommendation that engine repowers do not
15 necessarily need to be performed only by an OEM dealership
16 or distributor.

17 Several CIAQC member companies have repowered
18 their equipment in-house or in the field, such as Sukut
19 Construction. We do not believe emission reductions will
20 only be achieved if OEM dealerships or distributors
21 perform the project installations.

22 What I'm here this morning to ask for is we are
23 asking for further clarification of the guidelines that
24 expressly make this point.

25 Without the opportunity for companies to select

1 between OEM dealerships or distributors or utilizing their
2 own in-house capacities to repower approved projects, many
3 companies simply will not be able to participate in the
4 program.

5 We believe Carl Moyer is a very cost-effective
6 program, and the recommended revisions to the guidelines
7 will further enhance this important incentive-based
8 program.

9 Thank you.

10 CHAIRPERSON LLOYD: Thank you very much.

11 Rick McCourt, Gretchen Knudsen, and Sandra
12 Spelliscy.

13 MR. McCOURT: Good morning, ladies and gentlemen.

14 My name is Rick McCourt with Sukut Construction.
15 Our company is a general engineering contractor with
16 operations in southern California. Our core business is
17 earth moving. So we use a fleet of heavy off-road
18 construction pieces of equipment numbering over 130.

19 Our company's been proud to participate in engine
20 replacement programs with not only Carl Moyer, ARB, and
21 MSRC. And our accomplishments, Clayton mentioned we've
22 repowered 57 units right now. Forty of those have been
23 done by our staff in the field.

24 We've sourced 17 of those conversions through the
25 dealer network primarily based on the time and production

1 constraints.

2 We've sent 23 of our in-house mechanics through
3 dealer technical courses to understand the complexity of
4 the electronic-controlled engine systems. With that we've
5 purchased and installed laptop computer systems with the
6 diagnostic software in the field to ensure we got the
7 proper emissions in optimum performance parameters.

8 We have found OEM warranties have been valid with
9 our field installations. There's no cut in the warranty
10 program, whether our people do it or whether the dealers
11 do it.

12 We strongly support the staff to allow the
13 contractor to do the conversions, engine replacements in
14 the field, as we've shown significant success in doing
15 today.

16 And my final comment would be, we're proud to
17 partner in these programs with ARB, South Coast, and the
18 other air districts that we work in, and hope to do more
19 in the future.

20 Thank you.

21 CHAIRPERSON LLOYD: Thank you very much.

22 Yes, Mr. McKinnon has got a question for you, Mr.
23 McCourt.

24 BOARD MEMBER MCKINNON: Are your in-house
25 mechanics apprenticed or otherwise trained?

1 No, all of our mechanics are members of the
2 Operating Engineers Local 12 Union. Most are journeyman
3 mechanics. We have some apprentice mechanics that are
4 supervised by journeymen.

5 BOARD MEMBER MCKINNON: But the journeymen have
6 been through an apprenticeship, is that -- somewhere along
7 the line?

8 MR. McCOURT: Yes. That's the normal progression
9 through the union ranks.

10 BOARD MEMBER MCKINNON: Great. Thanks.

11 CHAIRPERSON LLOYD: Thank you.

12 Gretchen Knudsen, Sandra Spelliscy, Bonnie
13 Holmes-Gen.

14 MS. KNUDSEN: Good morning. My names is Gretchen
15 Knudsen. I'm here today representing International Truck
16 and Engine corporation.

17 We stand in support of the guidelines. I'm not
18 going to comment specifically on the repower issue at this
19 time. But I did want to speak directly on the
20 Lower-Emission School Bus Program. We really appreciate
21 the work that staff has taken in their careful
22 consideration of the program, of the implementation
23 guidelines. And we wanted to voice our support.

24 I also wanted to just thank and remind the Board
25 again that California is the first state in the country

1 that has low-emitting diesel technology school buses in
2 use throughout the state. And you're really setting an
3 example for a lot of the other states as far as
4 implementing this technology. We were pleased that there
5 was the ability of the state to continue this program.

6 Thank you.

7 CHAIRPERSON LLOYD: Again, Thank your company for
8 this leadership on this issue, combined with getting the
9 low sulphur diesel to do that. Thank you.

10 Next we Sandra Spelliscy, Bonnie Holmes-Gen, and
11 Mark Nordheim.

12 MS. SPELLISCY: Sandra Spelliscy with the
13 Planning and Conservation League.

14 I just want to say briefly we're also in support
15 of the changes recommended by the staff today.

16 Particularly like the fact that we continue to drive
17 improvements and technology by supporting equipment that
18 meets lower standards. So we're happy to see that
19 recommendation today.

20 And I just want to add that the single greatest
21 challenge that we face in both of these programs is that
22 we simply don't have enough money to do what we need to
23 do. And we are looking forward to working with all of
24 you, and urge you to bring any influence you have to bear
25 on the administration, on the Legislature to work to get

1 some permanent funding for these programs, because they're
2 vital and we just don't have the money today to do what we
3 need.

4 Thank you.

5 CHAIRPERSON LLOYD: Thank you, Sandy. I agree
6 with you completely.

7 Bonnie Holmes-Gen, Mark Nordheim, Dean Taylor.

8 MS. HOLMES-GEN: I'm Bonnie Holmes-Gen with the
9 American Lung Association of California.

10 I just wanted to join the comments of my
11 colleague, Sandra Spelliscy, that we too are strong
12 supporters of these programs. We definitely need to get a
13 stable, long-term source of funding for these programs.
14 And that's really the next big task that we all need to
15 work on together and that we are working on in the
16 Legislature.

17 We believe these proposed program changes are
18 enhancements to the program. They're positive and we
19 support them, especially adding flexibility with regard to
20 PM-only projects. That's a big concern of ours, because
21 we do need to do as much as possible to reduce diesel
22 particulates. So we ask your support for these changes.

23 CHAIRPERSON LLOYD: Thank you.

24 BOARD MEMBER BURKE: Mr. Chair.

25 CHAIRPERSON LLOYD: Yes, Dr. Burke.

1 BOARD MEMBER BURKE: We at this end of the podium
2 were particularly waiting for her testimony, because on
3 our sheet here it says that she's with the American Lunch
4 Association.

5 And so I told the fellow members I was really
6 going to support whatever she wanted.

7 (Laughter.)

8 CHAIRPERSON LLOYD: I think that must be a
9 subsidiary to the California Restaurant Association.
10 Thank you.

11 Mark Nordheim, Dean Taylor, Tom Addison.

12 MR. NORDHEIM: Mr. Chairman and Board members, my
13 name is Mark Nordheim. I'm with the Chevron-Texaco
14 Corporation. But I'm here today representing the Western
15 States Petroleum Association.

16 And I want to start my presentation with a wee
17 apology to the staff and the Board for our sort of late
18 reentry into this issue. But there are a number of
19 current events that have significantly renewed our
20 interest in these programs, the first of which is sort of
21 the massive state budget crisis that we're facing and the
22 generally poor economic situation that exists in the
23 state. In our view, that drives us to search as hard as
24 we possibly can in search of the most cost-effective
25 utilization of the money that's currently available to us

1 in the system.

2 We're facing -- this program was designed -- and
3 I'm talking about both the Moyer Program and the School
4 Bus Program -- to try and get at those source categories
5 that were either hard to regulate or there are economic
6 hardships associated with those regulations. That
7 includes things as far and wide as was talked about in the
8 staff report earlier. But that's the ports of L.A. -- los
9 Angeles, the ports of Oakland, all the federal sources --
10 planes, boats, and trains that we've all been chasing the
11 feds to try and get a handle on. It includes agricultural
12 engines in the Sacramento and San Joaquin Valleys. It
13 certainly includes the school buses and many, many other
14 types of programs. So we think it's absolutely imperative
15 that we do everything we can to focus the maximum value of
16 the limited resources.

17 CHAIRPERSON LLOYD: You've got about a minute,
18 Mark.

19 MR. NORDHEIM: You mean all 42 of those got three
20 and there's one guy on this side gets -- I'll be --

21 CHAIRPERSON LLOYD: No, no, no, no, unless we
22 bank some of the credits from a couple of the previous
23 speakers, which I'll do. But I'll give you two at most.

24 MR. NORDHEIM: Okay. A) We want to -- we're
25 very much supportive of the staff recommendation and

1 create -- what we think is a very creative way to bring
2 some PM control into the program. Remember that because
3 I'm going to loop back to it in the School Bus Program.

4 We really want to encourage the staff and the
5 Board to scrub the guidelines on both ends to make sure
6 that we're really focusing monies on non-mandated
7 programs.

8 The school -- let me jump to the School Bus
9 Program. We really have two serious recommendations. And
10 we're concerned by the fact that the retrofit money for
11 diesel technology has dropped out, and that the funding
12 for future new vehicle purchases is biased two-thirds to
13 alternative fuels and one-third to diesel. If you look at
14 the cost benefit numbers that were talked about by the
15 staff today, 75 percent of the emission reductions that
16 will have occurred by the end of 2003 will come from the
17 retrofit program. If you look at the cost of these new
18 buses using the math in this staff's report, the new
19 vehicles come out at \$307,000 a ton for combined NOx and
20 PM.

21 That emphasizes the importance from trying to do
22 whatever we can to trying and keep as much of the retrofit
23 programs on the diesel side in play.

24 The language -- the controlling language in AB
25 425 talks about the acquisition or the -- it doesn't talk

1 about the purchase. It doesn't talk about new. And so we
2 think there's flexibility in there to deal with the issue.
3 We think it gives you the flexibility to stick to your
4 original policy decisions and invest half the money on
5 diesel, half of the money on alternative fuels, and then
6 split the diesel 50/50 between new and old.

7 As a minimum we would strongly encourage you to
8 look at what you're doing with the PM program in the Moyer
9 Program. There's a tremendous opportunity to use matching
10 money to get into the retrofit arena. We can't let the
11 retrofit program go or you lose 75 percent of the benefit
12 of the investment.

13 Jumping quickly to the distribution between
14 alternative fuels and diesel. If you look at the original
15 recommendation from the Board to the staff, it talked
16 about distributing the money 50 percent to alternative
17 fuels and 50 percent to diesel technology. It didn't say
18 50 percent for new CNG, 50 percent for new diesel. We
19 think that if you can't find a way to keep the retrofit
20 programs in, you ought to be at least keeping the
21 technology on an even playing field, particularly since
22 the diesel technology incrementally is cheaper than the
23 alternative fuel technology.

24 I heard reference to some of the new CNG buses
25 coming on line with particulate traps. We were a little

1 bit puzzled that this proposal doesn't require the use of
2 oxidation catalysts on CNG purchased buses by virtual of
3 the data that's come to light through your research.

4 We think that the funding mechanism in this is
5 bias towards alternative fuels to the
6 counterproductiveness of achieving the greatest emission
7 reductions for the greatest investment in the taxpayer's
8 money.

9 We think there's some critical things. We think
10 that there's ways to improve this. We'd like to suggest
11 that the Board direct the staff to seriously consider
12 those kinds of things. If you'd like to make those
13 recommendations today, fine. But we think they're
14 important enough that they need to be vetted. And if
15 you're not ready and prepared to act today, then we'd like
16 to see this proposal back in front of the Board before you
17 take final action.

18 Thank you.

19 CHAIRPERSON LLOYD: Thank you, Mark.

20 Any questions?

21 Thank you.

22 I guess we'll come back and -- I'd like some
23 staff comments on those issues raised by Mark there.

24 We'll come back on that, Mark.

25 MR. NORDHEIM: I'll be here if you'd like to

1 chat.

2 CHAIRPERSON LLOYD: Thank you.

3 Dean Taylor, Tom Addison, Henry Hogo.

4 MR. TAYLOR: Good morning. My name is Dean
5 Taylor. I work for an electric utility. But I'm here
6 representing the California Electric Transportation
7 Coalition, which is the four large electric utilities in
8 the State of California as well as a number of component
9 suppliers for electric-drive vehicles.

10 And we want to apologize for being maybe late
11 commenters on this. But we have a long history with the
12 Moyer Program. In fact Dave Modisette and myself and
13 others worked with Carl Moyer getting this through the
14 Legislature and have been long-time supporter of this, for
15 a very long time. But you might say our industry's been a
16 bit distracted recently, so we haven't paid very close
17 attention.

18 But I think we have enormous enthusiasm for the
19 non-road side. We worked hard on the original program to
20 have non-road vehicles, you know, be eligible. And would
21 suggest that we would like to work, you know, in the next
22 round with the Board and staff for improvements in this
23 program. They're particularly cost-effective programs,
24 the non-road. In fact the forklifts in the current
25 regulations are I think the only one that has to meet a

1 \$3000 per ton cap. Everything else is much higher, as
2 high as 13,000 per ton.

3 We have three specific maybe suggestions just to
4 call out some interesting possibilities for the future.

5 One is truck refrigeration units have huge NOx
6 reduction potential. I mean it's just amazing. We're
7 doing a project out in the Riverside area, it's probably
8 in the \$1,000 to \$2,000 per ton range. There may need to
9 be some clarification or, maybe even better, specific set
10 of rules just for that technology as the emission
11 reduction potential is so large.

12 Three is the issue -- I mean second is the issue
13 on forklifts. There is a proposed upcoming regulation
14 that would do a command control regulation for forklifts.
15 And that probably isn't a wonderful thing. But prior to
16 that we would suggest that those forklifts that are
17 converted under the Moyer Program to electric very
18 cost-effectively get emission credit for their full life.

19 Right now, if I'm correct, the staff is saying
20 that they would just get two years of emission reduction.
21 Say you buy it in 2003; this new tailpipe emission
22 standard comes in 2005; you would just get two years of
23 emission reductions. We think that should be the full
24 life of that electric forklift. So let's say it's,
25 whatever, ten years. That would make it very cost

1 effective.

2 And that's my understanding is the traditional
3 way its been done, you know, with other business
4 organizations in the state. If you beat -- you know, if
5 you're earlier than the adoption of a new proposed SIP
6 measure, then you get full credit.

7 And then, lastly, maybe other areas of the state
8 need to have a higher cap than this \$3,000 per ton. Would
9 suggest maybe the Board would consider or the staff would
10 consider having it up at a higher number, let's say,
11 12,000, so that that would allow areas such as Sacramento
12 or the Central Valley that have early attainment dates to
13 take advantage of this, rather than, you know, having to
14 meet this very tough requirement of 3,000. Some electric
15 forklifts obviously can, but I'm saying not all of them
16 can.

17 And, lastly, just to end, let's work together to
18 find ways to capture the electric utilities' enthusiasm.
19 We obviously get a lot of requests from our customers all
20 over the state, in interest, be it a bag tug or a forklift
21 or a truck refrigeration unit to electrify.

22 CHAIRPERSON LLOYD: Thank you.

23 Tom Addison and Henry Hogo.

24 MR. ADDISON: Good morning, Dr. Lloyd, Board
25 members. My name's Tom Addison. I'm with the Bay Area

1 Air District. I'm not here today to talk about OEM or
2 aftermarket parts. I'll also try to be brief.

3 I'm actually here today to speak against the
4 proposed staff distribution of the Prop 40 Moyer funding.
5 But before I do that, I'd like to say a couple of things
6 about, from our perspective for the Bay Area Air District,
7 what a well-run and well-managed program we think this is.
8 We actually think this is an example of how local
9 districts and ARB are working successfully together in a
10 way that really is exemplary to cut diesel exhaust and to
11 reduce public exposure to it. And that's very much a good
12 thing.

13 I'd also like to let you know that while we've
14 been making the comments that I'm going to make today for
15 roughly the last four years, we've had -- and we
16 appreciate the opportunity to talk with your staff about
17 it. And we very much appreciate their receptiveness to
18 hearing us out on it. And so I wanted to make sure that
19 the Board did as well.

20 So essentially what we're proposing is that the
21 staff distribution is flawed because it doesn't make sense
22 for a variety of reasons. Most significantly for public
23 health reasons. We think the distribution should be based
24 solely on population.

25 Right now the distribution includes a 1994 SIP

1 control measure, Control Measure M4. And that control
2 measure has officially expired. It expired last year.
3 And we don't think that using that distribution today in
4 2003 makes much sense.

5 The reason that we don't think it makes sense is
6 that we think the biggest public health benefits to the
7 Carl Moyer Program come from reducing public exposure to
8 diesel particulate. That's where the real public health
9 benefits of the program are. And the way that you
10 maximize reduction of exposure to diesel particulate is
11 you give out the funding based on population density.

12 Why is that?

13 Because unfortunately diesel exhaust is
14 everywhere. It's ubiquitous in our society.

15 So to maximize the public health benefit, to
16 minimize the exposure to diesel particulate, we think the
17 right strategy is to give out the money based on
18 population density.

19 Now, population density is hard to figure out.
20 Population is a good surrogate for population density. We
21 think population is the right thing to use from a
22 practical point of view because population density is hard
23 to get a handle on.

24 So we would say that public health, population is
25 the right way to go.

1 What about equity?

2 CHAIRPERSON LLOYD: Can you --

3 MR. ADDISON: I'll be brief. I'm almost done.

4 From an equity perspective, this a bond measure.

5 Everybody contributes in the State of California equally
6 to bond funding. Currently we would argue the benefits --
7 the public health benefits are not being distributed
8 equitably.

9 We think there are some political arguments as
10 well for looking at the distribution.

11 Fundamentally I think Ms. Witherspoon got it
12 right. Ms. Witherspoon said to you the statute is out of
13 step with where we are now. And that's I think a
14 reflection of the shift in our understanding of the
15 epidemiology and the relative importance of PM reductions
16 versus ozone reductions.

17 Our legal counsel feels that you certainly have
18 the ability as an agency administratively under the
19 current statute to change the distribution to one based on
20 population.

21 Sorry to be a little longer.

22 CHAIRPERSON LLOYD: So your legal counsel's
23 agreeing with the letter we got from the Legislature that
24 we have the administrative authority?

25 MR. ADDISON: Indeed. We would argue that you've

1 got the authority today to change it to population. We
2 also think that it makes sense as well, aside from the
3 legal issue of whether or not it's feasible.

4 CHAIRPERSON LLOYD: Thank you.

5 Any questions?

6 Dr. Burke.

7 BOARD MEMBER BURKE: I'm confused on how much
8 money we're talking about here. Can you give me a
9 ballpark number?

10 MR. ADDISON: Sure. Roughly -- I mean staff is
11 probably better at doing this. But I'd say -- we're
12 talking about \$19 million here at Prop 40 funding. You
13 know, if we throw some numbers for different districts,
14 the Bay Area's got roughly 20 percent of the state's
15 population. The Bay Area is currently getting about nine
16 percent of the funding.

17 Contrast that with another district, Sac Metro
18 has got --

19 BOARD MEMBER BURKE: I was just looking for the
20 difference between what you're getting and what you would
21 get.

22 MR. ADDISON: Oh, sure. That's about 1.8
23 million, roughly.

24 CHAIRPERSON LLOYD: And where would that come
25 from? Maybe staff can answer --

1 MR. ADDISON: There are two --

2 CHAIRPERSON LLOYD: No -- obviously it's a fixed
3 sum. So if you gain, somebody else loses.

4 BOARD MEMBER DeSAULNIER: That's a question for
5 the CARB staff, Tom, not for --

6 MR. ADDISON: Yes. Although I would be happy to
7 answer, if you'd like.

8 EXECUTIVE OFFICER WITHERSPOON: The districts
9 which receive a higher proportion of funds based on having
10 the M4 measure in their state implementation plans are
11 Sacramento Metropolitan, San Joaquin Valley, Southeast
12 Desert Air Basin, South Coast Air District, and Ventura.
13 So if we moved to a population-only driven formula, money
14 would shift from these areas toward the Bay Area and San
15 Diego. It would shift to, more or less -- the degree --
16 South Coast would probably lose less because their
17 population base is still high. The Valley perhaps stands
18 to lose the most -- San Joaquin valley, because of their
19 lower population threshold.

20 And so it is an issue of winners and losers, but
21 also one of policy on how you think the actual allocation
22 should be performed.

23 And I do want to clarify, that the Board has the
24 authority today, should you choose, to amend the way we've
25 been doing it for the last ten years. But just to make a

1 correction -- the letter from the Legislature talks about
2 the M4 measure being expired. It is not. It is part of
3 our legally approved State Implementation Plan. And we
4 are under active court orders for failure to implement
5 other aspects of that plan. And so -- M4 was a measure
6 that said we would develop an incentive program for
7 cleaning up diesels. It was sort of an early-day,
8 black-box kind of a measure, but it's in there and not
9 gone away.

10 CHAIRPERSON LLOYD: Thank you.

11 Supervisor DeSaulnier.

12 BOARD MEMBER DeSAULNIER: Catherine, is there an
13 ability for staff to split the baby? Do we have to go all
14 population based or is -- because as I read it, we have
15 some discretion.

16 EXECUTIVE OFFICER WITHERSPOON: We do have
17 discretion. And we could try and figure out various
18 versions of that. We'd need a little time to work on
19 that.

20 BOARD MEMBER DeSAULNIER: Well, it's just -- and
21 I'm not speaking -- Tom, this is just from my perspective,
22 representing the Bay Area. It's just the amount of
23 difference. It's double the amount of money that would be
24 used by population, which seems fairly extreme. And it's
25 very hard for me to look at this program in isolation,

1 because we've got all these other moving parts with -- our
2 relationship with our downwind neighbors. And I don't
3 want to keep bringing up smog check, but I was reminded
4 constantly by certain people that I should look at it as a
5 public health issue and not specific to the emissions that
6 we were directed at. So that's the problem I'm having
7 with this.

8 CHAIRPERSON LLOYD: So one of the downwind areas.
9 Ms. D'Adamo.

10 BOARD MEMBER D'ADAMO: Well, I'm obviously
11 uncomfortable with what we have right now, but -- I
12 appreciate what Supervisor DeSaulnier has done in the past
13 to open up the dialogue with the Bay Area so that we can
14 talk in a more meaningful way about transport issues.

15 If we look at other surrogates though, there are
16 a few issues -- well, first of all, I think that what we
17 have right now is fine. But if we have to make some
18 changes, it's crucial that we consider other issues and
19 not just population. For example, transport issues. That
20 plays in quite a bit to the equity issue. And public
21 health.

22 We have, as staff has repeatedly reported, some
23 of the highest asthma rates in the valley in the nation.
24 And that's due in no small part to the emissions that are
25 generated in the valley. But in addition, we have a

1 transported air pollution problem. And we've got the I-5
2 and I-99 corridor running right smack dab through the
3 valley, with transportation going from northern to
4 southern California.

5 So there's a number -- it seems to me that it
6 would be pretty complex. I'm willing to engage in the
7 discussion. But I would be very uncomfortable with it
8 just being based upon population.

9 CHAIRPERSON LLOYD: Supervisor Roberts.

10 BOARD MEMBER ROBERTS: Yeah, Mr. Chairman. Last
11 time I looked we weren't transporting anywhere. And the
12 only thing we're transporting is dollars elsewhere. And
13 we shouldn't be part of this. And we should be treated in
14 a more equitable way in San Diego. And I think we've got
15 to change this formula. And whatever agreement there is,
16 you know, between those two areas is interesting, but we
17 shouldn't be contributing to that.

18 You know, if anything, maybe some of those South
19 Coast management dollars should be coming because that's
20 where the air's ending up. So -- if you're talking about
21 transport. But there isn't any justification for us being
22 at the level that we are in this, and these numbers ought
23 to be changed.

24 CHAIRPERSON LLOYD: Dr. Burke.

25 BOARD MEMBER BURKE: I am not opposed to money

1 going to any district which needs it, you know. We at
2 South Coast, you know, like to feel that we are all in
3 this together. And this is a statewide issue and --

4 CHAIRPERSON LLOYD: Bill, can you speak into the
5 microphone?

6 Thanks.

7 BOARD MEMBER BURKE: What I was saying was that
8 South Coast, we believe this is a statewide issue and is
9 transportation. And I don't claim to know about the
10 issues in northern California as well as southern
11 California. But I would not be opposed to modifying this
12 formula even if it costs South Coast some money. I'm not
13 opposed to that, if it was fair and equitable.

14 CHAIRPERSON LLOYD: Mrs. Riordan.

15 BOARD MEMBER RIORDAN: Just a thought. Today I
16 don't know that we want to make this division in terms of
17 money. And I would caution the Board members to perhaps,
18 if it's possible and if staff would agree, to move forward
19 with the other parts of it. And always the division of
20 money is a difficult one and one that I don't think we
21 want to do without some thought process.

22 And is that possible, staff? I really have some
23 trouble making any decision on money today.

24 EXECUTIVE OFFICER WITHERSPOON: Well, there are
25 two options here. One is to delay and evaluate different

1 allocation criteria. We can't move any money without
2 knowing the primary allocation criteria.

3 The second option would be, since this is a
4 two-year program, to apply the allocation criteria we have
5 today to the first year and bring you a recommendation for
6 the second year that has a different formula with lots of
7 time to think about it in the meanwhile. And that's how
8 we propose to handle this match question for rural areas.

9 I don't know if Board members are comfortable
10 having any money get out the door without looking at the
11 criteria.

12 So those are the two --

13 CHAIRPERSON LLOYD: Well, one suggestion might be
14 that you look at again the Delta and some of these areas,
15 and then sort of put that part aside. And then distribute
16 those dollars out the door, that people will -- make sure
17 that everybody gets the floor.

18 Is that possible, so that -- because I am
19 sensitive to the point that staff made that with these
20 funds here people want to be able to get the dollars out
21 the door so we can begin cleaning up the air as soon as
22 possible.

23 EXECUTIVE OFFICER WITHERSPOON: We're wrestling
24 with whether that's possible or not. We certainly could
25 do the floor of 100,000. But that's trivial.

1 CHAIRPERSON LLOYD: No, no. I know --

2 EXECUTIVE OFFICER WITHERSPOON: And we do have a
3 time constraint here to get it to the districts in time
4 for them to run their own contracting processes and move
5 it --

6 CHAIRPERSON LLOYD: But there must be -- the
7 point is -- take South Coast for an example. The weight
8 is now -- or if you went into population weighted, and
9 some of the other districts, and then presumably you could
10 look at what it would be for some of those districts that
11 may be affected, and get those dollars out for door. And
12 if they get additional dollars or if they're taken away,
13 we'd pick a number there, which we can then use that slot
14 if you like, and hold on to those dollars and allocate
15 them depending on what we decide in the end.

16 Yes, Dr. Friedman or Ms. D'Adamo.

17 BOARD MEMBER WILLIAM FRIEDMAN: Well, I was just
18 going to suggest that clearly there are likely to be a
19 number of options here that require some more
20 thoughtfulness and study and to be brought back to us so
21 we can make a determination, rather than at this
22 particular meeting -- I agree with Barbara. I'm not
23 prepared to make a specific decision vis-a-vis dollar
24 distribution at this moment.

25 CHAIRPERSON LLOYD: My only question there -- I'd

1 like to hear from staff. You know, if we lose a month
2 here, is that critical to getting these dollars out the
3 door? That was my only comment.

4 EXECUTIVE OFFICER WITHERSPOON: I think we can
5 manage one month.

6 ALTERNATIVE STRATEGIES SECTION MANAGER AYALA: We
7 believe that it is critical from the standpoint that these
8 are current fiscal-year funds and the districts are
9 essentially on a standby to deploy the projects. And we
10 basically committed to bringing guidelines before you at
11 this time, which is essentially the last opportunity --

12 CHAIRPERSON LLOYD: Well, let me make a
13 suggestion. Maybe my colleagues as well -- well, Ms.
14 D'Adamo.

15 BOARD MEMBER D'ADAMO: Well, what I was going to
16 say is I know that there is a backlog of projects that are
17 needed throughout the state. I know in particular in the
18 valley -- and we have this Title 5 issue with EPA and a
19 tremendous need and desire on the part of many to convert
20 their engines over. This is a program that's worked just
21 fine in the past. And I would just suggest that perhaps
22 we consider adopting it as is and coming back as soon as
23 possible, whether that's a month or two or six, with
24 recommendations, rather than holding up the whole program.

25 CHAIRPERSON LLOYD: Yeah, but I can understand

1 from your viewpoint that that would be the case.

2 Let me make a -- just let me make one suggestion
3 maybe, that we take the last witness and then -- we're due
4 for a break for the court reporter. Give staff a chance,
5 maybe ten minutes to think about this. We can come back
6 and discuss the issue and see if staff has some additional
7 insights of how this may be handled.

8 BOARD MEMBER McKINNON: I have question before
9 staff breaks.

10 CHAIRPERSON LLOYD: Mr. McKinnon, yes.

11 BOARD MEMBER McKINNON: And my question can be
12 answered after the staff's break. But here's my question.

13 Is it possible to segment some of the money for
14 population based and some of the money for air districts
15 that need it the worst?

16 EXECUTIVE OFFICER WITHERSPOON: Yes, I think it
17 is.

18 And in response to the Chairman's prior
19 suggestion, I think that's possible too. We're just --
20 you know, we're sitting here trying to figure out quickly
21 whether we could do it today or not.

22 Although Mr. Ayala talked about the desire to --
23 what?

24 CHAIRPERSON LLOYD: Thank goodness Ms.
25 Witherspoon is starting off with an easy one.

1 (Laughter.)

2 BOARD MEMBER DeSAULNIER: Mr. Chairman. Or
3 should I call you referee in World Wrestling Federation?

4 (Laughter.)

5 EXECUTIVE OFFICER WITHERSPOON: No, we have a
6 little more detail about the timing considerations here.

7 The state only needs to commit dollars by the end
8 of this fiscal year. However, there is a -- we have to
9 actually allocate them, which takes -- there's a
10 mechanical process inside that takes some time. And then
11 districts have to hold hearings in order to receive them
12 and commit their share of matching funds.

13 And so I believe one month would not be an
14 unreasonable delay, but we can't go any later than that.
15 So if we are to delay, we'd have to be back here in April
16 with recommendations for you.

17 Is there another question or --

18 BOARD MEMBER RIORDAN: I think one month sounds
19 reasonable, Mr. Chairman.

20 CHAIRPERSON LLOYD: Okay. Supervisor DeSaulnier
21 and then Professor Friedman.

22 BOARD MEMBER DeSAULNIER: Do you want to continue
23 with WWF? I just --

24 BOARD MEMBER HUGH FRIEDMAN: Could you talk just
25 a little louder, Mark? I'm having trouble hearing you.

1 BOARD MEMBER DeSAULNIER: Yeah. I would just --
2 hopefully we can go with the one month. I think it would
3 do a disservice to the people who've signed this from the
4 Bay Area legislative delegation. I assume Ron would have
5 sort of the similar problem down there. And at least in
6 regards to our relationship between the valley, a month
7 would be well served to try to iron something out.

8 Representing the Bay Area, we're not looking for
9 the full two million and switch it to population. There's
10 good arguments for what staff's doing in terms of
11 direction, but it's just too much. So if we can get that
12 at a month, it would be worth it.

13 CHAIRPERSON LLOYD: So what I'm hearing from
14 staff is that a month is okay?

15 EXECUTIVE OFFICER WITHERSPOON: It's making
16 everyone uncomfortable, but I believe yes. You know,
17 we'll just have to work very hard after that to get the
18 money out.

19 EXECUTIVE OFFICER WITHERSPOON: I would like to
20 go back -- take the last witness. I would like then to
21 take a break. And then I would like a definitive answer
22 to staff whether in fact we can accept that month. I'm
23 sensing my colleagues here, that they're uncomfortable
24 coming to a vote today without some additional input.

25 So Mr. Hogo.

1 MR. HOGO: Good morning, Chairman Lloyd, members
2 of the Board. For the record, my name is Henry Hogo. I'm
3 the Assistant Deputy Executive Officer at the South Coast
4 Air Quality Management District.

5 I would like to take this opportunity to say a
6 few words about both the Carl Moyer Program and the School
7 Bus Program.

8 The AQMD staff is in support of the staff
9 proposal in the guidelines in general. We do have three
10 minor concerns relative to the Carl Moyer Program.

11 The first is -- and I actually didn't want to
12 talk about allocation in the sense that the Bay Area did.
13 But the allocation of the funds to the districts -- in the
14 past we have received our funds up front, the full
15 allocation. And the staff is proposing at this time to
16 allocate only ten percent of the funds up front and then
17 do the additional allocations on an as-needed basis.

18 I think relative to the discussion that you have
19 been going through on overall allocation, we need to look
20 at the timing on doing this ten-percent allocation versus
21 an up-front allocation, because our process would be to do
22 a solicitation and then work on contracts. That usually
23 takes maybe three to four months. And then to get the
24 contracts negotiated, maybe another 30 or 60 days. So
25 we're looking at a fairly lengthy period of time to do

1 this. And we would like to see at least the allocation of
2 funds be up front.

3 We're in a unique position because we're not only
4 impacted by air pollution ourselves; we are a transporter,
5 and we have 40 percent of the state population. So I
6 think we're in a unique position that perhaps the funding
7 should stay where it is relative to the South Coast.

8 As Dr. Burke has indicated, we're looking at
9 reducing air pollution everywhere throughout California.

10 The second concern that we have is relative to
11 the alternative diesel fuel proposal. CARB staff
12 indicated that the decision on projects would be done on a
13 case-by-case basis by the ARB. We would prefer to do that
14 at the local level. If we can't do that on a local level,
15 at a minimum we would prefer to work with CARB staff in
16 consultation to identify those projects specific to our
17 area.

18 The third point I wanted to make is relative to
19 the marine vessels. CARB staff is proposing to put a 20
20 gram per brake-horsepower limit on the maximum emissions.
21 We believe that for those engines that do have valid
22 emission source test data, that we should be able to use
23 that data in lieu of the 20 gram limit. And we recognize
24 that that valid emission source test data needs to be for
25 engines that are working properly.

1 I just want to make one comment relative to the
2 School Bus Program. And, that is, we support the staff
3 proposal relative to the guidelines and also with the
4 allocation of the two-thirds/one-third formula.

5 We know that when we compare the emissions of a
6 natural gas school bus relative to a diesel school bus, on
7 a bus-by-bus basis, it's actually almost at 2-to-1 benefit
8 relative to NOx. So we see that as a big point to make.

9 And when you think about the technologies -- in
10 the South Coast there's need for additional NOx reduction
11 as early as possible. When you go towards what may be a
12 cleaner diesel engine today, that engine a few years from
13 now will actually be considered a dirtier engine. And so
14 we want to get the cleanest technologies in place as early
15 as possible.

16 With that, we will continue to work with your
17 staff on the guidelines.

18 And I'll be happy to answer any questions you may
19 have.

20 CHAIRPERSON LLOYD: Mr. McKinnon.

21 BOARD MEMBER McKINNON: I think you just pushed
22 your luck. But let me go about this carefully here.

23 South Coast has a rule that tends to favor CNG,
24 and you just laid out the basis for that.

25 I am concerned that recently we became aware that

1 there are some toxics problems with CNG that sort of
2 mitigate your argument somewhat.

3 Now, I think an earlier speaker raised that
4 question and raised sort of the fuel diversity question.
5 And I am sort of going along with the assumption that we
6 do lots of things to give diesel time to clean up, and we
7 probably need to act the same way with respect to CNG.
8 And in the limited period of time of two years, I'm not so
9 inclined to take CNG out of consideration, because what
10 that essentially will do is take school buses away from
11 kids in the South Coast. That's how that will work.

12 But I am concerned that we sort of are continuing
13 on with a set of assumptions about CNG that don't include
14 the toxics question. And I guess what I'm interested in
15 is if South Coast has plans or is under way or is in the
16 near future, in that you're out sort of ahead or on your
17 own on the CNG question, do you have plans to do particle
18 trapping and deal with the toxics question with CNG?

19 MR. HOGO: The answer is yes. We would support
20 having language that says that for CNG bus awards, that if
21 oxidation catalysts were deployed with those buses, that
22 is where you'll get the reduction in the toxics from the
23 natural gas engine.

24 We are in discussions with John Deere about
25 retrofitting existing natural gas school buses that do not

1 have oxidation catalyst technology. And they indicated
2 that that can be done fairly easily. They have certified
3 their engines with oxidation catalysts -- or they're
4 planning to do that.

5 It turns out that if -- in a specification on the
6 bus, if there's no specification for an oxidation
7 catalyst, the OEM actually would not necessarily go
8 through the process of putting it on. But if we specify
9 that as a condition of the award, then that oxidation
10 catalyst will be placed on that natural gas bus.

11 Now, relative to particulate traps, we are in
12 discussion with the particulate trap manufacturers as to
13 whether a particulate trap can be developed that can be
14 applied to a natural gas engine. So we're looking at both
15 technologies at this time.

16 BOARD MEMBER McKINNON: What does your timetable
17 look like? We're talking about two years here. Are we
18 going to be there in two years?

19 MR. HOGO: Yes, I believe we will. The oxidation
20 catalyst is actually available today. And it's a matter
21 of determining whether -- how many of the older buses can
22 be retrofitted. It turns out that most of the buses most
23 likely will be readily retrofitted with oxidation
24 catalysts. And we need to look at how best to do that
25 over this time period.

1 But the requirements for new buses, we will have
2 oxidation catalysts already available.

3 BOARD MEMBER McKINNON: Thank you for your
4 answer. And I just -- I sort of want to reinforce -- I
5 don't know if I'll be on this Board two years from now.
6 But I know that if we go through this again and we don't
7 have at least some discussion of toxics in CNG and
8 consideration of what's being done about that -- I have a
9 hard time having such a large allocation go to CNG when we
10 know there's at least some problems that need to be
11 discussed there. And certainly I'm not willing to sort of
12 backlash on that now over this next two years. I think it
13 would take away school buses from kids in the South Coast.

14 And I also just think it's patently unfair. We
15 give diesel time to clean up. We do step by step over
16 years and years and years. We now realize there's
17 something we need to do with CNG. I don't think we do
18 that in one ruling here. I think it's something we do
19 over time.

20 CHAIRPERSON LLOYD: Thank you.

21 Dr. Burke.

22 BOARD MEMBER BURKE: Mr. McKinnon and I have
23 discussed this matter at length, and we're both on the
24 same page at the same time with this issue.

25 But, Mr. Hogo, I wanted to know if we continued

1 this item for a month, would that affect our ability to
2 perform at South Coast?

3 MR. HOGO: It would just delay the -- if the
4 fiscal restraints are not there, then it would just delay
5 the process by a month. But if the fiscal restraints are
6 there, we would have to move a lot faster.

7 BOARD MEMBER BURKE: What if we did a 50 percent
8 of all the money to all the districts and then used the
9 next month for the amelioration of the other 50 percent?
10 Would that provide you with the ability to operate?

11 MR. HOGO: Yes, it would.

12 BOARD MEMBER BURKE: Okay.

13 CHAIRPERSON LLOYD: Yes. Professor Friedman.

14 BOARD MEMBER HUGH FRIEDMAN: I don't think this
15 is any way -- you know, in all due respect, any way for us
16 to be adopting important policy. This was just handed to
17 us. This has been on our agenda for a long, long time.

18 All due respect, Mark -- and I understand your
19 point. And my colleague from San Diego, we are sort of in
20 the same boat as the Bay Area. But unless the staff can
21 readily come up with some approach or formula during our
22 brief break, that we can really rally around and develop a
23 consensus, it seems to me that if we can defer a month or
24 whatever without any undue impact or harm to any of the
25 districts, that's one thing. And I don't know the answer

1 to that apparently. I don't know the effect of a delay of
2 30 days at this point, but -- or one month to our next
3 meeting.

4 But I don't think we're in a position to adopt
5 anything today that's a major change in allocation of
6 funding when its just been raised, unless the staff has
7 some magic solution.

8 BOARD MEMBER DeSAULNIER: Mr. Chairman. I know
9 you want to go to break --

10 BOARD MEMBER HUGH FRIEDMAN: So take a break, see
11 if people --

12 CHAIRPERSON LLOYD: Supervisor DeSaulnier.

13 BOARD MEMBER DeSAULNIER: I just want to clarify.
14 For my position I'm not asking for support to change the
15 whole allocation. I'd like to have a month to see if we
16 can work on coming up with a couple of options, and then
17 we come back and talk about what's fair and we see where
18 the votes are.

19 CHAIRPERSON LLOYD: What I would suggest is
20 following what Professor Friedman mentioned earlier. If
21 we could take a 15-minute break -- not for staff -- so
22 that you could take a look at what's going on here. And
23 see if you can come back to reflect -- you can see the
24 Board's concerns -- I think to address the issue of how
25 can we get some of these funds out, can we get some

1 partially out? Maybe as Dr. Burke suggested, what do we
2 gather then? Or should we in fact hold a month without
3 penalizing and jeopardizing some of the funds? We clearly
4 know at this time in Sacramento that we need to get funds
5 so that we can be cleaning up the air as soon as possible.

6 So with that we'll take a 15-minute break. The
7 clock at the back -- so we'll take till 11:20.

8 For those of you who are also interested, there
9 is an overflow in the Coastal hearing room right next door
10 where there's audio and visual.

11 So thank you.

12 (Thereupon a recess was taken.)

13 CHAIRPERSON LLOYD: We will continue with this
14 item.

15 I think before we hear from staff, Mr. McKinnon
16 had a -- well, I guess wanted to put staff on alert to an
17 issue he wants to see covered.

18 Mr. McKinnon.

19 BOARD MEMBER MCKINNON: Yeah, I'm going back to
20 our original debate on the school bus issue back a few
21 years ago where we ended up having quite a complete
22 discussion about the value of retrofits in cleaning up
23 more buses that affected more kids.

24 And I understand that there may be some
25 legislative sort of restrictions on how we deal with it.

1 But there was a speaker earlier that talked about using
2 the administrative -- or the matching amount and allowing
3 the matching funds to be retrofit.

4 And I guess if we end up taking more time to
5 figure this out, what I would like -- and I don't know if
6 there are other Board members that agree with this -- is
7 I'd like some approach at us figuring out how to get
8 retrofit back into this equation. I think we get more
9 done per dollar with retrofit. And I'm worried that we're
10 doing this without any retrofit in the picture.

11 Thanks.

12 CHAIRPERSON LLOYD: Thank you.

13 Ms. D'Adamo.

14 BOARD MEMBER D'ADAMO: Do we have the discretion
15 to do that?

16 EXECUTIVE OFFICER WITHERSPOON: The Legislature
17 was very clear that they expected us to purchase new buses
18 with the 20 percent of Prop 40 funds and not to engage in
19 retrofits. We do have the discretion on the matching
20 amount, I believe. However, we've cut the match to almost
21 nil wherever we could because of the financial constraints
22 of school districts.

23 So where there is some residual match
24 requirement, we can look at it. But that's probably not
25 going to result in a whole lot of retrofit activity.

1 And I would say that staff agrees with Mr.
2 McKinnon, that retrofits are an extraordinarily cost
3 effective way to proceed. It's just that we're following
4 the direction from the Legislature on how they would wish
5 these funds be appropriated.

6 CHAIRPERSON LLOYD: So now we're coming back with
7 pearls of wisdom from the staff on how we address the
8 issue.

9 EXECUTIVE OFFICER WITHERSPOON: What we would
10 like to propose to you is that you approve the school bus
11 portion of the item today, because the school bus
12 allocations are already based on population only. They do
13 not have an M4 multiplier.

14 And then we would return to you in April with
15 Carl Moyer alone and with various options for the funding
16 criteria, including what you have today, population only,
17 and versions in between.

18 During the break we consulted with our own
19 administrative services staff with many of the districts
20 who receive these funds to find out if we were creating an
21 unmanageable problem at the receiving end. And we were
22 assured that a one-month delay will not damage the program
23 in any way, that they can deal with that change in
24 schedule.

25 CHAIRPERSON LLOYD: Yes. Supervisor DeSaulnier.

1 BOARD MEMBER DeSAULNIER: I think that's fine,
2 Mr. Chairman. I would move the staff recommendations,
3 including the amendments that Catherine Witherspoon just
4 mentioned. But I would ask that -- obviously we'll get
5 engaged by the folks from the Bay Area legislative
6 delegation and the issues that have been brought up by my
7 colleagues up here.

8 CHAIRPERSON LLOYD: I would also like -- could I
9 just add one point?

10 BOARD MEMBER RIORDAN: You need a second for the
11 motion, Mr. Chair. I was just --

12 CHAIRPERSON LLOYD: I guess we do.

13 Well, I got two seconds here.

14 BOARD MEMBER RIORDAN: Okay. That's fine.

15 CHAIRPERSON LLOYD: I had just one comment to
16 staff, I think, that I would like to take advantage of Mr.
17 Hogo's suggestion that we make sure that we actually get
18 the cleanest CNG buses possible and put the oxi-cat on
19 there would be good.

20 BOARD MEMBER D'ADAMO: Mr. Chairman?

21 CHAIRPERSON LLOYD: Yes, Ms. D'Adamo.

22 BOARD MEMBER D'ADAMO: Yeah, and if I could just
23 add to the suggestion by Supervisor DeSaulnier. I know we
24 were all kind of surprised by receiving this letter. And
25 as I understand it -- from the Bay Area delegation. As I

1 understand it, this just moved within the last couple of
2 days. I suspect that there are a number of individuals,
3 key legislators in the valley, that may also have
4 concerns. So I would just suggest to staff that they
5 contact some of those individuals, such as Senator Flores.

6 And also would like to suggest that staff contact
7 Supervisor Patrick since she didn't have the opportunity
8 to be here today.

9 BOARD MEMBER DeSAULNIER: That's fine with me.
10 We always want to get along with our neighbors.

11 CHAIRPERSON LLOYD: Supervisor Roberts and also
12 Mr. McKinnon.

13 BOARD MEMBER ROBERTS: No, we always want to get
14 along with our neighbors too, so I agree with that.

15 CHAIRPERSON LLOYD: Mr. McKinnon.

16 BOARD MEMBER McKINNON: Yeah, I'm sure
17 unintentionally, by moving it, we haven't dealt with the
18 retrofit issue. And what I would like is to have it
19 considered a friendly amendment that we include retrofit
20 as one of the things that qualifies as matching funds.

21 BOARD MEMBER DeSAULNIER: That's fine.

22 CHAIRPERSON LLOYD: Okay.

23 BOARD MEMBER ROBERTS: I'd like to see that, I
24 think -- you know, I've got a strong interest in the
25 retrofit, and I think his comments are well made.

1 CHAIRPERSON LLOYD: And I think that would also
2 help to address one of the comments made earlier.

3 Well, we've got a motion, we've got a seconder.
4 All in favor say aye.

5 (Ayes.)

6 CHAIRPERSON LLOYD: Anybody against?
7 Seeing none, unanimously passed.

8 And thank you, staff. And we look forward to you
9 coming back next month.

10 With that we'll take just a short break before we
11 move into the major feature of the day.

12 (Thereupon a short break was taken.)

13 CHAIRPERSON LLOYD: Okay. If my colleagues could
14 take their seats. And I'd like to begin this item.

15 Agenda item 03-2-4. Public hearing to consider
16 amendments to the California Zero Emission Vehicle
17 Regulation. I recognize this is the one you've been --
18 most of you have been waiting for.

19 I'd just like to say at the beginning also, we're
20 expecting a large number of witnesses. If in fact we can
21 keep those comments as short as possible for the bulk of
22 witnesses. They're going to try to hold most people to
23 three minutes.

24 But we have a lot of witnesses to get through.
25 It sounds like close to 100 witness. So we have a really

1 long day ahead of us.

2 We also will find that we don't intend to take a
3 break for lunch. And so you will see Board members
4 disappearing at various times. If you happen to be
5 testifying, there's no slight meant to you. It's a matter
6 of the Board members getting hungry. But we can see and
7 hear in the back. So we will be rotating on that.

8 Again, I think right at the outset I want to
9 dispel any concern here that the Board is backing down.
10 We are committed to the goal of zero-emission vehicles.

11 (Applause.)

12 CHAIRPERSON LLOYD: And it's very clear that, as
13 we understand the issues, for example, of estimating
14 on-road vehicle emissions, particularly in the South Coast
15 and other areas, it's very important to get to zero as
16 fast as possible.

17 Of course we also recognize that substantial
18 progress has been made in bringing these vehicles to as
19 close to zero as possible. And I'll say a little bit more
20 about that.

21 Again, I think the -- I'd also like to thank
22 staff for their outstanding efforts they've made to craft
23 a more flexible practical path ahead.

24 And I think that -- also it's not true, that we
25 read in the L.A. Times editorial, the staff in fact is not

1 worn down by the auto industry. How could they? In fact,
2 we brought up reinforcements. We brought a new
3 battle-hardened executive officer. She cannot be worn out
4 after two months.

5 (Laughter.)

6 CHAIRPERSON LLOYD: So, in fact, I say we're
7 really trying to do our best. And I know, I've sat for
8 hours with them and they've sat for many more hours, that
9 they've really tried to work diligently.

10 And I'd also like to thank all the other
11 stakeholders, particularly also the auto industry who is
12 going to also have a major impact here. They have also
13 tried to work with us in a constructive way, clearly
14 looking at their interests as well. But we've come a long
15 way I think in a mutual understanding.

16 And I hope that we can move ahead in a manner in
17 which we can actually work together, practically, and in
18 fact continue our dialogue and continue the progress to
19 meeting our air quality goals. The health data, some of
20 which you heard today, indicates that we have an
21 obligation to protect public health.

22 I am encouraged by the way we have worked
23 together. You'll hear today some more about the fuel
24 cell. I can attest firsthand, what I've learned working
25 with a fuel cell partnership over the last number of

1 years, both technically and also working together as
2 colleagues. And I can't overstress that piece because
3 that's going to come up here.

4 While we recognize that this technology is not
5 there today, we also recognize -- there's a major
6 commitment from all the stakeholders -- this is a
7 technology which also will bring us to zero emission
8 technology.

9 This is a technology which Governor Davis
10 mentioned when the California Fuel Cell Partnership was
11 initiated. And I think this had -- also rose to the
12 global stage when President Bush mentioned the promise and
13 reality of hydrogen fuel cells not too long ago.

14 And so I am really excited about that aspect.
15 And I say, I'm really encouraged about the way in which
16 we're working with the auto companies.

17 However, we also recognize that we have a major
18 obligation to the Board, that we cannot wait for the
19 promise, which I think will be real; that we have to do
20 whatever we can now to continue that effort. I'm
21 delighted to see the progress that we've made through all
22 the electric-drive technologies, and encouraging those
23 technologies, and in some cases requiring those
24 technologies.

25 I think it's very important that we continue

1 that. And I think it's -- no doubt in my mind that since
2 the inception of the program, that we've had a major
3 impact.

4 One of the things that we've found -- and we've
5 been asked, "What has changed in the last two years? Why
6 are we doing certain things?" And that will be addressed
7 by the staff. And I'm sure my colleagues will address it
8 as we go through.

9 What I would say there, that our commitment to
10 clean air and to zero is steadfast. However, based on
11 data, I do not feel that I will be serving myself, my
12 colleagues, or the State of California if I do not take
13 that into account as we move ahead. And to me that's a
14 very important issue.

15 So while air quality and public health are our
16 major goals, we also have to recognize the best way of
17 getting there.

18 I think the last 13 years we have seen a real
19 focused effort with the industry and with all stakeholders
20 to try to get us to our goals as identified in 1990. That
21 is, where in fact gasoline vehicles now we've seen that
22 progress, now only just in zero, but the near zero. So we
23 have through the PZEVs virtually lifetime warranties, and
24 we have both from the tail pipe and also from evaporative
25 emission.

1 And then we've got the advanced technology
2 through the partial zero-emission hybrid vehicles and
3 natural gas vehicles.

4 Again, I would say obviously this program has
5 created more debate and discussion than probably any
6 regulation that they ARB has put forward. And it's
7 commonly known as the ZEV Program. But I think, as we
8 will hear from the staff, has accomplished many things
9 apart from the true zero-emission vehicle. So now the
10 delta between the cars on the road and also the true zero
11 is very small, but it is significant. Our ability to
12 characterize on-road vehicle emissions -- if you've got
13 aftertreatment on there, you're still worried about that
14 potential decay. And as I indicated earlier, and I think
15 we'll here from people testifying, in the South Coast AQMD
16 our ability to characterize on-road vehicle emissions is
17 limited. And of course if we start off with something at
18 zero at zero miles, zero to a hundred thousand miles,
19 we're far better off.

20 Again when we looked in 2001, I was hopeful that
21 would be the last time where we would actually address
22 this issue. Unfortunately that didn't happen. There are
23 many reasons why it didn't happen. I won't go into that.
24 But on the other hand, since we are back here today, then
25 we are talking about some significant changes.

1 I think -- it would be tempting I think to not
2 ask some of the tough questions, to just move ahead and
3 try to just address some of the legal issues. But as I
4 indicated before, that flies in the face of all the things
5 we've known. So I think that we will hear I think today
6 from staff a program that's committed to the ultimate
7 goal, a real and robust Zero Emission Vehicle Program.

8 I think It's important we have the debate. I
9 will be looking particularly today, and I'm sure my
10 colleagues will also, particularly from the industry, some
11 of the flexibility that we've given this program and
12 whether they intend to take care of some of that -- take
13 advantage of some of that flexibility, and also whether
14 they're committed to working with us in this continued
15 goal.

16 I was reminded just this week, as I was looking
17 at this program, there's somewhat jeopardy in going back
18 in this time of battle, et cetera, to John Lennon's
19 comment, "Give peace a chance." I would hope in this case
20 as we move ahead, give the engineers a chance. We need to
21 work together. We owe this to the people of California.
22 We owe it to ourselves.

23 So I hope that we can change the dialogue here.
24 And I certainly want to state that on behalf of myself and
25 my colleagues and for Secretary Hickox and the Governor,

1 we really want to work together to continue the progress
2 that has being made to date.

3 I'm sure we'll have a wide range of comments
4 today regarding staff's proposal. We don't have all the
5 answers. Staff doesn't have all the answers. But what
6 you cannot criticize is their effort, their desire to put
7 together to craft a program, to be the very strongest
8 possible, recognizing our lessons to date.

9 With that, I would like to turn it over to Ms.
10 Witherspoon to begin the staff's presentation.

11 EXECUTIVE OFFICER WITHERSPOON: Thank you,
12 Chairman Lloyd.

13 The ZEV Program is an integral part of ARB's
14 efforts to reduce emissions from passenger cars and
15 light-duty trucks. As part of our low-emission vehicle
16 program, the ZEV component seeks to commercialize new
17 vehicle technologies that eliminate not only tailpipe
18 emissions, but also emissions from evaporation and from
19 the in-use deterioration of vehicle emission-control
20 systems.

21 The current regulatory process before us today
22 was initiated in response to litigation and a court order
23 enjoining ARB from enforcing the 2001 ZEV amendments.
24 However, opening the regulation to cure its legal
25 deficiencies led to a broader staff evaluation of where

1 things stand and what else needs the Board's input and
2 potential correction. As such, this rulemaking became an
3 opportunity to address the current state of technology
4 development and ZEV percentage requirements in the near,
5 mid, and longer term.

6 The proposal before you today would eliminate all
7 references to efficiency and fuel economy in the ZEV rule,
8 substituting alternate credit mechanisms for ZEV-enabling
9 componentry.

10 The proposal would also create an alternative
11 compliance path to give auto manufacturers greater
12 flexibility; would establish a new independent review
13 panel, like our prior battery panel, to advise the Board
14 on the status of development of all ZEV technology types
15 as we move ahead; and would fix the number of smaller
16 implementation issues that have been brought to staff's
17 attention since the 2001 hearing.

18 If approved by the Board, the proposed amendments
19 would resolve the current legal issues in the federal
20 court case and would enable us to resume ZEV
21 implementation by 2005. The proposal also reduces ozone
22 precursor emissions to a greater degree than the 2001
23 amendments at a reduced cost.

24 Based on the outcomes I just described, staff
25 believes it has brought the Board a solid, balanced

1 proposal for proceeding with the ZEV regulation. In our
2 view the proposed changes are rational, reasonable and
3 defensible from a technological feasibility standpoint.

4 However, staff readily admits there is still a
5 great deal of controversy over what we have proposed from
6 both sides. The most prominent issue is whether the Board
7 should mandate a growing volume of pure ZEV technologies
8 in 2009 and beyond. There is also the perennial issue of
9 whether California should have a ZEV mandate at all.

10 The proposed changes to the ZEV regulation
11 reflect a series of very difficult discussions, both
12 internally and with interested stakeholders. Throughout,
13 staff's objective was to define changes that would
14 maintain pressure on the industry to pursue true ZEVs,
15 while acknowledging the challenges associated with the
16 current state of technology and its cost.

17 Staff believes the proposed modifications will
18 continue to advance pure ZEV technology research and
19 development, support the commercialization of ZEV-enabling
20 advanced technology vehicles, and achieve significant
21 criteria pollutant emission reductions.

22 Chuck Shulock of the Mobile Source Control
23 Division will now begin the staff's presentation.

24 VEHICLE PROGRAM SPECIALIST SHULOCK: Good
25 morning, Mr. Chairman and members.

1 I will begin our staff presentation with some
2 background on the zero-emission vehicle program and why
3 we're here today recommending changes.

4 Analisa Bevan and Craig Childers of our staff
5 will then describe the various proposed changes.
6 Following their summary I'll conclude our presentation
7 with a discussion of the major open issues and our staff
8 recommendation.

9 To set the stage for your consideration of
10 program changes I will first give you a brief recap of the
11 structure of the regulation and its goals. Next I will
12 summarize some of the achievements of the program to date.
13 I then will discuss why we believe that changes are needed
14 and the objectives that we had in mind when we prepared
15 our suggested modifications.

16 --o0o--

17 VEHICLE PROGRAM SPECIALIST SHULOCK: As you may
18 recall, the basic requirement is that 10 percent of the
19 vehicles sold by manufacturers must be ZEVs. Over the
20 course of its history this requirement has been modified
21 several times to provide additional flexibility and to
22 take advantage of emerging technologies. There are now
23 three categories of vehicles in the program.

24 At least 20 percent of the requirement, or 2
25 percent of sales, must be pure ZEVs, vehicles with no

1 tailpipe emissions. This is commonly referred to as the
2 gold category, and it's the circle on the left on the
3 slide before you.

4 Another 6 percent may be met by vehicles known as
5 partial zero-emission vehicles, or PZEVs. These are
6 extremely clean conventional gasoline vehicles. We refer
7 to this as the bronze category, in the upper right.

8 The third category, which may account for another
9 2 percent, consists of vehicles known as advanced
10 technology PZEVs, or AT PZEVs. These are vehicles that
11 meet the stringent criteria for PZEV status and also uses
12 ZEV-like technology such as electric drive or gaseous fuel
13 storage. This is known as the silver category.

14 --o0o--

15 VEHICLE PROGRAM SPECIALIST SHULOCK: This next
16 slide lists some of the vehicle types commonly found in
17 each category. The gold or pure ZEV category contains
18 vehicles with no emissions, such as battery EVs or
19 hydrogen-fuel-cell vehicles.

20 The silver category is home to advanced
21 technology PZEVs. Examples of such vehicle types include
22 CNG, hybrid electric, hydrogen internal combustion,
23 grid-connect hybrid, and methanol-fuel-cell vehicles.

24 The bronze category consists of basic PZEVs.
25 These are extremely clean gasoline vehicles and are also

1 quite advanced.

2 --o0o--

3 VEHICLE PROGRAM SPECIALIST SHULOCK: As a
4 starting point for our substantive discussion it's helpful
5 to take a step back and review the overall goals of the
6 ZEV Program.

7 First and foremost the program is designed to
8 achieve significant air quality benefits through
9 deployment of zero and near-zero emission vehicles. This
10 is achieved through the production and placement of a
11 variety of extremely clean vehicles in all three of the
12 program categories that I mentioned.

13 Second, the program pushes the research
14 development and deployment of zero-emission vehicles.
15 This is the focus of the pure ZEV, or gold portion of the
16 program.

17 Finally, the program seeks to encourage ZEV
18 commercialization through the introduction of ZEV-enabling
19 technologies such as hybrid electric and alternative fuel
20 vehicles. Such vehicles will develop a manufacturing and
21 supplier base for technologies that ultimately will be
22 used by pure ZEVs. This is the purpose of the silver
23 category.

24 --o0o--

25 VEHICLE PROGRAM SPECIALIST SHULOCK: Progress has

1 been made on each of these goals. Since its enactment in
2 1990 the ZEV Program has resulted in a number of benefits,
3 including significant efforts to advance battery
4 technology -- more than 2,500 full-sized Battery Electric
5 Vehicles leased or sold in California, plus many thousands
6 of Neighborhood Electric Vehicles -- ten near-zero
7 emission PZEV models currently certified; three hybrid
8 electric vehicles on sale and others announced; and air
9 quality benefits from the deployment of all of these
10 extremely clean vehicles.

11 --o0o--

12 VEHICLE PROGRAM SPECIALIST SHULOCK: Meanwhile
13 there have been other developments that are not directly
14 related to this regulation, but are working towards the
15 same end. The most noteworthy example is the California
16 Fuel Cell Partnership, which is a path-breaking
17 collaboration of auto companies, fuel providers, fuel cell
18 technology companies, and government agencies, that is
19 placing fuel cell electric vehicles on the road in
20 California. The partners include 20 companies and
21 organizations from around the world.

22 --o0o--

23 VEHICLE PROGRAM SPECIALIST SHULOCK: Another
24 recent event that is worthy of note is the announcement of
25 the Freedom Car and Fuel Initiative by the federal

1 government, as the Chairman mentioned.

2 This program will invest federal funds over the
3 next five years to develop hydrogen-powered fuel cells,
4 hydrogen infrastructure, and advanced automotive
5 technologies.

6 There have also been other national and
7 international commitments to ZEV technology. So in
8 general there is now considerable momentum behind the push
9 towards zero-emission vehicles.

10 So if all is proceeding so well, why are we here
11 before you recommending changes?

12 --o0o--

13 VEHICLE PROGRAM SPECIALIST SHULOCK: We have two
14 fundamental reasons. We would like to address legal
15 challenges that have been raised and we seek to better
16 align the regulatory requirements with technology and
17 market status.

18 --o0o--

19 VEHICLE PROGRAM SPECIALIST SHULOCK: First of
20 all, staff believes that it would be prudent to address
21 legal challenges that have been raised regarding the 2001
22 amendments. The first case is a federal preemption
23 lawsuit filed in January of 2002. On June 11, 2002, a
24 federal strict judge issued a preliminary injunction that
25 prohibits the ARB's executive officer from enforcing the

1 2001 ZEV amendments with respect to the sale of new motor
2 vehicles in the 2003 or 2004 model years. This is pending
3 final resolution of the case.

4 Two other lawsuits have been filed in state
5 court, one addressing broader aspects of the regulation
6 and one challenging the date by which vehicles must be
7 placed in service in order to qualify for early
8 introduction multipliers.

9 Staff also believes that there is a need to
10 better align the regulatory requirements with technology
11 and market status. The next few slides go through this
12 issue in more detail.

13 With respect to Battery Electric Vehicles, during
14 the 2001 rulemaking staff estimated an incremental cost of
15 \$7,000 to \$9,000 in volume production for battery packs
16 sufficient in size to power full function vehicles. Since
17 that time there have been advances in cycle life which
18 would increase the life of the battery pack and thereby
19 reduce or eliminate the need to purchase a replacement
20 pack. Even so, however, cost challenges remain.

21 In addition, based on recent experience the
22 sustainable demand for Battery Electric Vehicles in the
23 near term appears to be small.

24 As a result of these issues and their own
25 judgment as to the long-term commercialization prospects,

1 major manufacturers have now ceased production of Battery
2 Electric Vehicles.

3 Later on today you will hear testimony by Dr.
4 Menahem Anderman, one of the experts who served on our
5 2001 Battery Technical Advisory Panel. Staff contracted
6 with Dr. Anderman to assess whether in his view the
7 conclusions reached by the battery panel in 2001 still
8 hold. And he'll provide his testimony later.

9 --o0o--

10 VEHICLE PROGRAM SPECIALIST SHULOCK: On the fuel
11 cell side there is considerably more optimism and
12 activity. The technology shows great promise and
13 manufacturers appear to see a business case that they will
14 eventually be able build the vehicles at a cost the market
15 will bear.

16 Clearly, however, there are significant costs,
17 manufacturing, and performance challenges that stand in
18 the way. The bottom line is that fuel cell ZEVs are not
19 yet ready for volume production.

20 In summary then it is staff's view that
21 additional development is needed before any ZEV technology
22 will be ready for mass deployment. As a result, the 2001
23 requirements are too ambitious. This has several
24 implications. First of all, because it is not feasible to
25 produce fuel cell vehicles at the numbers needed to fully

1 satisfy the 2001 requirement, some manufacturers would in
2 effect be forced to restart battery EV production
3 regardless of their views as to the long-term prospects
4 for commercial success. This is difficult to sustain and
5 could also have the undesirable effect of diverting
6 engineering resources away from meeting fuel cell
7 challenges.

8 There's one other point that I would like to
9 emphasize here, one that is central to the staff's view of
10 how to proceed. The pace of future technical development
11 is very difficult to predict, particularly for the
12 significant development steps that are relevant here.
13 Minor near-term vehicle improvements, such as those needed
14 to meet incrementally more stringent tailpipe standards,
15 follow a well understood path and, in general, have been
16 achieved more quickly and at less cost than the original
17 staff estimates.

18 Going to zero is different. Bringing a
19 fundamentally different technology such as battery
20 electric or fuel cell vehicles to market requires
21 advancements on a number of fronts. And experience to
22 date has shown that these developments do not necessarily
23 proceed at the pace predicted by staff.

24 --o0o--

25 VEHICLE PROGRAM SPECIALIST SHULOCK: In contrast,

1 progress in the silver category has been dramatic. There
2 are CNG vehicles in commercial production. Three hybrid
3 electric vehicles are on the market today and others have
4 been announced. These vehicles are not all PZEVs, but in
5 most cases there are no significant technical barriers to
6 achieving PZEV status and we expect that future versions
7 would qualify.

8 Other AT PZEV technologies are not yet
9 commercialized but are receiving attention. Hydrogen
10 internal combustion vehicles have been demonstrated by
11 several automakers. And plug-in hybrid vehicles are being
12 actively studied in a variety of settings.

13 --o0o--

14 VEHICLE PROGRAM SPECIALIST SHULOCK: PZEVs are
15 also achieving considerable success. Ten models have been
16 certified. And our best information is that some 140,000
17 PZEVs are expected to be sold in model year 2003.

18 In our meetings with automakers we're sometimes
19 told that PZEV technology does not get the respect it
20 deserves. So let me emphasize for the record here that
21 the emission performance of these vehicles is remarkable
22 and represents a significant achievement on the part of
23 the automakers. Such vehicles likely would not exist if
24 we had not had the technology forcing function of the ZEV
25 mandate. So the widespread deployment of these vehicles

1 is one of the program's early achievements.

2 --o0o--

3 VEHICLE PROGRAM SPECIALIST SHULOCK: With all of
4 that as a back drop I would now like to share with you the
5 objectives that we as staff are hoping to achieve with
6 these modifications.

7 First of all, we want to restart the program.
8 Restarting the program has obviously benefits. It will
9 allow us to take maximum advantage of the technologies
10 that are in showrooms today and, thereby, capture the
11 greatest possible air quality benefit. It will also help
12 build the manufacturing and supplier base for future pure
13 ZEV technologies.

14 --o0o--

15 VEHICLE PROGRAM SPECIALIST SHULOCK: Our next
16 major objective has already been mentioned. We want to
17 avoid a mismatch both now and in the long term between the
18 program requirements and the technology status.

19 --o0o--

20 VEHICLE PROGRAM SPECIALIST SHULOCK: Next we want
21 to ensure that the program recognizes successful
22 compliance under the 2001 rules. Those manufacturers that
23 move forward under the 2001 rules should not be forced to
24 revise their plans.

25 Finally, we want to provide a pathway that

1 recognizes the aggressive pursuit of fuel cell
2 commercialization as a viable compliance options. In
3 other words if a manufacturer wants to pursue fuel cell
4 development and not simultaneously pursue battery EVs, in
5 the staff view that should be adequate.

6 That concludes my introduction. I will now turn
7 it over to Analisa Bevan, who will begin our summary of
8 the proposed amendments.

9 ZEV IMPLEMENTATION MANAGER BEVAN: Thank you,
10 Chuck.

11 I'd like to begin by reviewing the process by
12 which staff has developed the proposal before you today.
13 As Mr. Shulock described, a set of events and issues
14 combined to cause the staff to recommend regulatory
15 amendments to the ZEV Program.

16 --o0o--

17 ZEV IMPLEMENTATION MANAGER BEVAN: Starting in
18 the fall of 2002 the staff issued a straw-man proposal
19 outlining possible changes to the regulation for
20 stakeholders' consideration prior to a December workshop.
21 The well-attended workshop provided valuable feedback to
22 staff going into the development of an initial statement
23 of reasons and proposed regulatory amendments which were
24 issued on January 10th, 2003, for a 45-day comment period.

25 In the initial statement of reasons staff

1 amendments that, when looking at the regulation as a
2 whole, balance the program.

3 The ZEV regulation requirements were set to begin
4 in 2003. Subject to federal and state preliminary
5 injunctions, the Board is prevented from implementing or
6 enforcing the regulation for the 2003 and 2004 model
7 years. Although staff's intent in proposing amendments to
8 the regulation is to address the legal issues that brought
9 about these injunctions, it is believed that the earliest
10 practical start date for the program is now 2005. A 2005
11 program start allows adequate lead time.

12 When considering a modification in the program
13 start, staff had two choices: To shift the program out
14 two years, including application of phase-in multipliers
15 and early introduction credits; or to start in 2005 as if
16 resuming the 2001 amendments. The staff proposes the
17 later approach, as it resumes the pace of the program
18 rather than delaying completely the benefits and progress
19 of the program.

20 Linked to both the restart date of the regulation
21 and to the current status of manufacturer actions to
22 comply with the regulation is the expectation of how many
23 of what kind of vehicles California can expect to see in
24 the coming years.

25 One of the issues identified through staff's

1 development process was the existence of substantial
2 banked ZEV credits resulting from production in the years
3 prior to the regulation start up. These banked credits
4 provide manufacturers with the ability to comply solely
5 with banked credits rather than with new vehicle
6 production for some years into the program.

7 It was suggested that the Board consider a
8 requirement for new vehicle production beginning in 2005
9 to ensure continued product availability. The
10 counter-opinion to that suggestion was that for those
11 manufacturers who have expended considerable effort to
12 build up credit balances to ensure compliance strategy for
13 their company, changing the rules in such a fundamental
14 way was not fair. The Board had, after all, heavily
15 incentivized early production in the hopes that
16 manufacturers would provide -- would begin to build market
17 for ZEVs prior to the implementation date.

18 In response to these comments, staff devised a
19 two-path system referred to as the base path and the
20 alternative compliance path.

21 --o0o--

22 ZEV IMPLEMENTATION MANAGER BEVAN: The base path
23 preserves the category structure of the 2001 amendments.
24 Shown in this slide is a summary of the make up of the
25 credit category structure for the ZEV Regulation. Of the

1 10-percent compliance obligation manufacturers must meet
2 at least 2 percent with gold credit vehicles.
3 Manufacturers may meet up to 2 percent of their obligation
4 with silver vehicles. And up to 6 percent of a
5 manufacturer's obligation maybe met with bronze vehicles.

6 The structure described in the previous slide
7 applies to model years 2005 through 2008.

8 --o0o--

9 ZEV IMPLEMENTATION MANAGER BEVAN: As amended in
10 the 2001 Board hearing, the overall percentage
11 requirements increase over time, eventually reaching 16
12 percent in 2018.

13 The bronze category percentage stays constant at
14 6 percent, and the remainder of the obligation is split
15 between gold and silver categories.

16 --o0o--

17 ZEV IMPLEMENTATION MANAGER BEVAN: As I
18 mentioned, the 2001 amendment category structure is
19 preserved for those manufacturers choosing to take the
20 base path. The base path also preserves a manufacturer's
21 ability to use banked credits to meet all or part of their
22 ZEV compliance obligation.

23 At this time staff are aware of some
24 manufacturers who are able to comply with the base path
25 with banked credits through 2008. Under these

1 circumstances it may be attractive for these manufacturers
2 to use the base path.

3 The other option offered to manufacturers under
4 staff's proposal is called the alternative compliance
5 path. The alternative compliance path was conceived as an
6 improved approach to achieving the goals of the ZEV
7 Program, as outlined earlier by Mr. Shulock.

8 --o0o--

9 ZEV IMPLEMENTATION MANAGER BEVAN: A manufacturer
10 choosing the alternative compliance path must produce
11 their market share of 250 Type 3 ZEVs or fuel cell
12 vehicles between 2001 and 2008. In exchange for this
13 floor production of new vehicles, manufacturers may meet
14 their remaining gold requirement with silver vehicles. If
15 a manufacturer chooses to change paths from the base to
16 the alternative at any time during the 2005 through 2008
17 phase, they must produce the entire market share
18 obligation of Type 3 ZEVs by 2008.

19 The alternative compliance path supports the ZEV
20 Program goals through challenging manufacturers to commit
21 significant quantities of pure ZEVs to support emerging
22 ZEV technology through this developmental phase, pressing
23 increased silver category production to support ZEV
24 technology development and increasing the air quality
25 benefits of the program.

1 Staff's proposal does not lay out a requirement
2 for ZEVs after the 2008 demonstration stage. Instead
3 staff recommends a process through which the Board would
4 determine the appropriate next step in ZEV
5 commercialization.

6 --o0o--

7 ZEV IMPLEMENTATION MANAGER BEVAN: In this slide
8 I've illustrated the market share obligation of 250
9 vehicles by manufacturer. Under the alternative
10 compliance path these are the total volumes each
11 manufacturer would be responsible for in the 2001 through
12 2008 timeframe.

13 --o0o--

14 ZEV IMPLEMENTATION MANAGER BEVAN: As I
15 mentioned, the proposed requirement for pure ZEVs in the
16 post-2008 timeframe is yet to be determined. The key
17 purpose of most technology development and demonstration
18 stages is to learn from them before moving on to the next
19 stage of development or commercialization.

20 Staff is recommending that the Board take this
21 approach with the ZEVs. To accomplish this staff
22 recommends that the Board establish an independent expert
23 review panel comprised of independent automotive experts
24 who do not have industry ties to assess ZEV technologies
25 and report back to the Board prior to the establishment of

1 the next phase of ZEV requirements.

2 --o0o--

3 ZEV IMPLEMENTATION MANAGER BEVAN: Staff proposes
4 that the independent expert review panel review all ZEV
5 technologies and enabling technologies to assess their
6 technological readiness and their commercialization
7 readiness. Clearly in the case of fuel cell technology,
8 the California Fuel Cell Partnership will be a key
9 resource of learning and information for the Board and for
10 the independent expert review panel.

11 --o0o--

12 ZEV IMPLEMENTATION MANAGER BEVAN: The
13 independent expert review panel would report to the Board
14 sufficiently before the Board would need to take action to
15 set requirements for the post-2008 timeframe. I would
16 like to point out that it is not expected that the
17 independent expert review panel would make recommendations
18 to the Board regarding the next phase of requirements, but
19 rather the panel would provide the Board with information
20 and tools necessary for the Board to determine the
21 appropriate course of action.

22 --o0o--

23 ZEV IMPLEMENTATION MANAGER BEVAN: I will turn
24 now to a discussion of the methods proposed to calculate
25 credit for various types of vehicles under the proposal.

1 Staff are proposing changes to both the gold and the
2 silver credit calculations to remove efficiency
3 multipliers and generally improve comparison of technology
4 types.

5 --o0o--

6 ZEV IMPLEMENTATION MANAGER BEVAN: In the 2001
7 amendments the credit received by a gold category vehicle
8 was calculated based on its range and its efficiency. In
9 early implementation, the more range a vehicles had, the
10 higher the credit. As the program matured, the grange
11 multiplier was phased out and replaced by an efficiency
12 multiplier.

13 In removing the efficiency multiplier staff has
14 simplified the calculation of gold vehicle credit by
15 establishing ZEV types, described in detail on the next
16 slide. Each ZEV type earns a specified credit, and
17 credits for all ZEV types are phased down over time.

18 --o0o--

19 ZEV IMPLEMENTATION MANAGER BEVAN: Five new ZEV
20 types are proposed. Their definitions are based on range
21 and on fast refueling capability.

22 NEVs remain a part of the gold category. NEVs
23 are classified as low-speed vehicles with a top speed of
24 25 miles per hour. They are restricted to use on roadways
25 with speed limits of 35 miles per hour or less.

1 Staff is not proposing to change the credit
2 structure established in the 2001 amendments. To date a
3 number of NEV models have been marketed.

4 Type Zero NEVs are described as utility ZEVs. A
5 Type Zero ZEV is a ZEV with a range of less than 50 miles.
6 At this time there are no examples of Type Zero ZEVs and,
7 frankly, staff doesn't expect such vehicles to be
8 developed or marketed. The definition is created for
9 completeness.

10 --o0o--

11 Type 1 ZEVs are ZEVs with range between 50 and
12 100 miles. They are not capable of fast refueling.
13 Typically we think of city electric vehicles as fitting
14 into this category. Limited demonstrations of this type
15 of EV have been conducted to date, and we are not aware of
16 any active production for the California market.

17 Type 2 ZEVs are defined as having driving range
18 greater than 100 miles and are not fast refueling capable.
19 Example Type 2 ZEVs are what we call full function
20 electric vehicles. Significant demonstration and
21 marketing has been conducted with these vehicles in
22 California to date, thanks to the memorandum of agreement
23 with the six largest manufacturers and to pre-regulation
24 ZEV production. At this time there is no current
25 marketing of Type 2 ZEVs in California.

1 Type 3 ZEVs are defined as having greater than
2 100 miles driving range and are fast refueling capable.
3 Examples of such vehicles would be hydrogen fuel cell
4 vehicles. Demonstration of prototype and pre-commercial
5 models has been conducted to date, with significant
6 development work underway to ultimately reach production
7 volumes.

8 --o0o--

9 ZEV IMPLEMENTATION MANAGER BEVAN: This table
10 lays out the credits proposed per vehicle for each ZEV
11 type. The credits earned by each ZEV type phase down over
12 time. And as can be seen in the 2012 timeframe, Type 3
13 fuel cell vehicles are earning the same credit as Type 2
14 Battery Electric Vehicles.

15 I will now turn the presentation to Craig
16 Childers for a description of the proposed amendments to
17 the calculation of credits for silver vehicles.

18 MR. CHILDERS: Thank you, Analisa.

19 The next set of slides deals with proposed
20 changes to the AT PZEV portion of the regulation.

21 I will close with several specific examples to
22 illustrate the effect of the changes we are proposing.

23 AT PZEV credit is intended to encourage the
24 development, deployment, and increased production
25 efficiencies of technologies that contribute to the

1 commercialization of pure ZEV vehicles.

2 AT PZEVs earn a PZEV base credit of .2, but they
3 also earn an additional credit in three attribute
4 categories. These are zero emission range credit,
5 advanced ZEV componentry credit, and low fuel cycle
6 emissions credit.

7 The most desirable AT PZEV attribute is for
8 vehicles that demonstrate zero emission range. Vehicles
9 capable of traveling 10 or more miles with zero emissions
10 or those with zero emissions of 1 regulated pollutant are
11 eligible for this credit.

12 The next AT PZEV attribute, advanced ZEV
13 componentry, rewards vehicles with components that are
14 either shared with ZEVs or lead to the development of
15 components that are needed for ZEVs. These include hybrid
16 electric drive systems and gaseous or hydrogen fuel
17 storage systems.

18 --oOo--

19 MR. CHILDERS: With hybrids the electric drive
20 systems are smaller versions of the same systems that will
21 be used in ZEVs. In several soon-to-be-introduced hybrid
22 electric vehicles the drive components will be large
23 enough for direct application in city EVs.

24 The final AT PZEV attribute, low fuel cycle
25 emissions, assigns credit to vehicles which make use of

1 fuels with low production and fueling infrastructure
2 emissions. These include hydrogen, methanol, and natural
3 gas.

4 --o0o--

5 MR. CHILDERS: Staff proposes modifications to
6 all three of these AT PZEV credit components.

7 Staff proposes to change the method for
8 determining advanced componentry credit for hybrid
9 electric vehicles. In the 2001 amendments hybrid electric
10 vehicles earned credit according to CO2 reduction, percent
11 peak power, or efficiency.

12 In the proposed amendments credit is based only
13 on the attributes of the electric drive system, including
14 system voltage, peak power rating, and other ZEV-like
15 attributes.

16 Staff believes hybrid vehicles exhibiting these
17 attributes are ZEV enabling because they lead directly to
18 performance improvements and more cost-effective electric
19 drive systems for ZEVs.

20 Qualifying hybrid drive systems must also
21 demonstrate the ability to provide traction drive boost,
22 regenerative braking, an idle stop-start capability.
23 These are all ZEV features which staff would like to
24 encourage in hybrids.

25 --o0o--

1 MR. CHILDERS: Staff proposes to assign
2 hybrids -- qualifying hybrids to three categories. These
3 are: Low voltage / low power, high voltage, and high
4 voltage / high power.

5 The top two rows of this table describe the
6 system voltages and peak power levels for each hybrid
7 type. All three types of hybrids must exhibit the ZEV
8 attributes shown in the next three rows of the table.

9 Low voltage systems operate at 60 volts or less
10 and feature an electric drive system with at least four
11 kilowatt maximum output. Forty-two volt starter generator
12 systems are expected to become commonplace in the next ten
13 years. And many of these hybrids would qualify in this
14 first category.

15 Low voltage hybrids will not earn advanced
16 componentry credit, but they will count towards AT PZEV
17 obligations through model year 2008.

18 The second hybrid category, or high voltage
19 hybrid, must have drive systems with at least 10 kilowatt
20 rated output. An example of this class of hybrid is the
21 Honda Civic HEV.

22 The third category, high voltage / high power,
23 are those with high voltage drive systems and at least 50
24 kilowatt rated power output. An example of this hybrid is
25 the upcoming Lexus RX330 HEV. Note, that these high power

1 drive systems would be appropriate for use as stand-alone
2 drive systems in small full-function ZEVs and would be
3 more than adequate in city-class ZEVs.

4 The total AT PZEV credit shown on the bottom row
5 of this table also includes the base credit of .2 that is
6 earned by all PZEVs.

7 The HEV advanced componentry credit values shown
8 are for model year 2005 through 2007. These values
9 decrease in two steps and end up at .25 and .35 in model
10 year 2012.

11 --o0o--

12 MR. CHILDERS: Staff also proposes several other
13 modifications to AT PZEV credit determination.

14 For zero emission range credit the formula for
15 credit determination has changed, and the maximum credit
16 has been capped at 1.5.

17 Advanced componentry credit may now be combined
18 with the zero emission range credit, where formerly these
19 were alternate options.

20 Hydrogen storage technology credit has increased
21 from .2 to .3. And buy-fuel storage systems that store
22 hydrogen now also earn .3 credit.

23 The battery warranty requirements for hybrids has
24 been reduced from 15 year / 150,000 miles to 10 year /
25 150,000 miles.

1 --o0o--

2 MR. CHILDERS: Finally, staff proposes that the
3 maximum low fuel cycle emissions credit be increased from
4 .2 to .3.

5 The next several slides illustrate the combined
6 effect of these proposed changes for some selected AT
7 PZEVs.

8 --o0o--

9 MR. CHILDERS: This table shows how the proposed
10 modifications would affect credit determination for
11 compressed natural gas vehicles. Again, all AT PZEVs earn
12 the same .2 base credit as PZEVs, but with additional
13 credit for zero emission range, advanced componentry, and
14 low fuel cycle emissions.

15 CNG AT PZEVs would benefit from increases in both
16 the advanced componentry and low fuel cycle emissions
17 credits, resulting in an overall credit increase from .5
18 to .7. An example of a dedicated CNG production vehicle
19 eligible for this credit is the Honda Civic GX shown on
20 this slide.

21 --o0o--

22 MR. CHILDERS: This table shows how the proposed
23 modifications would affect credit determination for
24 hydrogen internal combustion engine vehicles. Hydrogen
25 ICEs benefit from increases in each of the AT PZEV

1 attribute credits. And from the proposed change that
2 would allow them to earn credit for both zero emission
3 range and advanced componentry.

4 The bottom row of this table also shows credit
5 that would be earned by hybrid electric hydrogen internal
6 combustion vehicle. Because of an additional .5 credit
7 for advanced componentry for its electric drive system,
8 total credit would increase from 2.3 to 2.7, which is more
9 than 4 1/2 times the credit for a gasoline hybrid.

10 An example of a hydrogen ICE hybrid electric
11 vehicle that could be eligible for this credit would be
12 the prototype Ford Model U shown on the slide.

13 --o0o--

14 MR. CHILDERS: Plug-in hybrid electric vehicles
15 also benefit from proposed modifications in each AT PZEV
16 category. But their largest increase comes from the
17 opportunity to earn both zero emission range and advance
18 componentry credit.

19 Credit values shown in this table are for a P20,
20 or plug-in hybrid, capable of 20 miles of all-electric
21 range. This hybrid would earn 3 1/2 times more credit
22 than a conventional hybrid. An example of a plug-in HEV
23 is this UC Davis prototype built on a Ford Explorer
24 platform.

25 --o0o--

1 MR. CHILDERS: The last proposed change to AT
2 PZEV credit is to extend the early introduction
3 multipliers for emerging technology vehicles. All of the
4 previous slides have discussed raw AT PZEV credit without
5 the application of early intro multipliers.

6 This chart shows the overall AT PZEV credits
7 earned after the application of early intro multipliers
8 for a variety of AT PZEV types.

9 The emerging technology vehicles shown in the
10 upper group on this chart all earn zero emission range
11 credit. And they include the hydrogen ICE, plug-in
12 hybrids, and indirect methanol fuel cell vehicles. The
13 lower set of lines represents CNG and non-plug hybrids,
14 which have already been commercialized by some automakers.

15 Staff proposes to extend the early introduction
16 multiplier for the emerging technology AT PZEVs so that a
17 multiplier of 6 is now applied through 2008. This results
18 in approximately 20 times more credit for a P20 plug-in
19 hybrid than that for a non-plug hybrid.

20 --o0o--

21 MR. CHILDERS: The early introduction multiplier
22 of 3 is now extended through 2011 for the emerging
23 technology group, which means that a P20 plug-in hybrid
24 would earn about 10 times more credit than a non-plug
25 hybrid.

1 And, finally, eventually all AT PZEVs earn less
2 than 3 credits, with the hydrogen ICE and grid hybrids
3 earning somewhere between 2 and 3 credits.

4 Now, Analisa Bevan will continue and discuss the
5 remaining proposed amendments.

6 ZEV IMPLEMENTATION MANAGER BEVAN: Thank you,
7 Craig.

8 --o0o--

9 ZEV IMPLEMENTATION MANAGER BEVAN: Another issue
10 resulting from the delay in program start-up was the
11 potential loss of emission benefits that could be gained
12 from early production of bronze vehicles. With the
13 regulation so close to implementation before the
14 preliminary junctions, many manufacturers had already
15 demonstrated and began marketing of PZEVs. With the
16 program start delayed until 2005 staff was interested in
17 finding a way to incentivize manufacturers to maximize
18 production of PZEVs prior to the regulations start date.

19 If a manufacturer produces 2003 and/or 2004 PZEV
20 credits in excess of 6 percent of their sales volume,
21 staff proposes that those excess credits be allowed to be
22 used as silver credits for the 2005 and 2006 model years.
23 It is hoped that this incentive will encourage
24 manufacturers to maximize their PZEV marketing efforts in
25 these early years.

1 --o0o--

2 ZEV IMPLEMENTATION MANAGER BEVAN: As described
3 in my overview, staff also proposed a number of clarifying
4 and balancing amendments. Several amendments are proposed
5 to clarify the Board's intent with regard to specific
6 elements of the regulation as demonstrated by issues that
7 have arisen since the adoption of the 2001 amendments. A
8 number of additional amendments are proposed that balance
9 out the regulation, given the more major amendments
10 already described.

11 I will now briefly cover the more significant
12 proposals.

13 --o0o--

14 ZEV IMPLEMENTATION MANAGER BEVAN: Under Section
15 177 of the Clean Air Act other states may adopt
16 California's motor vehicle standards. Several states,
17 including New York and Massachusetts, have chosen to adopt
18 the low emission vehicle NCEV regulations. This has the
19 effect of increasing a manufacturer's compliance
20 obligation with respect to ZEV production. The
21 manufacturers have referred to this issue as travel.

22 When the Board considers vehicle regulations,
23 consideration of technological feasibility is often a key
24 component in judging a proposal's appropriateness. When
25 considering the goals of the ZEV Program, staff have

1 identified a target vehicle volume for Type 3 ZEVs under
2 the alternative compliance path that is considered
3 feasible.

4 However, if that volume requirement is applied to
5 all states with a ZEV Program, the total number of Type 3
6 ZEVs increases by 1.7 times, to 425 fuel cell vehicles.

7 Under a demonstration and development phase such
8 as the alternative compliance path, staff questions the
9 incremental benefit of the increased volume required in
10 this scenario. Therefore, staff is proposing to address
11 the issue of travel by allowing Type 3 ZEVs placed in any
12 state that has adopted the ZEV regulation to count towards
13 compliance with California's obligation. In this proposal
14 a fuel cell vehicle placed in New York would count towards
15 a manufacturer's requirement to place their market share
16 of 250 fuel cell vehicles under the alternative compliance
17 path.

18 --o0o--

19 ZEV IMPLEMENTATION MANAGER BEVAN: In 2001 the
20 Board directed staff to include the Light-Duty Truck 2
21 category in manufacturers' sales base for calculation of
22 ZEV obligations. Since that time issues have been raised
23 regarding the Board's intent with regard to that directive
24 and with noticing requirements for that rulemaking.
25 Therefore, staff is asking the Board to reaffirm inclusion

1 of the Light-Duty Truck 2 category in the sales base in
2 this rulemaking.

3 --o0o--

4 ZEV IMPLEMENTATION MANAGER BEVAN: In the 2001
5 amendments the Board recognized significant value in
6 establishment of intelligent transportation systems
7 utilizing ZEV Program vehicles by awarding additional ZEV
8 credit for such programs. The availability of such
9 credits was to sunset in 2008. Staff continues to support
10 development of transportation systems using ZEV Program
11 vehicles and proposes to extend the availability of extra
12 credits for transportation systems until 2011.

13 --o0o--

14 ZEV IMPLEMENTATION MANAGER BEVAN: The ZEV
15 regulation provides an incentive to manufacturers to
16 produce and place ZEVs early through application of early
17 introduction multipliers. These multipliers are applied
18 only when a vehicle is placed in service.

19 In the past year there have been discussions
20 regarding the date by which a vehicle must be placed in
21 service in order to earn the early introduction
22 multipliers.

23 In order to address these issues, on November
24 21st, 2002, the executive officer issued a letter to
25 affected vehicle manufacturers, informing them that early

1 introduction credits would be available through March
2 31st, 2003, with a similar sell-through period for the
3 remainder of the early introduction credits.

4 On December 24th, 2002, a lawsuit was filed by
5 Daimler-Chrysler and General Motors, and a Fresno court
6 judge issued a temporary restraining order enjoining ARB
7 from implementing the provisions of the November advisory.

8 To provide regulatory certainty and clarification
9 on this issue the staff proposes a modification providing
10 that a 2001-2002 model year ZEV qualifies for early
11 introduction multipliers if placed in service by September
12 30th, 2003.

13 Staff proposes that for 2003 subsequent model
14 year ZEVs a vehicle be considered placed in service for
15 purposes of application of multipliers if placed in
16 service in California by June 30th following the
17 applicable model year. Staff believes this is appropriate
18 in light of the challenges faced in placing ZEVs and the
19 expectations of manufacturers regarding the application of
20 the regulation.

21 --o0o--

22 ZEV IMPLEMENTATION MANAGER BEVAN: The 2001
23 amendments established a cap on the use of NEV credits
24 banked from model years 2001 through 2005.

25 Beginning in model year 2006 manufacturers could

1 satisfy no more than 75 percent of any program category,
2 gold, silver, or bronze, using banked NEV credits. The
3 maximum allowable use of banked NEV credits decreased to
4 50 percent in any program category for the 2007 and later
5 model years.

6 Staff proposes amendments removing the caps from
7 the bronze category and delaying the imposition of the cap
8 until 2009 silver category. Thus under the modifications
9 manufacturers could satisfy no more than 75 percent of the
10 AT PZEV category using banked NEV credits in the 2009
11 model year, with the percentage decreasing to 50 percent
12 in 2010 and subsequent years.

13 Staff proposes this change in order to ensure
14 some minimum level of AT PZEV production in 2009 and later
15 years without regard to the availability of NEV credits,
16 while providing lead time and flexibility in the years
17 prior to 2009 for manufacturers that may not have
18 sufficient AT PZEV products available in that timeframe.

19 The 2001 amendments did not include severability
20 clauses. A severability clause expresses the intent that
21 if one element of a regulation is invalidated, the
22 remainder can still be enforced. The key question before
23 a court considering the severability of a portion of a
24 regulation is what would the agency have done if precluded
25 from adopting the invalid provision.

1 --o0o--

2 ZEV IMPLEMENTATION MANAGER BEVAN: The federal
3 court trial held that the AT PZEV provisions for hybrid
4 electric vehicles were not severable. It was not clear to
5 the Court whether the Board would have proceeded with the
6 regulation if the regulation did not result in improved
7 fuel economy.

8 Additionally, it appeared that the AT PZEV
9 provisions were critical to intended reductions in the
10 number of pure ZEVs.

11 --o0o--

12 ZEV IMPLEMENTATION MANAGER BEVAN: The proposed
13 regulation amendments contain both a general severability
14 clause and an additional clause specifically addressing AT
15 PZEV provisions on hybrids. The proposed resolution
16 contains a finding that if AT PZEV provisions are found
17 preempted, the Board chooses to enforce the remainder of
18 the 2003 amendments rather than falling back on the
19 current ZEV regulation if enforcement and implementation
20 have been enjoined.

21 This concludes our summary of proposed changes.
22 I will now turn the presentation back to Mr. Shulock to
23 summarize the impacts and issues surrounding the proposed
24 amendments.

25 VEHICLE PROGRAM SPECIALIST SHULOCK: Thank you,

1 Analisa and Craig.

2 There'll be a pop quiz on all of this in
3 mid-afternoon, so study up.

4 The final section of our presentation begins with
5 a summary of the effects of the proposed changes in terms
6 of the number of vehicles and air quality. We will then
7 devote a fair amount of attention to the major issues that
8 are facing you today. We will conclude with our staff
9 recommendation.

10 Regarding the number of vehicles, the most
11 important point to bear in mind is that it is not possible
12 to provide firm estimates. The program provides great
13 flexibility, and thus the outcome will vary according to
14 different strategies that manufacturers might pursue.

15 In addition, in our staff proposal the post-2008
16 ZEV requirement under the alternative compliance option is
17 yet to be determined.

18 In broad terms, however, the overall effect of
19 the staff proposal is to reduce the number of ZEVs and
20 increase the number of AT PZEVs. The number of PZEVs is
21 not significantly affected by our proposal.

22 --oOo--

23 VEHICLE PROGRAM SPECIALIST SHULOCK: Bearing in
24 mind that any estimates are uncertain, we have put
25 together scenarios that allow us to make an

1 apples-to-apples comparison of the effect of different
2 regulatory approaches. This slide presents an overview of
3 the total number of extremely clean vehicles -- ZEVs, plus
4 AT PZEVs, plus PZEVs -- using one such set of assumptions.
5 The slide compares production under the 2001 regulation
6 and the 2003 revised staff proposal.

7 As you can see, the total number of clean
8 vehicles increases under the 2003 staff proposal. This is
9 due to the fact that silver category vehicles can be used
10 in place of gold. And this is not a one-for-one
11 substitution. Rather, several AT PZEVs are needed to
12 replace one ZEV.

13 I'll speak to some of the underlying assumptions
14 in more detail in a minute.

15 --o0o--

16 VEHICLE PROGRAM SPECIALIST SHULOCK: Looking
17 specifically at ZEVs, on the base path the requirement is
18 2 percent in the gold category, increasing over time.
19 Banked credits may be used to fulfill that obligation.
20 This is the same approach as was used in the 2001
21 regulation.

22 On the alternative compliance path the total
23 across all large manufacturers would be 250 fuel cell
24 vehicles 2001 and 2008 if all manufacturers choose this
25 option.

1 The production level for 2009 and beyond would be
2 determined by the Board following input from the
3 independent expert review panel.

4 --o0o--

5 VEHICLE PROGRAM SPECIALIST SHULOCK: For AT PZEVs
6 in the near term the number that will be produced will
7 depend on the manufacturer's capability to produce such
8 vehicles and their strategy regarding the use of banked
9 credits.

10 In the long term the AT PZEV total will change in
11 response to the gold requirement or ZEV requirement that
12 is in effect at that time.

13 This slide shows more specifically the number of
14 AT-PZEVs that would be produced using our base case
15 assumptions under the staff proposal versus under the 2001
16 regulation. Again, the increase under the 2003 proposal,
17 the upper line, is due to AT PZEVs being substituted for
18 ZEVs. In this illustration there is complete
19 substitution. There is no ZEV requirement in the
20 out-years. This assumes that the Board never takes an
21 action to impose a ZEV requirement under the alternative
22 compliance strategy for 2009 and beyond. We recognize
23 that this is not likely to occur, but would show the case
24 as a bounding exercise.

25 --o0o--

1 VEHICLE PROGRAM SPECIALIST SHULOCK: This slide
2 looks in more detail at the interaction between the ZEV
3 requirements and the number of AT PZEVs. The top line,
4 called -- and it might not be visible -- but called "full
5 use of silver and gold," corresponds to the no-ZEV
6 requirement case that you were just shown. This assumes
7 full substitution of silver for gold throughout the life
8 of the program.

9 The bottom line, entitled "no use of silver and
10 gold based program," shows the AT PZEV totals if one
11 assumes that ZEV technology continues to advance, and as a
12 result there's a 2 percent gold requirement in effect in
13 all years. As you can see, having a larger gold
14 requirement dramatically reduces the number of silver
15 vehicles.

16 In summary, under the staff proposal the AT PZEV
17 numbers would be at least as high as under the 2001
18 regulation and even higher to the extent that silver
19 vehicles continue to be allowed to substitute for gold.

20 --o0o--

21 VEHICLE PROGRAM SPECIALIST SHULOCK: From an air
22 quality standpoint the 2003 proposal results in additional
23 emission reductions as compared to the 2001 regulation.
24 This difference is driven by the assumed increase in AT
25 PZEV production that I just discussed.

1 For ROG the proposal results in an additional .03
2 tons per day in 2010 and .04 tons per day in 2020. For
3 NOx the results are .06 and .17 tons per day,
4 respectively.

5 --o0o--

6 VEHICLE PROGRAM SPECIALIST SHULOCK: A
7 different -- the gold and silver procedures -- would lead
8 to somewhat different results.

9 The final portion of our staff presentation we'll
10 walk through some of the major issues related to the staff
11 proposal. Ms. Witherspoon mentioned some of these at the
12 beginning. I will focus on four:

13 The size of the ZEV requirement under the
14 alternative compliance option in model years 2009 and
15 beyond, the role of battery electric vehicles, the
16 long-term production levels for silver vehicles, and the
17 possibility of granting ZEV credit for infrastructure.

18 In each case I will describe the issue, summarize
19 stakeholder views, outline the options available, and
20 provide our staff response.

21 In the staff proposal the ZEV requirement for the
22 alternative compliance option for model years 2009 and
23 beyond is to be determined. The requirement would be set
24 by the Board at a future meeting, following input from the
25 independent expert review panel. Staff recommends this

1 approach because the timing for a ramp up of vehicle
2 production is difficult to predict. We can say with
3 confidence that production will need to go through several
4 stages of increasing volume on the way to
5 commercialization. What is less clear is when those
6 stages will occur.

7 For each of the issues that we will be describing
8 we've attempted to summarize into a few key points the
9 comments we have received from various stakeholders. If
10 we fail to accurately characterize anyone's position, let
11 me apologize in advance. In any event, the stakeholders
12 will have a chance later on to speak for themselves, and
13 you'll hear their views very clearly. Our intent here is
14 to give you a preview of the main points.

15 Turning to the ZEV requirement for 2009 and
16 beyond. This appears to be the most controversial of all
17 the issues before you today.

18 From the environmental side we've been told it is
19 important to keep the pressure on, that a long-term
20 technology-forcing goal is needed to promote competition
21 to achieve the next generation of ZEV technologies.
22 They've also noted that manufacturer public statements
23 have predicted rapid fuel cell development.

24 --o0o--

25 VEHICLE PROGRAM SPECIALIST SHULOCK: The

1 automakers, in contrast, have stated that the appropriate
2 goal for 2009 will vary, depending on future developments,
3 and cannot be predicted at this time. In their view an
4 overly ambitious goal is not credible. They would expect
5 it to be relaxed in the future.

6 If such a goal is maintained and ultimately is
7 enforced, the manufacturers argue that it would waste
8 resources by requiring vehicle totals beyond what is
9 needed for technology development purposes.

10 --o0o--

11 VEHICLE PROGRAM SPECIALIST SHULOCK: The options
12 before you are controversial, no doubt, but relatively
13 straightforward. You could retain the staff proposal
14 under which the 2009 total is to be determined at a later
15 date.

16 You could require that a demonstration level
17 quantity, for example, another 250 vehicles, be continued
18 in the next phase. This would seem to be the minimum
19 number that would be necessary on any path towards
20 commercialization.

21 Or you could establish some higher target level,
22 for example, a 10-fold increase from the first stage.

23 --o0o--

24 VEHICLE PROGRAM SPECIALIST SHULOCK: Our staff
25 observations on this point are as follows:

1 It is clear and not disputed that in order to
2 achieve commercialization a ramp up in production must
3 occur. It also seems to be generally accepted that it
4 makes sense to think of the ramp stages in multiples of
5 ten, moving from tens of vehicles, to hundreds, to
6 thousands.

7 What is less clear is when such increases will
8 occur. You will hear considerable testimony, no doubt, on
9 this point.

10 Staff has explained the rationale for our
11 approach, under which the requirement for 2009 and beyond
12 would be determined at a future Board meeting. We
13 recognize, however, that the Board may wish for a variety
14 of reasons to establish a firm target at this time.

15 The next issue involves how battery electric
16 vehicles fit into our alternative compliance option and
17 into the staff proposal generally.

18 --o0o--

19 VEHICLE PROGRAM SPECIALIST SHULOCK: Under the
20 staff proposal manufacturers must build Type 3 ZEVs, which
21 today means fuel cells, in order to qualify for the
22 alternative compliance option. The question that has been
23 raised is whether other types of ZEVs should also count
24 towards that requirement.

25 --o0o--

1 VEHICLE PROGRAM SPECIALIST SHULOCK: The
2 stakeholders that have weighed in on this issue feel that
3 the proposed requirement does not provide an incentive for
4 ongoing development of battery EV technology.

5 I should note that staff actually raised this
6 issue ourselves in our March staff document. At that time
7 we were aware of the issue and were generally supportive
8 of the point being made. But we wanted to get stakeholder
9 input before working through all of the implications.

10 --o0o--

11 VEHICLE PROGRAM SPECIALIST SHULOCK: From an
12 option standpoint one way to address this issue is to
13 require battery EV production in addition to fuel cells.
14 This has been suggested by the EV Drivers Group.

15 Alternatively you could allow Battery Electric
16 Vehicles to meet some portion of the required minimum
17 production requirement under the alternative compliance
18 option.

19 --o0o--

20 VEHICLE PROGRAM SPECIALIST SHULOCK: From the
21 staff's standpoint this issue should be addressed. We
22 would recommend that battery EV's other than NEVs be
23 allowed to satisfy a portion of the minimum production
24 requirement. This provides additional flexibility and
25 also provides an incentive to pursue a broader range of

1 technologies.

2 We recommend, however, that BEV substitution be
 3 treated as an option rather than as a requirement, for all
 4 of the reasons that we discussed earlier, we do not
 5 believe it is appropriate to require that manufacturers
 6 simultaneously pursue battery EV and fuel cell production.
 7 If they wish to do so, that's fine. But we would not
 8 propose that it be a requirement.

9 We would further recommend that the proposal
 10 require some minimum number of fuel cells, for example,
 11 one half of the original obligation.

12 Finally, it will be necessary to set an
 13 appropriate credit ratio between battery EVs and fuel
 14 cells to ensure that this approach if pursued by
 15 manufacturers would result in a meaningful number of BEVs.

16 For example, the credit levels could be set such
 17 that if followed by all manufacturers, this option would
 18 result in production of several thousand battery EVs in
 19 the 2005 through 2008 time period.

20 --o0o--

21 VEHICLE PROGRAM SPECIALIST SHULOCK: The next
 22 issue involves future production levels for silver
 23 category vehicles. As you may recall from the discussion
 24 of vehicle volumes, long-term silver production levels
 25 will vary with the ZEV requirement. If the future gold

1 requirement is large, the need to use silver vehicles to
2 backfill would be small. On the other hand, if the future
3 gold requirement remains small, it would result in
4 significant quantities of silver vehicles in 2012 and
5 beyond.

6 In thinking about this issue, it is important to
7 keep in mind that the purpose of the silver category is to
8 push design improvement and cost reduction for
9 ZEV-enabling technologies such as batteries, motors, and
10 electronic controls. That is what should ultimately guide
11 the appropriate silver volume.

12 --o0o--

13 VEHICLE PROGRAM SPECIALIST SHULOCK: On this
14 issue automakers have commented that the long-term silver
15 production levels referenced in the staff report exceed
16 what is needed to achieve design improvements and
17 economies of scale. They also make the point that the
18 market may not readily absorb the required number of
19 vehicles.

20 --o0o--

21 VEHICLE PROGRAM SPECIALIST SHULOCK: Environmental
22 representatives have stated that a high volume of silver
23 production will be needed until ZEV costs have been
24 brought down to affordable levels. They also have argued
25 that the requirements should be more stringent in some

1 respects, not less.

2 --o0o--

3 VEHICLE PROGRAM SPECIALIST SHULOCK: One possible
4 approach that could be adopted here is to use the
5 independent expert review panel to assess the status of
6 silver technology development. Or you could take action
7 today to directly amend the future silver requirement.

8 --o0o--

9 VEHICLE PROGRAM SPECIALIST SHULOCK: Before going
10 to our recommendation I would first like to point out that
11 the silver production levels shown in the staff report
12 assume no future ZEV production. Thus those levels would
13 decline as ZEV production expands. In addition any
14 requirement would be spread across a number of
15 manufacturers and platforms such that the actual number of
16 any particular vehicle would be smaller than the totals
17 shown in the graphs that I showed previously.
18 Nevertheless we recognize that this issue merits
19 attention. We, therefore, recommend that the long-term
20 status of silver category vehicles be included in the
21 review conducted by the independent expert review panel.
22 This is consistent with our approach towards the ZEV
23 category.
24 Let's take another look in the future when more
25 information is available. The panel could address

1 questions such as: Have full economics of scale been
2 achieved? Is the technology optimized from a design
3 standpoint? And most fundamentally, given all of the
4 above, would additional silver production continue to
5 contribute to the goal of ZEV commercialization?

6 --o0o--

7 VEHICLE PROGRAM SPECIALIST SHULOCK: The final
8 issue that we would like to bring to your attention
9 involves infrastructure and, more broadly speaking, the
10 relationship between the ZEV Program and efforts to
11 promote smart mobility concepts. There's considerable
12 emerging interest in what have been termed smart mobility
13 built corridors. Board Member DeSaulmier has been playing
14 a leadership role in this area. In brief, the notion is
15 to define specific corridors to serve as demonstrations
16 and test beds for what could be achieved with innovative
17 approaches to transportation, smart growth, clean fuels in
18 vehicles, and system management and integration tools.

19 For example, a corridor could include provisions
20 for transit, smart parking signage, car sharing, and clean
21 vehicles. The specific features employed would depend on
22 the needs at that location.

23 The existing ZEV regulation already supports some
24 aspects of this approach. For example, the regulation
25 provides additional ZEV credit for vehicles employed in

1 car sharing or station car applications. And clearly the
2 regulation supports the development of clean vehicles.
3 The question here is are there opportunities for further
4 synergy between the ZEV regulation and the smart mobility
5 corridor concepts. One possible area of such overlap is
6 the provision of hydrogen infrastructure.

7 --o0o--

8 VEHICLE PROGRAM SPECIALIST SHULOCK: We
9 originally posed the issue of hydrogen infrastructure in
10 our November 2002 strawman document. We have received
11 very little comment on the issue. One thing we were told
12 by several automakers is that the regulatory structure
13 should not imply that infrastructure is a manufacturer
14 responsibility. They say that they have their hands full
15 building the vehicles and that fuel providers should be
16 active on the infrastructure front.

17 We have, however, received some informal
18 indications of interest -- potential interest if the
19 program were properly defined and structured.

20 --o0o--

21 VEHICLE PROGRAM SPECIALIST SHULOCK: We have
22 likewise gotten just limited comment from environmental
23 supporters along the lines that providing such an option
24 would increase manufacturer flexibility and help enable
25 ZEV commercialization.

1 --o0o--

2 VEHICLE PROGRAM SPECIALIST SHULOCK: If you
3 choose to address this issue, the primary option that
4 we're aware of today would be to allow ZEV credit for
5 placement of hydrogen infrastructure, perhaps in
6 conjunction with the smart corridor concepts mentioned
7 above. In addition, it would be possible to explore other
8 incentives and non-regulatory approaches.

9 --o0o--

10 VEHICLE PROGRAM SPECIALIST SHULOCK: Staff
11 believes that this is a fruitful area to investigate.
12 There are, however, many complex issues involves. We
13 propose that staff be directed to investigate all of these
14 issues and report back to the Board in three-months' time
15 as to possibilities for further action.

16 --o0o--

17 VEHICLE PROGRAM SPECIALIST SHULOCK: In
18 conclusion, staff recommends approval of the proposed
19 amendments. They provide an increased air quality
20 benefit, they address the pending litigation issues, and
21 they maintain progress towards transforming California's
22 vehicle fleet to zero emissions.

23 Thank you. We're available to respond to any
24 questions that you may have.

25 CHAIRPERSON LLOYD: Thank you very much for that

1 extensive, thorough, and very explicit staff presentation.

2 What I would like to do -- I was being rather
3 selfish by saying we wouldn't take a break, not realizing
4 our court reporter has to take a break, because he has to
5 be fed.

6 So what I will do, I'll ask my colleagues if we
7 can hold on to questions. But before the break, I would
8 like to invite the head of the California Power Authority,
9 David Freeman, who's, as you know, long committed to this
10 subject.

11 David, I know you have to leave for another
12 engagement. But we appreciate you coming and we'd like to
13 afford you the opportunity to kick off the testimony.

14 MR. FREEMAN: Thank you, Mr. Chairman. I
15 especially appreciate your courtesy in light of the fact
16 that you know that everything I say will not be music to
17 your ears. It shows your impartiality and your fairness,
18 and I really appreciate that.

19 I appear today not on behalf of an agency of the
20 state government, not on behalf of the environmentalists,
21 not on behalf of the automobile companies, but as a
22 concerned citizen of 77 years old that has spent the last
23 25 years being actively involved in this subject. And
24 perhaps my views might have some added weight because I
25 don't represent anyone else. I hope so.

1 I was present at the creation when this Board
2 stood tall in the saddle and embarked on this great
3 adventure, of which of you should be very, very proud.
4 Perhaps you don't realize fully what you've accomplished.
5 I was into the electric car game in a sense way before
6 1990. In fact when I was the Chairman of the Board of the
7 Tennessee Valley Authority under President Carter, I had a
8 letter from the president of General Motors in 1979
9 promising me an electric car in every GM showroom by 1984.

10 (Laughter.)

11 MR. FREEMAN: We labored in these vineyards
12 virtually all alone until California took the stand that
13 you did with the ZEV mandate and with the Board's decision
14 in 1990. And I might say that you had very little other
15 than the analysis of the staff, who -- there were no cars,
16 there was no technology. There was a need in the public
17 interests for the health of the children and grownups of
18 California to have a bunch of the cars having zero
19 emission with them. And you made that stand and you stood
20 by your stand through all these years, through all sorts
21 of administrations. And you alone are responsible for the
22 fact that we have these hybrid cars with the electric
23 drive, that wouldn't have been there but for this Board,
24 and that we are now on the move toward cleaner cars.

25 Now is the time to catch the falling flag. I

1 don't think your staff is tired. I think your staff is
2 very bright and very caring. But the history of
3 agencies -- and I've watched all of them over the years --
4 is that the people that you regulate tend to make their
5 case over and over again, you get so sick and tired of
6 having to listen to them that you finally pay a little bit
7 of attention to them. It's just human nature.

8 And, you know, the irony of it all is that you've
9 got electric cars that are out there on the road that
10 work. The technology -- you know, you're right at the
11 doorsteps of success. And your staff rightfully brags
12 about all this and then reaches the wrong conclusions.

13 (Applause.)

14 MR. FREEMAN: It kind of breaks your heart to see
15 people that have been so successful and -- and every one
16 of the little points in this -- thank God we don't have to
17 take a pop quiz -- of your program are logical, rational,
18 but they add up to punting when we're on the one-yard
19 line. There is no reason in the world why the mandate
20 that you started with, now, can't just be implemented.

21 Now, frankly, I'm going to surprise you because I
22 think that you have a situation where the perfect is the
23 enemy of the good. A ZEV needs to be further defined as a
24 car that is run by fuel that is carbon free and has maybe
25 only a tiny bit of oxides of nitrogen. Of course you get

1 that when it rains too. Maybe we abolish rain in this
2 state. I don't know.

3 But a car that runs on hydrogen is -- 90-some-odd
4 percent is clean as an electric -- it's cleaner than an
5 electric car. And I hate to say this, but an electric car
6 that gets its electricity from coal is much more pollutant
7 than a hydrogen vehicle based upon renewable energy. So I
8 think it's time to stick by your guns, but recognize that
9 electric cars will be and can be a major part of the
10 family.

11 But we need to have the hydrogen economy now, not
12 20 years from now. I hate to put it this way, but I will.
13 I first started the research on fuel cells when I was in
14 the White House under Lyndon Johnson back in '68. And I
15 had the old Office of Coal Research start putting some
16 money into fuel cells. I have a lifetime achievement
17 award from the fuel cell people. But, quite frankly, we
18 are now worshipping at the alter of a graven called the
19 fuel cell. We don't need to wait for the fuel cell to get
20 cars that are virtually clean.

21 The internal combustion engine runs very well on
22 hydrogen. It's not a military secret. You're entitled to
23 know that. The whole world is entitled to know that. And
24 a hydrogen hybrid car that's a plug-in would be a car that
25 could be developed in this decade. And perhaps we need to

1 go back to the Legislature and redefine a ZEV as being a
2 car that is virtually, virtually free of pollution in the
3 whole fuel cycle, except for maybe a tiny bit of oxides of
4 nitrogen. We have to take a look at how -- the entire
5 fuel cycle, because if we're going to really have clean
6 air in California, we've got to get off of fossil fuels
7 and recognize that renewable energy can now be put in the
8 gas tank in the form of solar and wind being converted to
9 hydrogen and running our motor vehicles.

10 This Board has always had more vision than
11 everybody else put together. This is now a time to exert
12 that vision.

13 And let me just say one more thing. Something
14 happened since the last time we met. We had some stupid
15 arguments before you last time. Remember, it was the
16 middle of the energy crisis and some of these automobile
17 companies were trying to tell you we shouldn't have
18 electric cars or else there won't be enough electricity?
19 Well, it's two years later, and we are in no danger of
20 being blacked out by electric cars.

21 Also they raise this aggravating issue about
22 environmental justice. And of course it's -- it was just
23 maddening that they would raise a serious issue like that
24 with respect to something that was going to clean up the
25 air for everyone.

1 But I think it's very, very important to
2 recognize that since 9/11 what you're talking about is not
3 just cleaner air, but you're talking about the security of
4 this country. Oil is very much a part of our problems
5 today as we wage war in the middle east. And this country
6 needs to peak out on how much oil we use. And, therefore,
7 cars without oil are consistent with your mandate.

8 And when you get down and you give 40 credits for
9 the car of the future 20 years from now, the fuel cell
10 car, and give a maximum of 16 credits for a car that would
11 run on hydrogen, you're going down the right path but you
12 all haven't gotten there yet. I mean it is time to
13 recognize that there is new technology that could be put
14 into the family. You don't need to abandon your vision.
15 You need to enlarge your vision. And if you think -- your
16 lawyers think that it takes a slight amendment to the ZEV
17 statute in order to include a car that's run on renewable
18 hydrogen, I think you ought to seriously consider doing
19 that.

20 And then all these numbers -- and it's
21 interesting to me how a group of people who say they don't
22 know enough to know what the standards ought to be can
23 give us all these charts to tell us what's going to
24 happen. It's just pretty hard for me to reconcile that.
25 You all are smarter and better than you think you are.

1 You've just had too much time with the automobile
2 industry. It's just plain and simple.

3 (Applause.)

4 MR. FREEMAN: Thank you very much.

5 CHAIRPERSON LLOYD: Thank you, David. And I'm
6 sure on some of those points you'll get agreement with the
7 auto industry.

8 With that, any comments or questions from my
9 colleagues? Otherwise we're going to take a 15-minute
10 break for the court reporter. So come back at 1:20. And
11 then we will take any comments from the Board at this time
12 or questions of staff. And then we will begin testimony.

13 And the first will be Dr. Anderman, Dr. Frank,
14 and Amanda Miller.

15 (Thereupon a lunch break was taken.)

16

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1 AFTERNOON SESSION

2 CHAIRPERSON LLOYD: Would staff and colleagues on
3 the Board please take their seats so we can resume.

4 First off I would like to ask the ombudsman,
5 would you please describe the public participation process
6 that occurred while this item was being developed, and
7 share any concerns or comments with the Board at this
8 time.

9 OMBUDSMAN TSCHOGL: Thank you, Chairman Lloyd and
10 members of the Board.

11 The proposed amendments to the zero emission
12 vehicle regulations were developed through interactions of
13 ARB staff with representatives of the automotive industry,
14 environmental organizations, utilities, air pollution
15 control agencies within California as well as from other
16 states, electric vehicle advocates and drivers, and other
17 interested parties.

18 Over the course of developing this proposal staff
19 held more than 70 meetings and conference calls with
20 various stakeholders, along with literally hundreds of
21 informal telephone conversations and E-mail exchanges.

22 In preparation for this Board hearing, originally
23 planned for February, staff developed an initial proposal
24 that was presented and discussed at a workshop on December
25 5th, 2002. This proposal addressed issues raised as a

1 result of industry, litigation, and also attempted to
2 address fundamental concerns regarding the state of pure
3 ZEV technologies.

4 Subsequent to the workshop staff conducted
5 numerous meetings with affected stakeholders and
6 interested parties, and received considerable written
7 comment, all of which was used in developing the staff
8 report. The notice for today's meeting and the staff
9 report were mailed and posted ARB's website January 10th,
10 2003.

11 As noted in the January 10 staff report, there
12 were several additional issues that needed further
13 consideration. While working to resolve these issues it
14 became apparent to staff the Board meeting should be
15 postponed by one month to ensure stakeholders had adequate
16 time for review and comment. Staff used this additional
17 time to continue discussions with stakeholders to resolve
18 key issues.

19 Staff released a set of additional proposed
20 modifications as part of a new document released on March
21 5th, 2003.

22 In summary, staff has worked with stakeholders
23 through workshops, conference calls, focused meetings, and
24 one-on-one communications to develop the amendments you
25 are considering today.

1 Thank you.

2 CHAIRPERSON LLOYD: Thank you very much.

3 Do any of my colleagues have any comments at this
4 time of staff or the staff presentation?

5 Mr. Calhoun.

6 BOARD MEMBER CALHOUN: One of the statements you
7 made, Chuck, during your presentation was that it made
8 sense for ramp up to be in multiples of 10 or something
9 like this. It's logical. I'm trying to understand and
10 have an appreciation for the logic.

11 So can you explain it to me?

12 VEHICLE PROGRAM SPECIALIST SHULOCK: The thinking
13 there is that, in that first generation, you're testing
14 the concept and, you know, a lot of things in play. Those
15 vehicles are hand built, extremely expensive, and you're
16 learning a lot as you go along. Then once you figured
17 that out and get to the next generation, things begin to
18 get more optimized, the cost comes down. Then you're
19 starting to ask different questions, maybe durability,
20 performance-type questions. And so a larger fleet is
21 needed to really deal with those issues. And then as you
22 get beyond that and you're really starting to talk about
23 real-world drivability and the cost has come down further,
24 it's appropriate to have a larger number.

25 Now, is it multiples of 10 versus multiples of 9

1 versus multiples of 11. There's -- I don't think there's
2 any magic to that. But in our dealings with manufacturers
3 and the fuel cell suppliers in conversations that we've
4 had, in general terms this notion of 10, 100, 1,000 seemed
5 to be something that people thought made sense.

6 With one other -- let me throw one other caveat.
7 It's conceivable that you might build 10, and based upon
8 that you need to start over again and build 10 more. You
9 know, the stages don't necessarily move inexorably, but
10 that there are different stages at which you're learning
11 different things and you have different cost targets.

12 BOARD MEMBER CALHOUN: I won't argue with you
13 about it. It's just amusing to -- and I guess it makes as
14 much sense as going up in 10 or 15 or 20. So I won't
15 question that.

16 CHAIRPERSON LLOYD: Supervisor Roberts.

17 BOARD MEMBER ROBERTS: Yeah. Mr. Chairman,
18 yesterday when we were talking, we were talking about a
19 Department of energy timeline. And if that was shared
20 with us, I didn't see it. But I was wondering, maybe if
21 that's available --

22 CHAIRPERSON LLOYD: I think staff has that.

23 EXECUTIVE OFFICER WITHERSPOON: You also have it
24 in packets at your desk, or you should. It looks like
25 this. And it's in a yellow folder along with --

1 VEHICLE PROGRAM SPECIALIST SHULOCK: Catherine,
2 we're told that they do not have it.

3 Excuse me.

4 EXECUTIVE OFFICER WITHERSPOON: Okay. We'll make
5 sure that you get it.

6 But briefly to summarize, the DOE has also
7 characterized different demonstrations at 5500, 5,000,
8 with various performance parameters to have been met, sort
9 of gateways before you move to the next phase. And in our
10 conversations with automakers, they have not objected to
11 that scaling logic. Really the conversations have been
12 about when. And not a lot of certainty today, but
13 logically it doesn't seem to offend them, that assumption.

14 BOARD MEMBER CALHOUN: I was just trying to
15 understand his rationale for it. It just didn't make
16 sense. And so I suppose it does make sense, or it doesn't
17 make sense.

18 EXECUTIVE OFFICER WITHERSPOON: It seems to make
19 sense. They're far more focused on whether or not we're
20 ready at a particular moment in time to move to the next
21 phase. And then we can discuss what the actual numbers
22 are. But, you know, just moving from tens of vehicles, to
23 hundreds, to thousands, you know -- that things have to
24 have changed before you move to the next step in their
25 view.

1 BOARD MEMBER CALHOUN: All right. Thanks.

2 CHAIRPERSON LLOYD: Think I can get a copy of
3 that proposal?

4 Professor Friedman.

5 BOARD MEMBER HUGH FRIEDMAN: I just have a couple
6 questions for clarification.

7 In the staff presentation, you left open a number
8 of areas for further consideration or at least for options
9 for us working with you to determine. And on slide, I
10 guess it's 68, the role of Battery Electric Vehicles, the
11 options set out are to consider requiring BEV production
12 in addition to fuel cells, or to allow battery electrics
13 to meet some portion of the required minimum fuel cell
14 requirement, which I understand to be 250 for these
15 interim years, a short term in years.

16 VEHICLE PROGRAM SPECIALIST SHULOCK: That is
17 correct.

18 BOARD MEMBER HUGH FRIEDMAN: Total, 250 aggregate.

19 I assume if the staff is -- and then the next
20 slide, the staff's response was to suggest -- recommend
21 that battery electrics be allowed to satisfy a portion of
22 that 250 fuel cell requirement, or each manufacturer's
23 allocated portion of that could be satisfied, to some
24 extent to be determined, by alternative battery electric.

25 VEHICLE PROGRAM SPECIALIST SHULOCK: That is

1 correct.

2 BOARD MEMBER HUGH FRIEDMAN: As an option, not a
3 requirement. But they could choose to do that.

4 But there ought to at least be half their quota
5 be satisfied with fuel cell to keep some minimum fuel cell
6 technology development.

7 VEHICLE PROGRAM SPECIALIST SHULOCK: Exactly.

8 BOARD MEMBER HUGH FRIEDMAN: So I guess subsumed
9 in that thinking must be the idea that if all the
10 manufacturers elected that option, to only do half of
11 their fuel cell quota, and the rest with battery electric,
12 that 125 fuel cells among all manufacturers over the
13 four-year period, five-year period, or whatever it is,
14 would be adequate to serve as a demonstration and to
15 advance the technology to test it out.

16 What would that do if, for example, we wanted to
17 impose a fixed number in 2009 for zero emitting vehicles?
18 And assuming they would all -- presumably the choice would
19 be fuel cell. Not necessarily, but presumably.

20 VEHICLE PROGRAM SPECIALIST SHULOCK: I'm not sure
21 I understand the question.

22 BOARD MEMBER HUGH FRIEDMAN: Well, do you think
23 125 fuel cells over these years until 2009 would be
24 adequate as a predicate, let's say, a scientific predicate
25 to support some order of magnitude of requirement imposed

1 in 2009 and other out-years increasingly of zero emission
2 vehicles production?

3 VEHICLE PROGRAM SPECIALIST SHULOCK: Catherine,
4 were you going to --

5 EXECUTIVE OFFICER WITHERSPOON: Yeah, Professor
6 Friedman, let me try --

7 BOARD MEMBER HUGH FRIEDMAN: Am I making any
8 sense?

9 EXECUTIVE OFFICER WITHERSPOON: No, I understand
10 your -- you are making sense.

11 Staff believes that each manufacturer is going to
12 make a certain number of fuel cell vehicles anyway for
13 competitive reasons, you know, on the order of 10 to 20.
14 And the effect of the alternative compliance pathway is to
15 push them all the way to the stretch goal, a higher
16 complement at the market share. And were you to establish
17 a target in the next interval of time, '09 through '11, we
18 would continue whatever decision you made I believe for
19 this first set, and you could do BEV substitution in the
20 next set as well. Then we'd need to think about the
21 ratios because we're rationing in large part based on the
22 cost of building one versus the other. And so we would
23 want to keep those cost comparisons accurate and current
24 as we moved forward in time.

25 Did I answer your question?

1 BOARD MEMBER HUGH FRIEDMAN: Yeah, I think so,
2 sort of.

3 But you -- another recommendation at the last one
4 was set an appropriate credit ratio, and you're addressing
5 that.

6 Do you have any feel -- are you thinking that
7 should be based on comparative costs?

8 EXECUTIVE OFFICER WITHERSPOON: We're thinking
9 about comparative costs in 2008 when the majority of the
10 fuel cell vehicles would actually be built. And we've
11 been talking about 20 to 1. We're still refining -- 20 to
12 1 with a city car, substituting for a single fuel cell
13 vehicle. But we haven't settled on exactly what the right
14 number is. And we would ratio fuel -- full function EVs a
15 little less than that because they cost more. That kind
16 of thought.

17 BOARD MEMBER HUGH FRIEDMAN: Well, if we wanted
18 to pursue that, and I'm only speaking for myself, how
19 would we go about that? I mean we haven't gotten anything
20 definitive to adopt now.

21 EXECUTIVE OFFICER WITHERSPOON: If you decided
22 you wanted us to pursue this option, we would develop a
23 proposal as part of the 15-day changes and send it out for
24 comment, and then move forward on a final regulation.
25 We've given you in rough terms what we think it ought to

1 look like, that there should be a ratio, that there should
2 be a minimum number of fuel cells. And we proposed half.
3 And any advice you had to give us about those general
4 parameters or more specific ones, we would --

5 BOARD MEMBER HUGH FRIEDMAN: Two to one -- it was
6 2 to 1 or --

7 EXECUTIVE OFFICER WITHERSPOON: Well, for -- no,
8 for BEVs, 20 to 1.

9 BOARD MEMBER HUGH FRIEDMAN: Twenty to one. I'm
10 sorry. Yeah, 20 to 1.

11 Well, I just raised it because I hope I'll hear
12 from anyone who's interested on that.

13 And the other question I had was on credits for
14 infrastructure. Maybe that's not where it belongs, but it
15 seems to sort of fit. If we wanted to talk about and have
16 the staff analyze and make a recommendation on credit for
17 a stationary fuel cell distributed generation systems,
18 even though they're not mobile, but if they're the
19 equivalent -- functional equivalent of the mobile fuel
20 cell stack and some basis for some kinds of relative
21 credits, but not only for a portion of anyone's quota or
22 mandate, and with some kind of a sunset, we could ask -- I
23 guess the way to do it would be to ask the staff to
24 consider that if that were the desire.

25 EXECUTIVE OFFICER WITHERSPOON: We could

1 definitely look into that. You know, one possibility is
2 as an analog to BEV substitution. Though we're still
3 pondering what the ratios would be, and if there's any
4 unintended consequences we haven't imagined. The one
5 possibility or one reason to combine it with the
6 infrastructure analysis is that people have talked about
7 co-location of hydrogen power generation with hydrogen
8 fueling. And so that would give us a chance to look at
9 the full picture here and make sure we captured every
10 conceivable credit scenario before we reported back to you
11 on specific numbers. So we'd be happy to do that.

12 BOARD MEMBER HUGH FRIEDMAN: Thank you.

13 CHAIRPERSON LLOYD: Ms. D'Adamo and then
14 Supervisor DeSaulnier.

15 BOARD MEMBER D'ADAMO: I know we'll be talking
16 about this as we go forward today, and just have -- I
17 would like to follow up on Professor Friedman's questions
18 regarding BEVs. I for one am not ready to close the door
19 on that technology. I think that we've --

20 (Applause.)

21 BOARD MEMBER D'ADAMO: I think that we've come a
22 long way. And I think obviously we've got a lot further
23 to go. But I'm real nervous about abandoning a technology
24 that has continued to progress. Maybe I'd feel
25 differently if it just stood still in time. But every

1 hearing that I've attended since being involved with this
2 I continue to see improvements. And I look forward to --
3 I guess there's going to be a presentation by a committee
4 that did some work on batteries. So look forward to
5 hearing about that.

6 But my question to staff and of any witnesses
7 that are going to be addressing the point on BEVs is this:
8 How do we incentivize a BEV component enough so that when
9 the independent review board or -- I don't recall if
10 that's the name or not -- but when the Board or the
11 committee reviews the technology, that it is comparing
12 technology of fuel cells and other technologies that are
13 out there and on batteries, that it's comparing a
14 technology that is not frozen in time as of this date, but
15 a technology that is really given the chance to continue
16 to progress, whatever that progression may be, that we
17 somehow incentivize it so that it is a true comparison?
18 And I guess that's like looking into a crystal ball to try
19 and figure out where that technology would be. But I
20 think we need to incentivize it enough, what that ratio
21 is, so that we continue to see progress.

22 I see here on slide 69 that there's a suggestion
23 that we keep a minimum number of fuel cells. I'd just
24 like to throw it out there, can we do the same for BEVs,
25 so that it's a fair comparison?

1 (Applause.)

2 EXECUTIVE OFFICER WITHERSPOON: The issue of
3 keeping a minimum requirement for BEVs, you have that on
4 your base regulation, that it is a BEV requirement on the
5 base. If you have a minimum requirement in the
6 alternative compliance path, you've turned it into a
7 mandate rather than an option, I think. And you have to
8 ask whether that's appropriate for an auto company that
9 wishes to concentrate on fuel cells alone, whether they
10 should be obligated to have both BEVs and fuel cells
11 rather than the choice to do a mixture if that works with
12 their own compliance plan.

13 BOARD MEMBER D'ADAMO: I don't want to intrude
14 upon the efforts by many. And I know the Chairman really
15 deserves to be complimented for his push on fuel cells.
16 But if there would be a requirement for a minimum
17 number -- I'm not even saying a 50/50 split -- but just a
18 minimum level to keep BEVs in the mix. Unless that
19 incentive on the ratio can be enough that we can trust
20 that we are going to continue to see progress on BEVs.

21 EXECUTIVE OFFICER WITHERSPOON: It is staff's
22 intent to have the ratio be favorable to BEVs and have the
23 costs work out such that it's slightly cheaper to go the
24 BEV route, and hope that that's incentive enough that
25 someone might choose it.

1 BOARD MEMBER D'ADAMO: Okay. And then just one
2 other question -- clarification. What happens to the
3 electric vehicles that were placed into lease and now at
4 this time or at some point in the future the lease has run
5 out? Is there anything that we can do to incentivize the
6 reissuance of those vehicles, either by future leases or,
7 better yet, somehow incentivize that they be sold or they
8 be placed in long-term leases in California?

9 (Applause.)

10 VEHICLE PROGRAM SPECIALIST SHULOCK: Under the
11 2001 regulation and continued on in our staff proposal
12 vehicles that are placed on the road and have been there
13 for three years earn additional credit if they're kept on
14 the road in year four, year five, year six. So there's
15 already a mechanism there to encourage those vehicles to
16 be kept on the road. That is available for vehicles
17 placed through 2005. So there's already something there
18 that provides that credit. The credit that they earn is
19 one-tenth per year of what it would earn new. So if the
20 vehicle's kept on the road for three more years, it would
21 earn three-tenths -- it would be worth three-tenths of a
22 new vehicle.

23 BOARD MEMBER D'ADAMO: Then I guess my question
24 would be, should we explore extending that out further?
25 Would there be any value? Or are those -- extending it

1 out to 2005, is that going to be enough encouragement to
2 keep those vehicles on the road in California?

3 VEHICLE PROGRAM SPECIALIST SHULOCK: Well, the --
4 BOARD MEMBER D'ADAMO: Worried about a car crush
5 program.

6 VEHICLE PROGRAM SPECIALIST SHULOCK: Let me
7 clarify how we're doing -- if the vehicle is originally
8 placed prior to '05, that vehicle can earn credit however
9 long. If it's kept on the road for 20 years, it would
10 earn credit for all 20 of those years. So once the
11 vehicle -- if the vehicle is placed, it can continue to
12 earn that credit. What we cut off is we're saying if the
13 vehicle was placed in 2006, it's not eligible to earn that
14 extra credit in the fourth year of its useful life. And
15 reason we did that -- actually in 2001 we didn't have this
16 cutoff. The reason we did it is when we looked at what it
17 means to keep track of this and, you know, how many
18 vehicles are still on the road and how do you know, et
19 cetera, it looked like it was an administrative headache;
20 and so once -- it seemed like it made sense to do that in
21 these initial years, but at some future date that it would
22 no longer be necessary. So that's what drove us to cut it
23 off in 2005.

24 CHAIRPERSON LLOYD: Can I just add to that,
25 Chuck? Since we don't have a 2001 regulation that we can

1 enforce, I would like to follow up on DeDe's point a
2 little bit more specifically; and, that is, is there any
3 way in which we can compel those vehicles to be continued
4 in operation without crushing them? I mean maybe we
5 can't.

6 VEHICLE PROGRAM SPECIALIST SHULOCK: Is that a
7 question for our attorneys?

8 You know, programmatically, you could structure
9 very generous incentives that would certainly make it
10 worth their while to keep them on the road. Rather than
11 one-tenth per year --

12 CHAIRPERSON LLOYD: So maybe the question is,
13 rather than trying to get you to answer it, for the OEM's.
14 When then OEM's come up, what incentive would be necessary
15 for them to keep them on the road? And I'm giving fair
16 warning to maybe Dave and others back there to be able to
17 address that question. Because, again, I realize that we
18 really should be asking them.

19 Supervisor DeSaulnier.

20 BOARD MEMBER DeSAULNIER: Just briefly, Mr.
21 Chairman. I realize we have a lot of public speakers.
22 But I have one question and then a comment in relation to
23 Hugh's questions.

24 As someone who likes to worship to graven images,
25 could you respond to Mr. Freeman's comment about why are

1 16 credits for a hydrogen internal combustion engine
2 appropriate versus 40 for a fuel cell? Where did we come
3 up with those numbers?

4 VEHICLE PROGRAM SPECIALIST SHULOCK: The logic
5 that we followed really started in, let's say, 2012,
6 saying that any of those non-ZEVs should not be worth more
7 than a ZEV. So we kind of started by saying here's what a
8 ZEV is worth in 2012, and then these other alternatives
9 need to be beneath that. And then we tried to come up
10 with some sort of ratio amongst the different options.
11 Hybrid ICE versus a regular hybrid versus a grid connect.
12 What sort of ratios seemed to make sense given their
13 relative state of development and the cost that seemed to
14 be involved.

15 And then we went backwards from there saying
16 well, earlier in time it's going to be harder to do those
17 sorts of things, so the number needed to be inflated. As
18 far as how we ended up at exactly 16 again versus 14 or
19 18, I don't think there's any powerful math involved
20 there. It seemed like that a large incentive was needed.
21 And in the context of everything else that's happening --
22 if you recall the graph that had one group way up high and
23 then the other things way down low, there's a very
24 significant incentive provided in those early years. And
25 that's what we were -- we were trying to make sure that

1 the margin between the two was very large. And so just
2 looking at the numbers, that seemed to be a reasonable
3 level.

4 BOARD MEMBER DeSAULNIER: Well, we'll have this
5 discussion later. I'm a little concerned about the ratio
6 because of the infrastructure question and trying to get
7 hydrogen moving along and not waiting for what may or may
8 not be a graven image in regards to the development of
9 fuel cells.

10 And regards, Hugh, to your question. The smart
11 mobility project came out -- and I'll do this in a cliff
12 notes version because we've had multiple dozen meeting on
13 this. But it came out of the ZEV hearing in 2001 where
14 Allen gave me some instruction to go spend some time. And
15 it resulted in an indoor agency agreement between us, the
16 Energy Commission, and CalTrans. And it's resulted in a
17 partnership between those three agencies plus the four UC
18 transportation schools.

19 And the interesting thing about what you brought
20 up -- would be interesting in terms of the commentary from
21 the different car operators is in the staff report we talk
22 about the reluctance of the auto manufacturers being
23 interested in credits for infrastructure, yet we have GM
24 interested in this particular. And in conversation with
25 air products, for instance, and projects they've had in

1 Las Vegas and Chicago where they've done big demonstration
2 projects that allow for the kind of multiple uses that Ms.
3 Witherspoon was talking about. Those are the things, at
4 least for me, that we have an interest in pursuing.

5 And there's something -- ZEV Net is interesting.
6 If any of you've seen the New York Times magazine the last
7 month, the last -- two weeks ago Toyota had a wonderful
8 two-page -- which we all should get copies of, by the
9 way -- advertisement extolling the virtues of their
10 involvement in ZEV Net. And it was a series of pictures
11 from overhead with a Prius hybrid parked, a RAV4 parked --
12 an EV RAV4, and then an ECOM. And I can't tell whether
13 the ECOM's coming into the parking space or leaving. We
14 want it to be coming in rather than leaving, but there's
15 some question there. But it's a great commercial talking
16 about these kind of demonstration projects, with a
17 potential for using these sort of multimedia approaches.
18 So I just wanted to bring that up.

19 Thank you, Mr. Chairman.

20 CHAIRPERSON LLOYD: Mr. Calhoun.

21 BOARD MEMBER CALHOUN: Yes, two questions. One
22 goes back to Professor Friedman's statement earlier when
23 he asked the staff about taking a look at stationary fuel
24 cells. And I believe, Catherine, you said we could come
25 back some time with the report on that.

1 And how soon would you expect to do that?

2 EXECUTIVE OFFICER WITHERSPOON: In three months.

3 BOARD MEMBER CALHOUN: Three months. Okay.

4 Then my next question pertains to batteries. I
5 met with one of the local representatives, and he informed
6 me that we had not gotten all of the facts on the status
7 of battery technology. And I notice that we do have a
8 recent report by EPRI. And if battery technology is
9 worthwhile, then obviously no one would want to see it go
10 away. But I think the option of choosing batteries or
11 fuel cells to meet some of our regulatory requirements
12 ought to be left up to the manufacturer as opposed to us
13 dictating to him what he has to use.

14 EXECUTIVE OFFICER WITHERSPOON: With respect to
15 the battery report, you will be hearing testimony on the
16 results, both from our own contractor, Menahem Anderman,
17 and from EPRI, which is here to testify. And we've
18 grouped them with other witnesses who will speak to those
19 technologies specifically. And that's early on the
20 witness list.

21 And I guess we agree with you on the optional
22 versus mandate approach on combining BEVs and fuel cells.

23 BOARD MEMBER HUGH FRIEDMAN: Just quickly one
24 more question.

25 I just sort of intuitively thought in my own

1 thinking that the plug-in electric hybrid that you could
2 just plug into your garage outlet made a lot of sense. I
3 get the impression that the auto manufacturers are not
4 terribly interested in that for various reasons.

5 And I'm wondering how you arrived -- what the
6 rationale is for the credit system that you're proposing
7 for the plug-in HEVs. It's on slide 40. I just wanted to
8 know how you arrived at that.

9 VEHICLE PROGRAM SPECIALIST SHULOCK: Similar to
10 the answer on the previous question.

11 BOARD MEMBER HUGH FRIEDMAN: Apparently it's not
12 enough.

13 VEHICLE PROGRAM SPECIALIST SHULOCK: Well, you
14 gave us direction in 2001. There was a question, should
15 they be counted in the gold category or not? And the
16 direction from the Board was, no, they should not be
17 involved, but they should receive a very health incentive
18 in that silver category. We did that --

19 BOARD MEMBER HUGH FRIEDMAN: So this is a
20 carry-over?

21 VEHICLE PROGRAM SPECIALIST SHULOCK: Well, we did
22 that in 2001. And we've even increased it further this
23 time around, trying to make it attractive to the
24 manufacturers vis-a-vis their other options. And when
25 we -- you know, when you look at the cost side of it, it

1 looks like it could be attractive vis-a-vis the other
2 options given the credits that are provided. Now, is that
3 enough to make someone want to go down that road, again
4 maybe that's a question for the automakers.

5 BOARD MEMBER HUGH FRIEDMAN: Okay. I just
6 wondered what the thinking was.

7 Thank you.

8 CHAIRPERSON LLOYD: Dr. Burke, Mr. McKinnon.

9 BOARD MEMBER BURKE: Two quick questions. One
10 is, for those of us who are facing constituency on the
11 ground, how do we explain giving credit for a vehicle
12 delivered in New York for credit in California?

13 (Applause.)

14 BOARD MEMBER BURKE: And I appreciate the
15 support. But, you know, I don't think we need to -- we
16 all know where we're going here. So thanks, but no thanks
17 on the applause.

18 CHIEF DEPUTY EXECUTIVE OFFICER CACKETTE: The
19 issue -- to frame the issue, the law -- the federal law
20 works such that other states can adopt California's
21 programs. And they do --

22 BOARD MEMBER BURKE: We all understand that.

23 CHIEF DEPUTY EXECUTIVE OFFICER CACKETTE: It's
24 got to be identical.

25 BOARD MEMBER BURKE: We're talking to someone in

1 East Los Angeles about delivering a car in New York and
2 giving him credit in California. They don't want to hear
3 from federal law. How do I explain it to them?

4 CHIEF DEPUTY EXECUTIVE OFFICER CACKETTE: The
5 programs have to be identical in the two states. That has
6 to be known before I can answer the question.

7 BOARD MEMBER BURKE: Has any of the other states
8 given credit for any vehicles delivered in California?

9 CHIEF DEPUTY EXECUTIVE OFFICER CACKETTE: Under
10 this provision, that would happen also.

11 BOARD MEMBER BURKE: Have they done it already?

12 CHIEF DEPUTY EXECUTIVE OFFICER CACKETTE: Under
13 this proposal? Not under this -- not yet, no, they have
14 not, because it doesn't work that way.

15 BOARD MEMBER BURKE: Yeah, I understand that.

16 Second question is: We took a couple months to
17 work this out, and I know it has been extremely difficult.
18 But of the five hours of testimony which we're about to be
19 blessed with --

20 (Laughter.)

21 BOARD MEMBER BURKE: -- we have four people out
22 of 78 who are supporting this proposal. We have 22 people
23 or organizations, including the car manufacturers, who are
24 neutral on this proposal. We have 52 people testifying
25 who are against it.

1 How did we end up with this?

2 EXECUTIVE OFFICER WITHERSPOON: I think you'll
3 find when we get through the witness list that a majority
4 of the opponents to the staff proposal are the early
5 adopters of battery electric technology and are deeply
6 disappointed that it has not come to fruition as quickly
7 as we are ourselves had hoped it would.

8 And so we don't have fuel cell advocates in the
9 room in as large of numbers as we have battery electric
10 advocates. And that's probably what explains the
11 percentage you just described.

12 BOARD MEMBER BURKE: You know, I'm willing to
13 take that. I don't want to belabor this point. But if
14 there's only four people out of almost 100, you know, the
15 fuel cell people are -- you know, I would think they would
16 be here. You know, it should give the Board some concern.

17 CHAIRPERSON LLOYD: Yeah, I don't think -- I
18 think it's more constructive at this time to hear what the
19 people say on that. I think that's an interesting
20 observation. We'll here the comments. It's not
21 surprising to me with something as complex as this, when
22 you're only given a limited number of choices, you've got
23 to check one box or another. But I think the Board --
24 we'll understand which parts they agree with, which parts
25 they don't, et cetera.

1 Mr. McKinnon.

2 BOARD MEMBER MCKINNON: I have a short question
3 and then a comment. And the short question goes back to
4 the question DeDe asked a few minutes ago about giving
5 credits for keeping existing BEV vehicles in the state,
6 hopefully long -- you know, fairly lengthy leases or
7 allowing -- setting up a situation where people can
8 purchase the vehicles.

9 And sort of my understanding of the dynamic of
10 that problem is that those cars get cleaned up and taken
11 to another state and given credit in another state.

12 Is that a fair analysis of why what we have in
13 terms of credits doesn't work?

14 EXECUTIVE OFFICER WITHERSPOON: That's part of
15 the answer why it doesn't work. The other part of the
16 answer is that some manufacturers are taking the cars back
17 and not releasing them at all, not reconditioning, not
18 putting new batteries in, and want to be out of the BEV
19 business.

20 VEHICLE PROGRAM SPECIALIST SHULOCK: Just one
21 clarification. If a car is placed new in California and
22 then cleaned up and moved to another state, it would not
23 receive the full new vehicle credit in that other state.

24 BOARD MEMBER MCKINNON: Okay. Well, that is my
25 question. And what kind of credit does it get in another

1 state?

2 VEHICLE PROGRAM SPECIALIST SHULOCK: It would be
3 similar to what's happening here. In year four one-tenth
4 of the credit it would earn as a new vehicle.

5 Now, there could be -- if they put in a new
6 battery pack or -- you know, it depends on what you mean
7 by clean up. If it's rebuilt in some fashion, there may
8 be other issues involved. But if the vehicle is just
9 removed from California and then put in another state, it
10 is not treated as a new vehicle.

11 BOARD MEMBER McKINNON: Okay. But it can be
12 treated as a new vehicle if a new battery's put in and
13 it's upgraded and -- okay. That answers my question.

14 Here's my comment. And the comment is, being
15 fair -- I want to be fair to all parties involved, staff,
16 the automakers, the engineers, the people that bought the
17 cars -- everybody, we have come a long, long way. A lot
18 happened over this last decade or so. And I think
19 everybody involved can be proud of that.

20 With that said, I am very, very interested in the
21 numbers, in the end-game here. The idea of it's so
22 flexible that we don't have numbers in the out-years is
23 just really unappealing to me. I think we're setting up a
24 dynamic that is far worse than the one we have now where
25 we have a challenge every couple of years and we have to

1 have hearings. Then we're going to have hearings to be
2 able to up the numbers. It will be portrayed as unfair to
3 the automakers not getting a timeline that tells them
4 what's expected. It will cause more delays. And I
5 really, really have a problem with no numbers in the
6 out-years. I think we're asking for worse than sort of
7 the trouble we've had along the way here.

8 And worse is not placing blame on anybody.
9 Technology changed. Nobody thought about hybrids back in
10 1990. You know, in listening to Dr. Freeman -- I was
11 around in 1990. I was around watching CalStart be formed,
12 and followed this very, very closely in 1990.

13 And so while I'm proud of the accomplishment, I
14 too worry that we're giving up BEV too early. And I guess
15 my only sort of difference is that I don't have a problem
16 leaving the mix between BEVs and fuel cells on the
17 alternative path to a mix that's determined by the
18 manufacturers, so long as we do a credit scheme that is a
19 fair credit scheme.

20 And so with that, what I'm really saying -- and I
21 said it to the auto manufacturers last week -- what I want
22 to hear about is numbers. Because if anybody thinks I'm
23 going to vote for it without numbers, I'm not voting for
24 this without numbers. As far as I'm concerned, we need to
25 have solid numbers at the end of these hearings that we're

1 voting on. And maybe there's some amendment in the 45-day
2 period. But to walk away from here without some
3 expectations for everybody involved, the little folks that
4 produce parts to the cars, the people that are developing
5 technology, it is just plain unfair and unmanageable to
6 come out without having some numbers that set a course of
7 where we're going.

8 CHAIRPERSON LLOYD: Yeah, I don't think you're
9 alone in that, Mr. McKinnon. I think you'll find all your
10 colleagues feel the same way.

11 Seeing no other questions, we'll continue with
12 Dr. Anderman, wherever he is. Oh, there he is, back
13 there.

14 Dr. Anderman, Dr. Frank, Louis Browning.

15 I understand Dr. Anderman has got a PowerPoint
16 presentation.

17 Do you have any approximate timeframe?

18 DR. ANDERMAN: Fifteen minutes, I was told.

19 CHAIRPERSON LLOYD: Well, I'm not going to
20 disagree with staff if they told you 15 minutes.

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

23 DR. ANDERMAN: Good Afternoon.

24 I was asked by -- I am a member of the --

25 BOARD MEMBER HUGH FRIEDMAN: Pull it closer.

1 DR. ANDERMAN: I was a member of the BTAP 2000
2 panel. And I was asked in the beginning of the year to
3 provide a very brief review of the progress in EV battery
4 technology since June 2000 publication of that panel.
5 It's a report of that panel.

6 The views here are my own. Even though it's a
7 follow-up work, it's a work I've done on my own and it
8 does not represent a follow-up of the whole group.

9 --o0o--

10 CHAIRPERSON LLOYD: Done on your own, but
11 supported by ARB?

12 DR. ANDERMAN: Supported by ARB, yes, for sure.
13 Contracted and supported by ARB.

14 Thank you.

15 Source of information. The main source of
16 information is a study I've done between April 2001 and
17 really April 2002, and then follow-up meetings during 2002
18 and early this year. But the status of the advanced
19 vehicle and the parcels that are going to power those
20 advanced vehicle, an advanced vehicle being a mostly
21 hybrid and much lower to a smaller degree as far as the
22 study, a battery EV and fuel cell EV.

23 That study was a multi-plan study with, by now 60
24 subscribers. But more importantly I interviewed 30
25 companies in 50 some visits around the world. And when I

1 say interview, it's anywhere from a two hour meeting to a
2 full day plus dinner meeting, reviewing where they are as
3 far as batter technology and advanced vehicles.

4 Of course it's full participation in conference
5 with the active industry an have conference myself about
6 the subject. And the work this year was really limited to
7 a couple of weeks of -- the type sent to the major battery
8 development, battery development for EVs and got answers
9 from six of those major developers.

10 --o0o--

11 DR. ANDERMAN: The highlight of the finding.

12 One, direct effort to develop EV batteries have
13 generally declined over the last three years.

14 Two, battery development for hydro electric
15 vehicle application continues to gain momentum.

16 Three, steady and predictable progress, but no
17 breakthrough in battery technology.

18 And four, and probably very important for this
19 hearing, improvement made through the hydro electric
20 vehicle battery effort will have a significant positive
21 effect on the cost to implement of electric vehicle
22 batteries.

23 --o0o--

24 DR. ANDERMAN: Add I will go and look at the two
25 main conclusions of the BTAP June 2000 report, and give

1 you a comment about where we are today around two and a
2 half or three years later.

3 The first conclusion was That Nickel Metal
4 Hydride batteries show good characteristics and
5 reliability in EV application with a life expectancy
6 exceeding six years.

7 The second one the, specific energy approaching
8 70 watt hours per kilogram. That translated to real life
9 branch of practical midsize car, like the RAV4 or EV Plus
10 of 70 to 100 miles.

11 Price for a typical 30 kilowatt-hour pack was
12 projected at the time to drop to about \$15,000 per pack.
13 That's a production of volume of 7,000 per year. From
14 that number to as low as potential \$9,000 at volumes of
15 hundred of thousands per year. And the third number
16 should not be there.

17 --o0o--

18 DR. ANDERMAN: Comments where we are today, 2003.
19 Nickel metal hydride batteries continue to show good
20 performance and good life. Improvement in specific energy
21 are only incremental in the few percent -- probably below
22 10 percent, which means no significant change in range
23 capability.

24 While life may be longer than six years there is
25 still no data to support a battery life that will last for

1 the life of the car, which mean 10 or 15 years. Though
2 there is hope.

3 For low pricing and was the pricing that was
4 suggested in the BTAP report, one of both of those two
5 very significant events have to happen. One is
6 significant reduction in the price of nickel metal, which
7 is a key raw material into several of the material that is
8 going into nickel metal hydride battery. However, that
9 price is independent of the market, so we cannot predict
10 it or focus based on changes there. The price today is
11 relatively low in comparison to the last 10 or 15 years.

12 And the second one is relocation of production to
13 China or equivalent low-cost labor area that may change
14 some of the rules of the economic. And still probably
15 have limitation because in our BTAP estimate we assume
16 material cost responsible for 70 percent of product cost.
17 And so it material cost don't change, you have relatively
18 limited amount of additional reduction possible by
19 reducing labor and overhead.

20 --o0o--

21 DR. ANDERMAN: Conclusion 2 of the BTAP report:
22 Current lithium ion electric vehicle battery do not have
23 adequate durability. Safety under severe abuse is not yet
24 fully proven. Early cost of this battery is expected to
25 be considerably higher than that of nickel metal hydride

1 EV battery. And Even in true mass production the cost of
2 lithium ion batteries is unlikely to drop below those of
3 nickel metal hydride without major advances in material
4 and manufacturing technology.

5 --o0o--

6 DR. ANDERMAN: Where we are today 2 1/2 years
7 later: Improvement in life of lithium ion are occurring,
8 but a bit too early to quantify if we want to project 8,
9 10, or 12 years life. There are two chemistry involved in
10 lithium ion battery -- two common chemistry:

11 One, based on nickel -- lithium nickel cathode.
12 And this one increase your potential for significant
13 improvement of life over what we have seen three or three
14 or four years ago. And over five and up to six, eight, or
15 possibly ten years life may be possible, though definitely
16 is far from being proven today.

17 The other cathode that's been used by many of the
18 manufacturers is based on manganese chemistry. And this
19 one still suffer from short life at moderately elevated
20 temperature; probably less than five years still today.

21 --o0o--

22 DR. ANDERMAN: Abuse tolerance work mostly for
23 hybrid electric vehicle implication is showing steady
24 progress. And I would dare to say that we are fairly
25 comfortable that with a lithium manganese based chemistry

1 the safety of the battery will be manageable. However,
2 unfortunately this is the same cathode where we did not
3 get the life. So the chemistry is not helping us in this
4 case.

5 For the nickel-based lithium batteries, there is
6 no satisfactory safety or abuse tolerance data as of yet.
7 And there is a lot of progress, but we are still far from
8 being there, with being able to manage a battery under
9 abuse conditions, and fires is a main concern.

10 Cost is dropping, though no major breakthrough in
11 material selection or processing. In other words are we
12 are seeing fairly rapid reduction in cost both in the
13 consumer market and the hybrid electric vehicle market for
14 the batteries, but the basic material that have been used
15 five years ago are still being used now with no
16 breakthrough, which mean it's unlikely that we will see --
17 with existing design that we will see pricing lower than
18 nickel metal hydride. Probably relatively similar. But
19 lower is unlikely.

20 --o0o--

21 DR. ANDERMAN: So here is a summary of the key
22 characteristics for EV battery. And I only include here
23 three chemistry.

24 The lead acid: Was limited specific energy.
25 Probably two to five year life. And cost today in the

1 \$4,000 to \$6,000, and projected to be closer to \$3,000 if
2 the volume goes to hundreds of thousands per year.

3 Nickel metal hydride: Specific energy almost
4 double, about 65 watt hours per kilogram. Operating life
5 for only five to ten years. Cost today, \$15,000 to
6 \$25,000. And you're shown here number -- it is actually a
7 little higher than what we saw in 2001. The reason is
8 that there hasn't been any scale-up in the major
9 manufacturing to higher volume. And basically the RAV4
10 battery will produce on the same line it produces the MOA
11 battery of '98. They have not scaled up to thousands per
12 year. This line can make maybe 1,000 per year. At
13 hundred thousands the price estimate is the same that we
14 had three years ago. Safety is not a problem. Technology
15 is maturing.

16 For lithium ion it was with two different
17 cathode:

18 With manganese about 90 watt-hour per kilogram.
19 Two to five years life. And cost, very high today, but
20 could go down to about the same range as nickel metal
21 hydride.

22 With the nickel chemistry specific energy's
23 higher, 130 watt-hour per kilogram. Operating life, I'm
24 saying four to ten years. And there is hope that ten
25 years may be possible. Much higher cost today. And cost

1 in the future, probably slightly higher than a manganese
2 chemistry. However, safety is still a concern, and the
3 status is development.

4 --o0o--

5 DR. ANDERMAN: I would like to move now and talk
6 about what the implication of the battery -- of the hybrid
7 electric battery development to EV batteries. And that's
8 an area that we just touch upon in the report in 2000.
9 And we basically say that there is no doubt that the
10 development of EV battery supported the development of AGV
11 battery. And we expect that the opposite will be true as
12 well.

13 --o0o--

14 DR. ANDERMAN: And I'm basically saying that it
15 is clear that continued research and development work on
16 hybrid electric vehicle battery by auto maker, battery
17 producer, material developers, and research organization
18 around the world, along with the increasing hybrid
19 Electric vehicle filled application experience will
20 improve the key characteristics of this battery, which in
21 turn will improve the future viability for EV application.

22 --o0o--

23 DR. ANDERMAN: And I will try to be specific.
24 There is more technical detail here that most of you are
25 probably interested to know. But I will just give the

1 highlight to you. I'm comparing an AGV nickel metal
2 hydride battery to EV nickel metal hydride battery as far
3 as key development area.

4 Start is material cost driver. In this case the
5 top six material cost driver for EV battery are identical
6 and of the same order as the top six material cost driver
7 for hybrid electric vehicle battery. So any work on the
8 right side of this table will directly benefit the left
9 side of this table.

10 2) Life driver. Nickel metal hydride corrosion
11 being the main fading mechanism for both EV and AGV
12 application. Venting of hydrogen being the second fading
13 mechanism for both EV and AGV application. Any work to
14 extend the life of hybrid electric vehicle battery would
15 directly impact the life of EV battery.

16 3) Performance driver. Here we are showing
17 improved efficiency is important for both. For EV battery
18 specific energy is the second important. For AGV battery,
19 low temperature power.

20 So basically out of ten criteria, the areas that
21 battery developers are working -- battery developer,
22 material developer are working on, nine of the ten are
23 identical for EV battery an AGV battery.

24 --o0o--

25 DR. ANDERMAN: Here is a same comparison for

1 lithium ion. I will not go through the detail. The cell
2 design are basically the same, except of course for high
3 power we are using much thinner electrodes. The same
4 chemistry's involved.

5 Material cost driver, basically the same, maybe
6 slightly different order. Life driver, similar, maybe
7 different order. And, again, safety being a significant
8 issue for both EV battery and AGV battery. And the amount
9 of work that going today to improve the safety of
10 nickel-based lithium ion battery for hybrid electric
11 vehicle is most significant at any work I've seen in
12 battery development in the past. And I have several
13 client working on different aspect of improving the safety
14 of this chemistry.

15 --o0o--

16 DR. ANDERMAN: I'd last like to point here that
17 there are several approaches to vehicle liberalization.
18 And today we are even seeing some attempt in 12 volt that
19 will be very low power, going to 42 volt with different
20 design, high voltage power assist, and plug-in hybrid.

21 And the point I would like to make that still
22 today U.S. and European car company are struggling with
23 establishing business cases for all or any of the above
24 hybrid vehicles.

25 And I would like to make the point that when I

1 asked developers, car -- automakers, what are the main
2 challenges for hybrid electric vehicle, regardless any of
3 those six or seven groups that I put there, battery life
4 and battery cost always come at the top -- top three or
5 top four. System cost is often the third one.

6 So this is not an easy area. And even a \$500 or
7 a \$1,000 battery, if it's only going to last 5 or 6 year
8 rather than 10 or 15 years is a significant business risk
9 for the auto maker, because none of us who like to replace
10 a \$600 component that may cost three or four times that in
11 the aftermarket and when we have a four or five year old
12 car.

13 --o0o--

14 DR. ANDERMAN: Environmental value of vehicle
15 retrofit, and that follow some of the comments were made
16 by Chuck and other people in the room before today,
17 including Dr. Lloyd -- electrical power and drive train,
18 electrical assist turbocharger and electrical valve
19 actuation, electrical power steering, air condition, ABS,
20 four-wheel drive, fans and pumps. All above auxiliaries
21 contribute to reducing emission. And the mass
22 introduction in hybrid electric vehicle will increase a
23 valuable position of battery or fuel cell EV.

24 --o0o--

25 DR. ANDERMAN: There was a discussion here in

1 December where several people have trivialized the fact
2 that hybrid electric vehicles are here, and so we need to
3 focus on full electric vehicle. And Of course we need to
4 focus on full electric vehicle for the future. But I made
5 the point that hybrid electric vehicles are really not
6 quite here as far as the U.S. and European market.

7 And here are the six -- seven programs that were
8 active program in January 2001. Several of them have
9 actually been announced in the January Los Angeles auto
10 show as a way that automaker and Detroit will improve the
11 fuel efficiency of SUV. We have here Daimler-Chrysler
12 from Europe. But then Daimler-Chrysler didn't want to go
13 forward. Volvo -- General Motors Silverado, and PSA, that
14 was a leading company at the time. January 2001 we have
15 here six cars that were supposed to be on the market by
16 the end of this year basically. And here we are where we
17 were 18 months or 2 years later, four of those six program
18 have been cancelled by auto maker because they could not
19 provide enough business case to go to production.

20 So what's Toyota and Honda doing has not been
21 totally caught up in the eyes of the auto maker. And even
22 though we have new announcement now for cars for 2006 or
23 7, those are still -- most of them are still 3, 4, 5 years
24 out. And based on history, I would not count on those
25 programs to go into volume production. And incentive of

1 any kind from this Board could help make that happen. And
2 I believe we all want to make that happen.

3 --o0o--

4 DR. ANDERMAN: Just to summarize. Those are the
5 companies I visited over the last two years, several of
6 them two, three, or four times, particularly the car
7 company and the major battery developer.

8 The list of other 30 companies are all involved
9 in advanced vehicle, the vehicles themselves, the
10 electrical system, or the power source, mainly the
11 battery.

12 And those are the six company who provides
13 specific information for this update. I think the
14 majority of the car -- of the MRA cars in California use
15 battery made by one of those companies. And they
16 represent lead acid, nickel metal hybrid, and lithium ion
17 EV battery producer.

18 Thank you.

19 CHAIRPERSON LLOYD: Clarify -- I wasn't quite
20 sure what you were saying. Did you say that no incentive
21 from this Board could help or that incentive can help?

22 DR. ANDERMAN: Incentive will help. Whichever
23 way, regulation, incentive, taxation. That's your field,
24 not mine. But this is right on the edge where \$500,
25 \$1,000, \$1500 for making business case for some of those

1 vehicle. And this is a case where government -- could
2 work to make it a reality and have California lead again
3 by becoming the major market for hybrid electric vehicles.

4 CHAIRPERSON LLOYD: So credits can help, you're
5 saying?

6 DR. ANDERMAN: Yes.

7 CHAIRPERSON LLOYD: The other one you make the --
8 two other comments. You make the observation on the
9 implication of the development of HEVs for EV batteries
10 contrasting the 2001 statement with the 2003. And the way
11 you've posed the conclusion there, you know, is a very
12 good research thing. But I'd be very surprised if the
13 answer to that wasn't -- it has to be yes. If it
14 doesn't -- in other words the way you phrase it, you
15 assume that continued research and development work on HEV
16 batteries by automakers, battery producers, material
17 development, research organization around the world, along
18 with the increasing HEV application experience will
19 improve the key characteristics of these batteries, which
20 in turn will improve their future viability for EV
21 applications.

22 Seems to me that that -- you know, I can't see
23 any circumstance it would not help.

24 DR. ANDERMAN: It definitely will. And I made
25 those two tables to show you how close development work is

1 relevant. Even though the optimization of the battery for
2 hybrid has to do with power and for electric vehicle with
3 range, which means specific energy, the actual component
4 that need to be worked on and are being worked on,
5 including material cost, life, and safety, are the same.
6 And it's not on -- of course it's not the car company.
7 It's the battery developer. And even more important, the
8 material developer, because this is where you have the
9 real capital. It's a major chemical company and material
10 company, that see a market, that are willing to put their
11 own company earn the money to advance technology because
12 they see competitive market that they can in the future
13 participate or that already participate, they want to
14 improve their position and make money. It is the chemical
15 companies, the material company, of course the battery
16 companies as well.

17 CHAIRPERSON LLOYD: And your slide 8 where you
18 look at the lifetime -- typical lifetime of the batteries.
19 What I'd like to relate that to is an initial staff
20 proposal that on hybrid electric batteries the battery
21 also have I think a 15 year warranty.

22 DR. ANDERMAN: Yes.

23 CHAIRPERSON LLOYD: We have now reduced that I
24 think to 10 years.

25 DR. ANDERMAN: Yes.

1 CHAIRPERSON LLOYD: But given the way you pose
2 that, that's also a significant challenge for the auto
3 companies.

4 DR. ANDERMAN: Yes, I believe that at least in
5 one of the cases the refusal of the battery company to
6 give 8 to 10 years warranty for the battery was a
7 significant factor in canceling one of the programs that
8 you have seen out there on the slide before. The battery
9 company could not afford to take the risk and give an 8 or
10 10 year warranty. The car company did not feel that they
11 can fill the vehicle with a \$2,000 battery with the risk
12 of having to replace that 7 or 8 years later. When they
13 use a multiplication factor for an aftermarket part is 3
14 to 1, which mean if they pay \$2,000, they assume the
15 customer will have to pay 6. And so this is a very
16 significant business risk for the car company. And the
17 battery company cannot afford to and they're refusing to
18 put to show them and put a fuel into a product that
19 they've only been under development for three or four and
20 five years.

21 And to give a full warranty on something like
22 this, they will have to assume that 99 percent of the
23 product will meet that warranty. And there is no data
24 whatsoever to suggest that today. There is progress, and
25 we hope that we can get to 10 years. But it's -- we're

1 very far from it, from proving that at least today.

2 CHAIRPERSON LLOYD: Thank you.

3 Questions from my colleagues?

4 Thank you very much indeed. Thank you.

5 And I appreciate the way you presented your

6 conclusions compared to 2001. It was very helpful.

7 Now we have Councilman Henry Perea, City of

8 Fresno.

9 COUNCILMAN PEREA: Hi. Good -- is it still
10 morning, or what time do we have here?

11 CHAIRPERSON LLOYD: It's morning for us.

12 COUNCILMAN PEREA: Good morning, Mr. Chairman,
13 members of the Board. My name is Henry T. Perea, and I'm
14 a city councilman from the City of Fresno.

15 I stand before you today on behalf of the sixth
16 largest city in the State of California, with a population
17 of half a million people, in urging you to oppose any
18 changes or modifications in the ZEV program that would
19 weaken the program. And I'm not here alone. Our city
20 council passed a resolution two weeks ago urging your
21 opposition to this. I have given that to you. I did FAX
22 it to you yesterday, as well as had copies made for you
23 today.

24 For the Central Valley we see this issue as a
25 very important issue, and that's why the Central Valley

1 sent me here today. We see this issue in several
2 different ways.

3 First and foremost is air quality. It's no
4 secret in this nation and I'm sure in this room that the
5 Central Valley is fast becoming on its way to one of the
6 worst air basins in the nation. Our air board -- our
7 local air board is currently looking at changing our
8 designation to becoming the worst air in the nation. Of
9 course the only other city that has this dubious honor is
10 the City of Los Angeles. So from our perspective, passing
11 any changes that would weaken a program that has been so
12 beneficial and it has the potential of becoming so much
13 more beneficial is ludicrous. We can't -- we as a city
14 and as a region will not stand for any board or any
15 elected official to weaken such a good program.

16 From another standpoint we see this issue as
17 through economic development. As you may know, the
18 Central Valley struggles every year to attract new jobs.
19 Now we're struggling to even retain the industries that we
20 do have.

21 And air pollution has become such a serious
22 problem, that we have been featured in magazines and in
23 newspapers throughout the country. So, please, I urge you
24 to cast a "no" vote and oppose any changes that would
25 affect the lives and the people in the Central Valley.

1 The vote you cast either today or tomorrow will have a
2 huge impact on all the children and all those senior
3 citizens that have asthma and that have respiratory
4 problems in our community.

5 So I'd just keep my comments brief. Thank you.
6 I appreciate your time. And thank you for having me here
7 today.

8 CHAIRPERSON LLOYD: Thank you for coming.

9 Dr. Frank, Louis Browning, Amanda Miller.

10 DR. FRANK: Hello, everybody. You've seen me
11 here before. We know each other well.

12 I have just a couple of objectives in this talk.
13 Fundamentally I'd like to see the Board move towards --

14 CHAIRPERSON LLOYD: Can you speak a little bit
15 closer?

16 Thanks, thanks.

17 DR. FRANK: Fundamentally I'd like to see the
18 Board move towards a ZEV in a progressive way. And I'll
19 outline some suggestions.

20 Most important thing is we have come a long ways.
21 And everybody has said this. I just want to be sure that
22 we continue. So where the original mandate has
23 succeeded -- we developed advanced batteries. We just
24 heard that. We developed the concept of hybrid electric
25 vehicles. That didn't come from nowhere either. That's

1 in part due to what we've done here. We've introduced the
2 plug-in concept, at least I have. And --

3 (Laughter.)

4 DR. FRANK: -- we've introduced the world to do
5 propulsion concepts. And this couldn't have happened
6 without the Board initiation way back in 1990.

7 --o0o--

8 DR. FRANK: Now, where is the mandate going and
9 where will it lead us next? Let's create the mandate --
10 by the way, I said I supported the Board and the staff,
11 and I really do. I just want to be sure that whatever
12 evolves out of staff and the Board is going to continue
13 this leadership to industry to continue the advancement of
14 automotive technology into the next decade. But please
15 focus on the near term and not the long term.

16 We just heard from Fresno. I think that
17 Fresno -- the valley is getting polluted much quicker than
18 our mandate is providing zero emission and clean vehicles.
19 And I think this is a key. We need to focus on the near
20 term more importantly than the distant future.

21 The mandate should provide a schedule to approach
22 pure ZEV in the future with an annual overall emissions
23 decrease including the full fuel cycle. I think we need
24 to analyze that carefully, and I'm suggesting the staff do
25 that.

1 Lets do it right this time. But the key is let's
2 take our time. Let's not rush into this, and consider all
3 options.

4 --oOo--

5 DR. FRANK: Just to -- I just want to reiterate
6 some of the things that we have done in the past. The
7 Hybrid Electric Vehicle Working Group, which EPRI and
8 CARB -- yourselves -- South Coast Air Quality, USDOE, GM,
9 Ford, research groups from the National Labs, ARGON,
10 Handrail, Southern California Edison, SMUD, New York --
11 this was a comprehensive study that we did. And I just
12 want to reiterate some of the results and maybe give you a
13 slight different slant on the results.

14 Here's the greenhouse gas emissions, one of
15 CARB's new charges. We're comparing here both the
16 conventional gasoline and renewable gasoline or renewable
17 fuels; we're comparing the conventional vehicle; the zero
18 range to 20-mile-range plug-in hybrid; 60-mile-range
19 plug-in hybrid; and a hybrid electric vehicle special,
20 which is a 60-mile range but with new advanced
21 technologies and body and so on; and the battery electric.

22 What we can do in this horizontal axis, we could
23 simply substitute time for that horizontal axis. HEV Zero
24 is today, HEV -- that's current hybrids of the
25 conventional kind; 20-mile-range hybrid is maybe two

1 years, five years from now when production can come up;
2 60-mile range another two or three years out; and the
3 special hybrid by 2010, something like that.

4 So what we see here is a gradual reduction of CO2
5 emissions.

6 When we look at the criteria emissions, NOx and
7 ROG, same sort of thing. So, once again, we can
8 substitute on the horizontal axis time. And this is
9 something that staff can work with.

10 --o0o--

11 DR. FRANK: Societal benefits for just a small
12 battery, 20-mile-range plug-in hybrid, for 150,000 total
13 vehicle miles you will have achieved 33 to 66,000 zero
14 emission miles. Now, isn't that better than a pure ZEV?
15 This is halfway to a pure ZEV. And 100,000 or more AT
16 PZEVs. So this technology is here almost today.

17 Thirty to forty percent less NOx and ROG; this is
18 better than the HEV Zero. Twenty to thirty percent CO2;
19 less than HEV Zero to current hybrids that don't use a
20 plug. Forty-two percent less petroleum. And, don't
21 forget, 42 percent less petroleum means fewer trips to the
22 gas station. Similar market potential as a zero-range
23 Hybrid. And retail prices, \$1600 more than a zero-range
24 hybrid. And that's 6 percent more. That's a mistake on
25 the slide. I'm sorry. Six percent more than a

1 conventional hybrid. That means instead of buying the sun
2 roof, you could have a 20-mile-range plug-in hybrid.

3 --o0o--

4 DR. FRANK: Now, here are some of the cars that
5 we constructed. I had them downstairs. But due to the
6 speed of this hearing, I asked my -- my students had to go
7 back. They have to take classes unfortunately.

8 --o0o--

9 DR. FRANK: Some other additional --

10 CHAIRPERSON LLOYD: Can you --

11 Dr. FRANK: Yeah, I can wind it up. And
12 actually -- in fact I can wind it up right here.

13 In the printout you've got some additional
14 slides. But here are some vehicles that we have
15 constructed at the UC Davis. And our objective at UC
16 Davis is to demonstrate to both the Board, staff, and the
17 public that these kinds of cars can be built by lowly
18 graduate students and even undergraduate students and
19 university. If we can do it, the car companies can do it,
20 and at a reasonable cost.

21 Thank you.

22 CHAIRPERSON LLOYD: Thank you.

23 Mr. McKinnon.

24 BOARD MEMBER MCKINNON: Yeah, I just want to
25 thank you for your presentation. In the last two hearings

1 on this subject I've tried to move amendments to make a
2 plug-in hybrid get mere credit.

3 I just really believe that a plug-in hybrid is
4 equivalent to a BEV. And the reason is that I am certain
5 that people that drive BEVs in many cases change cars and
6 get into a gasoline automobile to do other things, like go
7 on longer trips or go to the mountains. And in this case
8 you're flipping a switch. And I think for middle income
9 families it's a lot more realistic that you're going to
10 have a car that you flip a switch instead of two cars.

11 And In terms of acceptability, I think they just
12 really have a lot of merit. And I thank you for your
13 presentation.

14 DR. FRANK: May I make a quick comment?

15 The way we've designed these cars there's no
16 switch. And ours switches automatically. So you just
17 drive it like a regular car. And the only thing that's
18 required is to plug it in every day. And if you do that,
19 it's like being able to buy gasoline at 50 cents a gallon.

20 (Applause.)

21 CHAIRPERSON LLOYD: Dr. Browning. Then Amanda
22 Miller, Dave Hermance.

23 (Thereupon an overhead presentation was
24 Presented as follows.)

25 CHAIRPERSON LLOYD: Dr. Browning, again, I've

1 read your conclusions. I would appreciate if you could
2 summarize this in three minutes.

3 DR. BROWNING: In three? Oh, okay.

4 CHAIRPERSON LLOYD: Well, because the way I read
5 the conclusion is very similar to Dr. Frank's.

6 DR. BROWNING: I thought I had 10.

7 But basically what I'm here to talk about is the
8 EPRI study on breakthroughs on battery technology and a
9 life cycle cost analysis.

10 --o0o--

11 DR. BROWNING: How do I do this?

12 CHAIRPERSON LLOYD: Because we also have a copy
13 of your slides.

14 DR. BROWNING: There we go.

15 Okay. There are two things that I think are new
16 here is there's exciting new news on increased nickel
17 metal hydride battery life that's emerged in the last
18 three years. In addition, production plans for engine
19 hybrid electric vehicles by major vehicle manufacturers
20 will quickly bring down costs of power batteries, electric
21 motors, and electric controllers.

22 These two factors have big implications,
23 especially by the end of the decade.

24 DR. BROWNING: Well, I'll go by that one.

25 Basically on battery life -- there's -- three Toyota RAV4

1 EVs have accumulated over 100,000 miles on the original
2 nickel metal hydride pack. Two more have reached 85,000
3 miles. These five vehicles are projected to go from 130
4 to 150,000 miles on the original battery pack.

5 New improved positive electrode technology will
6 increase battery life and will reduce the need for costly
7 battery cooling. New control strategy will increase
8 battery life. And basically this means that the cycle
9 lives that were originally predicted by the 2000 battery
10 panel of experts, 6,000 to 12,000, are greatly
11 underestimated.

12 --o0o--

13 DR. BROWNING: This is one of the EV RAV4's --
14 this shows a lab test done by Ford on three battery types.
15 And I think the important thing here is that nickel metal
16 hydride batteries, as you lower the depth of discharge, in
17 other words the amount you discharge them on a cycle, the
18 cycle life increases significantly. And one of the things
19 we found is these Ford tests shows as much as 8,000 cycles
20 to failure when discharged from 80 percent to 20 percent,
21 or a 60 percent depth of discharge.

22 We've seen data from Saft and Anderman that have
23 said 3,000 to 4,000 cycles in an 80 to 20 percent state of
24 charge. Cal Hammer and SAE high mileage tests have shown
25 2,000 plus on an 80 percent depth of discharge.

1 CHAIRPERSON LLOYD: You've got 30 seconds.

2 DR. BROWNING: Oh, okay. Well, then I'll move on
3 here quickly.

4 CHAIRPERSON LLOYD: Because Dr. Anderman covered
5 a lot of the material you were talking about.

6 THE AUDIENCE: He's still got a presentation.

7 CHAIRPERSON LLOYD: Please, I'm listening to the
8 witness.

9 DR. BROWNING: Okay. I wanted to go over the
10 life cycle cost, because I think that's pretty important.

11 Could I have a minute to do that?

12 CHAIRPERSON LLOYD: We've got the copies here, if
13 you'd read it quickly.

14 DR. BROWNING: Okay. Basically the life cycle
15 cost analysis using basically a modified CARB methodology
16 shows that at 100,000 units per year the life cycle costs
17 for an engine-dominant hybrid is about \$500 less than a
18 CV. The plug-in hybrid is about \$1200 less.

19 --o0o--

20 DR. BROWNING: And basically if you look at cost
21 parity, we reach cost parity at about 50,000 units per
22 year with a battery electric vehicle, and at battery
23 module costs of about 450, 470 a kilowatt hour, which is
24 considerably higher than was originally determined.

25 --o0o--

1 DR. BROWNING: So --

2 CHAIRPERSON LLOYD: Can conclude please?

3 DR. BROWNING: I'll move on to the conclusions.

4 Basically HEV Zero's engine-dominant hybrids,
5 plug-in hybrids, and battery electric vehicles can reach
6 cost parity with conventional vehicles at much higher
7 battery prices.

8 Plug-in hybrids can reduce greenhouse gas and
9 criteria emissions. Because life cycle parity can be
10 reached with PHEVs, the emission benefits come at no cost
11 to the consumers.

12 --o0o--

13 DR. BROWNING: Production plans for
14 engine-dominant hybrids by major vehicle manufacturers
15 will quickly bring down the cost of power batteries,
16 electric motors, and electric controllers.

17 Battery technology has advanced so costly battery
18 replacements are minimized or avoided. And battery
19 leasing can turn up-front battery costs into operating
20 expenses, making PHEVs more attractive to consumers. And
21 I think there is a business case for hybrids and plug-in
22 hybrids.

23 Thank you.

24 CHAIRPERSON LLOYD: I think staff recognizes
25 that, at least they've given the opportunity. And we'll

1 be happy to ask each auto manufacturer their plans for
2 plug-in hybrids.

3 Next, Dr. Amanda Miller.

4 Then I think we have Toyota -- we have Dave
5 Hermance, Mary Nickerson, and Joe Tomita. I understand
6 you're going to come together.

7 (Thereupon an overhead presentation was
8 Presented as follows.)

9 CHAIRPERSON LLOYD: And I'd appreciate if you'd
10 respect us with time.

11 DR. MILLER: Yes, quite.

12 I'm representing the same EPRI HEV working group,
13 which was the consensus study on the adoption of both
14 plug-in and non-plug-in hybrids. And I was responsible
15 for the market research on the customer acceptance of
16 these vehicles.

17 --o0o--

18 DR. MILLER: And the focus was to understand if
19 there would be mainstream potential for these vehicles,
20 that -- you know, would people who aren't early adopters
21 actually be willing to plug their vehicles in, would they
22 be willing to use them?

23 --o0o--

24 DR. MILLER: What we found is that, yes, in fact
25 customers were interested in plug-in hybrids, that they

1 appreciated many of the benefits, in particular avoiding
2 going to gas stations.

3 And the participants were asked whether they
4 preferred plugging in over going to a gas station, on a
5 1-to-9 scale, given these two statements right here: "I
6 would prefer to fuel my vehicle with gas at this gas
7 station" versus "I would prefer to fuel my vehicle by
8 plugging it in at home." And what we found is that
9 respondents showed a strong preference for plugging in,
10 with as many as 56percent and 63 percent among midsize
11 consumers.

12 --o0o--

13 DR. MILLER: The other thing that we did was we
14 built a very sophisticated market model that predicted the
15 relative market shares of the HEV Zero, which is the
16 non-plug-in hybrid, and the 20-mile-electric-range hybrid
17 and the 60-mile-electric-range hybrid versus the
18 conventional vehicle. Under the scenario that you could
19 go out and if what you were looking for was a Civic, you
20 could get any of the four types. So you got the same
21 vehicle, same behavior. It's just that engine differed.

22 Respondents were told that in order to get the
23 benefits for the HEV 20 and 60 they had to plug in. And
24 in fact we saw that the market preference for plug-in HEVs
25 was around 40 percent.

1 If gas prices go up, of course that's higher.

2 --o0o--

3 DR. MILLER: So that is my presentation. I
4 appreciate your time.

5 Thank you.

6 CHAIRPERSON LLOYD: Thank you very much.
7 Appreciate your keeping to the time.

8 Any questions?

9 Of course gas is -- have you actually monitored
10 any behavior -- I've seen in the papers increased behavior
11 for just hybrids given the increased price of gas.

12 DR. MILLER: Yeah, I think we'd find if we did
13 the research over that some of the benefits about
14 independence from foreign oil would come out stronger than
15 we saw in the research we did.

16 CHAIRPERSON LLOYD: Thank you.

17 We have Toyota.

18 MR. TOMITA: Good afternoon, Chairman Lloyd and
19 ladies and gentlemen of the Board. My name is Joe Tomita.
20 I'm a group vice president for the technical and
21 regulatory at Toyota North America.

22 (Thereupon an overhead presentation was
23 Presented as follows.)

24 MR. TOMITA: I've had the pleasure of meeting
25 many of you in my role as head of Toyota's communication

1 team to the ARB, along with my colleague Dave Hermance,
2 and I thank you for this opportunity to speak to today.

3 --o0o--

4 MR. TOMITA: As you know, Toyota has responded to
5 your call to do what it can to reduce vehicle emissions by
6 providing many of the technologies contemplated under the
7 ZEV Program. We worked for five years to lease the RAV4
8 EV electric vehicle to -- and sold and leased this vehicle
9 at retail last year.

10 --o0o--

11 MR. TOMITA: We are also the first in the world
12 to mass produce a gas-electric hybrid vehicle, the Toyota
13 Prius. And we will have an announcement concerning the
14 next generation of the Prius, which will be an AT PZEV, at
15 the New York auto show next month.

16 --o0o--

17 MR. TOMITA: We will also have 20,000 PZEV
18 Camry's on California's roads in the '03 model year and
19 40,000 in '04 model year.

20 --o0o--

21 MR. TOMITA: Finally, you also may have heard
22 that we have and will continue to place fuel cell hybrid
23 vehicles in demonstration programs in California.

24 --o0o--

25 MR. TOMITA: Beyond vehicles there is also an

1 active member of the California -- partnership and a
2 founding partner of ZEV Net, the innovative station car
3 program underway in Irvine. Through these projects we
4 have worked closely with your staff. And in the case of
5 station cars, also worked directly with Board member
6 DeSaulnier, who has been a tremendous catalyst for sharing
7 these transportation initiatives in California.

8 --o0o--

9 MR. TOMITA: We have three main issues to share
10 with you today. First, our experience with retail sales
11 and marketing of the RAV EV. Second, our thoughts on fuel
12 cells and their challenges. And, third, the value of
13 hybrids, both as a bridge to and essential component of
14 the zero-emission future.

15 A representative from Toyota Motor Sales, Mary
16 Nickerson, will cover the first topic with you, and Dave
17 Hermance from the Toyota Technical Center will cover fuel
18 cells and hybrids.

19 --o0o--

20 MR. TOMITA: Before I turn to Mary, however, I
21 would like to acknowledge the efforts of your staff in
22 working to inject more technical and commercial
23 feasibility into the regulation.

24 As you will hear from us, some issues remain.
25 But overall, since no one has a clear crystal ball on the

1 automobile future, we think to continue to focus on the
2 quality of vehicles and vehicle interactions rather than
3 sheer quantities of cars in any particular category is a
4 move in the right direction.

5 Mary Nickerson from our sales department will now
6 speak to you about our retail program for the RAV4 EV.

7 Thank you again.

8 CHAIRPERSON LLOYD: Thank you for the positive
9 comments, Joe. Appreciate it.

10 MS. NICKERSON: Good afternoon. My name is Mary
11 Nickerson, and I'm the National Marketing Manager for
12 Advanced Technology Vehicles at Toyota Motor Sales U.S.A.

13 I've had the opportunity to meet and speak with
14 many of you in the past year. And thank you for the
15 opportunity to speak today.

16 In August 2001, Toyota decided to fully engage in
17 a proactive sales effort for full-function electric
18 vehicles. The purpose of my presentation is to present
19 the program's elements and results.

20 First, I'd like to take a few moments to review
21 these program elements, including the vehicle, our
22 distribution model, pricing and warranty, and specifics
23 about the marketing efforts.

24 --o0o--

25 MS. NICKERSON: Toyota offered the RAV4 EV based

1 on its popular RAV4 IC platform, known in the marketplace
2 for its utility.

3 We utilized a proven internet-based business
4 model for the Prius that accomplished two key objectives.

5 First, the system streamlined the distribution
6 process; and, second, the on-line nature allowed these
7 customers to have easy access to all information on the
8 web.

9 This system proved its mettle with Prius by
10 successfully introducing new technology and attaining our
11 sales goals for the launch and the 18 months that
12 followed. U.S. sales for Prius are now greater than
13 45,000, with about 15,000 in California.

14 Toyota also established a statewide sales network
15 of 25 self-selected dealers who were already successful at
16 selling Prius and a comprehensive EV sales and service
17 training for the dealers and their associates, with
18 participation of an ARB representative. Toyota provided a
19 demonstration unit to each dealer to allow customers to
20 test drive the vehicle.

21 --o0o--

22 MS. NICKERSON: Toyota established a third-party
23 business partnership with Clean Fuel Connection to
24 streamline the distribution and installation of chargers.

25 Toyota also created an attractive pricing offer

1 that included the charger. This price was well below the
2 cost per unit, but provided the dealer substantial margins
3 to provide motivation. We offered customers the option to
4 purchase or lease. And our lease options were equivalent
5 to the Prius, \$329 a month price after the loan fall
6 incentives were included.

7 Toyota also included a 3-year, 36,000 mile
8 warranty, prepaid maintenance, and a complimentary
9 roadside assistance program. In addition, a 5-year,
10 60,000 mile main battery and powertrain warranty was
11 provided to each customer.

12 Finally, Toyota focused on building high
13 awareness with a targeted multimedia marketing campaign
14 based on the successful Prius, which I'll now describe in
15 more detail.

16 --o0o--

17 MS. NICKERSON: Fifty thousand promotional
18 brochures were distributed with a two-percent response
19 rate. A TV spot was developed which aired on select cable
20 channels. Magazine media included California Editions and
21 11 national magazines. In addition, full-page newspaper
22 ads were placed in major metropolitan areas. Outdoor
23 media was also used in San Francisco, L.A., and Berkeley.

24 Interactive media was widespread with a click
25 through to the RAV4 EV site. RAV EV advertising campaign

1 generated almost 800 million impressions in California,
2 which was double the Prius impressions nationally.

3 --o0o--

4 MS. NICKERSON: Our marketing activities paid off
5 in generating a very high awareness level. Almost 800,000
6 visits to TOYOTA.COM were directed at the RAV4 EV web
7 page, as compared to about 500,000 visits for Prius.

8 --o0o--

9 MS. NICKERSON: Despite the high awareness of the
10 RAV EV, the sales pace was disappointingly low. These
11 results shared with ARB in mid-October reflect the sales
12 pace over time. You can see that after the initial
13 pent-up demand of 47 units in the first two weeks, the
14 average demand was about six units per week. The demand
15 for RAV4 EV remained small and did not increase.

16 --o0o--

17 MS. NICKERSON: Let's now look at another metric,
18 the ratio of consumer purchase interest to actual
19 purchases. This chart shows the number of individuals in
20 California who registered their interest on our website.
21 You can see that the number of interested customers was
22 over 2 1/2 times that of the RAV4 EV customers. But a far
23 smaller percentage actually went through with the purchase
24 of the RAV4 EV than the Prius. The fallout rate was 87
25 percent for RAV4 EV and only 27 percent for Prius. This

1 is perhaps more dramatic when comparing sales volume of
2 individual dealers.

3 This chart shows RAV4 EV and Prius sales by
4 dealer. As you can see, despite the availability of a
5 two-times greater financial incentive for dealers to sell
6 RAV4 EV's, every dealer in the program sold more Prius
7 than it did RAV4 EV.

8 Toyota of Berkeley, one of our top Prius dealers
9 in the nation, sold 108 Prius and 6 RAV4 EVs during that
10 period.

11 In summary, Toyota's retail market program was
12 based on a proven internet business model, a motivated
13 dealer network, an attractive pricing and warranty
14 program, and an extensive multimedia marketing plan. On a
15 per-vehicle basis media spending during the program was
16 more than 15 times that of Prius, and intelligently
17 targeted at customers most likely to be interested in an
18 electric vehicle. These marketing efforts were successful
19 in generating high awareness, as shown in our website
20 traffic data, but sales remained low and did not increase
21 over time.

22 To conclude, with the only full-function electric
23 vehicle available to the market, Toyota only sold at an
24 annualized pace of 300 vehicles per year.

25 Thank you for the opportunity to share our

1 perspective. And now if you have any questions related to
2 the EV sales effort, I'd be happy to answer them at this
3 time.

4 BOARD MEMBER HUGH FRIEDMAN: Are there any
5 questions?

6 BOARD MEMBER McKINNON: My first question is:
7 Was this presentation made at the workshops or other
8 places for the public for the public to kind of view and
9 get a grip on?

10 MS. NICKERSON: The presentation that we
11 presented to ARB was presented to the ARB members.

12 BOARD MEMBER McKINNON: I understand. I was in
13 one of the meetings where it was presented. What I'm
14 wondering is whether or not the public has seen it before
15 today?

16 MS. NICKERSON: I think only a limited number may
17 have seen it.

18 BOARD MEMBER McKINNON: Okay. The other question
19 I have -- and I'm willing to -- you know, if it's more
20 appropriate to ask the next speaker, let me know that.
21 The issue that was talked about a little while ago about
22 some of the used vehicles being sold or leased or
23 re-leased, where is Toyota on that issue?

24 MS. NICKERSON: Currently our fleet of vehicles
25 that are coming off lease, many of those are being

1 re-leased by those fleet customers, of which the majority
2 of those are in California. And for leased vehicles in
3 the retail program, customers have the option to purchase
4 those vehicles at the end of the lease.

5 BOARD MEMBER MCKINNON: Thank you.

6 CHAIRPERSON LLOYD: Any other questions?

7 Thank you very much.

8 MR. HERMANCE: Good afternoon. I'm Dave
9 Hermance. Afternoon to the Board. I suspect many of you
10 know me. I'm with Toyota's Technical Center. And my
11 purpose in this threesome is to review Toyota's take on
12 the regulatory proposal.

13 We're almost about to get a slide.

14 --o0o--

15 MR. HERMANCE: Toyota supports many of staff's
16 observations, particularly among those -- and reinforced
17 by Dr. Anderman's observations -- battery cost and
18 performance have not evolved as hoped. There have been
19 small incremental improvements, but there have been no
20 breakthroughs in the battery technology as we had all
21 hoped in the early stages of this process.

22 Further, there is no significant element on the
23 element on the horizon that suggests that this situation
24 will soon change.

25 Further, as reviewed by Mary Nickerson, the EV

1 market as tested is small; and at the price point -- or
2 the cost of manufacture of the vehicle is not a
3 sustainable market.

4 Finally, we agree that the fuel cell vehicle is
5 not yet ready for commercialization. And I have a little
6 more information with regard to fuel cell.

7 --o0o--

8 MR. HERMANCE: As an independent developer of
9 fuel cell technology, Toyota supports the vision of a
10 future in fuel cell transportation. Toyota began fuel
11 cell development in 1992, evaluating not only the basic
12 system components but fuels and fuel storage options over
13 a series of vehicles that were both for demonstration
14 purposes and for internal use.

15 We have announced a program of approximately 20
16 vehicles to be located in California and in Japan as the
17 first phase of a test outside of the parent organization.
18 Sometimes it's necessary to have customers other than the
19 engineers developing the product, give us some feedback
20 with regard to the acceptability of the product to the
21 future mass market. We just began this phase in December
22 of last year, and the rest of the vehicles will be placed
23 through the balance of this year.

24 These vehicles are being placed on a 30-month
25 lease. At the end of that period of time, or earlier if

1 we get additional information, we'll begin to feed that
2 information back into the ongoing development process and
3 make decisions then about what is the next appropriate
4 step.

5 The bottom line though is that additional vehicle
6 placements will be driven by the needs of the development
7 process rather than by the need to satisfy a set number of
8 vehicles. The development process has its own timing and
9 pace, which may not always agree with the regulatory
10 desire.

11 --o0o--

12 MR. HERMANC: Let me talk briefly about fuel
13 cell -- this slide actually says challenges. Engineers
14 prefer to refer to these as opportunities. There are
15 literally thousands of opportunities associated with the
16 ongoing development of fuel cells.

17 The first grouping of these opportunities are
18 those within the control and purview of the manufacturers
19 and their supplier community. They deal with the basic
20 elements of the system: The fuel cell stack, which is the
21 core of the technology; the hydrogen storage, which is a
22 major challenge because hydrogen is significantly less
23 dense an energy carrier than are liquid fuels; and then
24 what are universally referred to as balance of plant,
25 those auxiliary systems necessary to make the whole system

1 work as a fuel cell engine. They include principally air
2 management systems, fuel management systems, and water
3 management systems.

4 As you have heard, the only byproduct of
5 operation of a fuel cell vehicle is water. The downside
6 of having water as the only byproduct is in low
7 temperature environments, some of which are in California
8 and more of which are in other parts of this country.
9 There is a significant engineering challenge to manage
10 that water vapor to keep it from freezing in a point in
11 the system that you don't want it frozen in.

12 The next group of challenges are those in which
13 the auto manufacturers have a role, but also they need
14 support from other organizations outside the industry.
15 These are in regard to codes and standards. For example,
16 there are codes and standards necessary for the
17 development of the core technology, the vehicle and the
18 components of the vehicle. And those will largely be
19 worked through the Society of Automotive Engineers and
20 other international standards organizations. But to the
21 broader issues of the interface of the vehicle to the
22 refueling infrastructure and of the building safety --
23 building codes and standards, there are an almost infinite
24 number of standard-setting organizations in the world.
25 Largely this work is being pushed forward through the

1 California Fuel Cell Partnership, which has been very
2 valuable in pulling together the diverse interests. But
3 this is work that's done not only by the industry, but by
4 many others as well.

5 The other item within the -- not wholly within
6 the control of the auto industry is public awareness and
7 acceptance. There was an unfortunate incident many years
8 ago that unfortunately is brought to mind by many people
9 when you talk about hydrogen -- that, by the way, was
10 directly related to a static discharge igniting the paint
11 on the big bag that held all that hydrogen. It was not a
12 hydrogen incident. But that is the hurdle that has to be
13 jumped with the public for the perception of safety for
14 the vehicles.

15 Then the one other issue that's wholly outside
16 the purview of the manufacturers, other than we have to
17 buy some of it in order to run our limited number of
18 vehicles, is infrastructure. This area of opportunity
19 falls to government and the energy industry to provide the
20 ubiquitous refueling structure customers have come to
21 expect in their impersonal mobility.

22 --o0o--

23 MR. HERMANCE: Let's talk for a second about fuel
24 cells as an enabler of this -- or hybrids as an enabler of
25 the fuel cell future. We agree with staff's position that

1 hybrids are a significant enabler of the fuel cell future.
2 Several key systems developed for hybrid vehicles will be
3 directly applicable to the future fuel cell vehicles.
4 These include power electronics, secondary batteries, more
5 efficient drive motors, and overall control.

6 --o0o--

7 MR. HERMANCE: That's perhaps easier seen in this
8 diagram, which -- if I can get the LASER pointer to work.
9 No, it will not work. Never mind.

10 Okay. The system in -- power control electronics
11 use sophisticated power devices called insulated gate
12 bipolar transistors. They are common between hybrid
13 vehicles and fuel cell vehicles. The battery in a
14 hybrid -- or in a fuel cell vehicle, at least in the case
15 of our fuel cell vehicle, is exactly the same battery
16 taken from a Prius. The drive motors, although they are
17 larger in the fuel cell, are of the same design character
18 with the objectives of high efficiency and minimum weight
19 and space. So -- and the overall control system,
20 including regenerative braking, is directly comparable
21 from vehicle to vehicle.

22 --o0o--

23 MR. HERMANCE: One small quibble with the staff's
24 evaluation, not based on Toyota's data but based on
25 third-party data. A contractor to the California Energy

1 Commission, K.G. Duleep of E.E.A., did a cost analysis for
2 the petroleum dependent study ordered by CEC. This is
3 data extracted from his report from March of 2002.

4 It suggests the cost at today's prices and the
5 cost at 100,000 units per year volumes of the various
6 technologies. These are the tiers of advanced technology
7 components arrayed in the staff report for credit as
8 advanced components in the AT PZEV category.

9 If you look at the Tier 2 category, the mature
10 cost at 100,000 units is \$1600, and the Tier 3 is \$2400.
11 That suggests to me that the staff's evaluation of the AT
12 PZEV credit for Tier 3 needs to be incremented by a tenth
13 to get cost equity among the two technologies.

14 --o0o--

15 MR. HERMANCE: Toyota is committed to hybrid
16 vehicles, both as a great technology today and as a bridge
17 to the fuel cell future.

18 A note of caution, however. This technology is
19 not free. Today it is not even cheap. Even in the future
20 in high volumes it will not be free. The cost, translated
21 to the price of the vehicle, and the volume, mandated
22 by -- or required by the regulation as proposed, will pose
23 a significant challenge for manufacturer and marketing of
24 that number of premium cost vehicles. Some manufacturers
25 will be better positioned to respond to that challenge

1 than others. But state or federal incentives would
2 significantly reduce the hurdle to be jumped to get to
3 that point.

4 --o0o--

5 MR. HERMANCE: And then the conclusion slide.

6 At the highest levels of the corporation, Toyota
7 is committed to reducing the footprint of our products on
8 the environment. We look forward to working with staff,
9 the Board, and other stakeholders in the ongoing
10 regulatory process to clean California's air.

11 I'd be glad to take questions if you have them.

12 CHAIRPERSON LLOYD: Mr. McKinnon.

13 BOARD MEMBER McKINNON: Whatever disagreement I
14 might have with the staff proposal and whatever
15 disagreement we may have in how this gets resolved, I
16 think it's really necessary to say to you and Joe and
17 Mary, it's very clear to me as a Board member that Toyota
18 has done the very best job of any of the companies working
19 on this zero emission problem.

20 MR. HERMANCE: Thanks.

21 CHAIRPERSON LLOYD: Can I ask you, Dave, two
22 questions which are relevant to previous testimony. And,
23 again, I'd like to ask all the manufacturers -- although I
24 won't get a chance to talk to General Motors and
25 Daimler-Chrysler.

1 But do you think the credits for plug-in hybrids
2 are adequate? Under what circumstances would you see a
3 benefit in plug-in -- would convince you to get into
4 plug-in hybrids?

5 MR. HERMANCE: The credit structure appears to be
6 significantly generous and should inspire someone to
7 participate in that arena.

8 The reality, however, is that the development job
9 is somewhat more difficult than characterized by studies
10 of those who don't have to develop vehicles. There are
11 significant test procedure issues that have to be resolved
12 that are impossible to resolve until you have a vehicle to
13 review with regulatory staff to get concurrence that the
14 systems aren't defeat devices, that they are getting
15 appropriate test methods that correctly credit their
16 emissions performance.

17 So I believe that it will come. It will not come
18 soon. The near-term market is for the grid-independent
19 vehicle. Longer term, with that credit structure, I would
20 be surprised if a manufacturer didn't go there.

21 CHAIRPERSON LLOYD: Second question.

22 What about hydrogen IC engine that Mr. Freeman
23 spoke so eloquently about?

24 MR. HERMANCE: I don't know about those graven
25 images.

1 In any event, hydrogen ICE engines could indeed
2 provide a bridge if the infrastructure were to develop
3 ahead of the fuel cell. I think the task to develop
4 hydrogen vehicles -- hydrogen ICE vehicles -- it's
5 complicated when you add hybridization to it. But pure
6 hydrogen ICE vehicles is somewhat less daunting than the
7 challenge to deploy the infrastructure. If there's
8 infrastructure in need of use and fuel cells aren't ready,
9 then I think hybrid ICE could be a viable candidate.

10 CHAIRPERSON LLOYD: Supervisor DeSaulnier.

11 BOARD MEMBER DeSAULNIER: Well, first off I'd
12 like to echo what Matt had to say. And I appreciate the
13 nice comments by Joe. It's been a pleasure working with
14 Toyota for these many years. And, Dave, I enjoyed our
15 train trip in Japan. It was a good philosophical
16 discussion.

17 But follow-up to the Chairman's comment, it does
18 get into a chicken-egg problem that we've talked about in
19 terms of infrastructure. But the opportunity for internal
20 combustion engine, hydrogen, would beg to at least
21 intuitively encourage infrastructure in hydrogen
22 refueling.

23 MR. HERMANCE: You're right. It is chicken and
24 egg. It's which do you want first. Who makes --

25 BOARD MEMBER DeSAULNIER: We want both.

1 MR. HERMANCE: Then if the infrastructure appears
2 to be developing a pace and fuel cells are not, I'm sure
3 that industry will be inspired to provide hydrogen ICE
4 vehicles. There are manufacturers who are already
5 pursuing hydrogen ICE as an independent technology. More
6 of them would become interested were there an
7 infrastructure in place.

8 BOARD MEMBER DeSAULNIER: And what about hydrogen
9 hybrids?

10 MR. HERMANCE: The challenge there is you have
11 now two technologies that add premium costs to the system.
12 You have a hydrogen storage challenge that you have to
13 address. And you have to make space for the hybrid
14 components, the batteries and whatnot. You're now adding
15 complications. But certainly it's a more efficient
16 vehicle. You'd have to do the trade-offs of the specific
17 design to determine whether you wanted to hybridize or
18 not.

19 BOARD MEMBER DeSAULNIER: How long would it take
20 to take something like a Prius, if you made that decision,
21 and actually make hydrogen hybrids?

22 MR. HERMANCE: I understand one of our
23 competitors took one of our vehicles and did that.

24 BOARD MEMBER DeSAULNIER: How long did it take
25 them?

1 MR. HERMANCE: I don't know what the development
2 time -- I haven't even seen the vehicle. I just heard
3 about it.

4 BOARD MEMBER DeSAULNIER: Okay. Thanks, David.
5 Thank you, Mr. Chairman.

6 CHAIRPERSON LLOYD: Supervisor Roberts.

7 BOARD MEMBER ROBERTS: Yeah, the comment and the
8 suggestion the Tiered 3 credit, I wondered, is the staff
9 going to respond to that, the difference in the .5 and .6?

10 CHIEF DEPUTY EXECUTIVE OFFICER CACKETTE: Yes, we
11 created the three different categories with different
12 credits. It was not precisely derived from the kind of
13 cost analysis that Dave Hermance presented. We were
14 looking at -- more at what is the relative difference in
15 technology and its ability to force or move ZEV-like
16 technology to the future.

17 And the two vehicles that we were kind of
18 comparing between the Tier 3 that me mentioned and the
19 Tier 2 was the Honda Civic and the Prius. And while some
20 of their characteristics are different, motor power,
21 things like that, we didn't think they were that different
22 that it required a -- that it would justify two-tenths
23 difference in credit. So we picked one-tenth difference
24 in credit.

25 BOARD MEMBER ROBERTS: The philosophy is I guess

1 different from what we discussed earlier in the signing of
2 the credits. We were looking at the cost, and that's what
3 was driving the Toyota one or whatever it was.

4 CHIEF DEPUTY EXECUTIVE OFFICER CACKETTE: Yeah,
5 that was on the battery vehicles versus the hybrid
6 vehicles -- or the fuel cell vehicles. And, yeah, there
7 was a different philosophy at stake there. There it was
8 trying to see that -- I guess it's our view that none of
9 the manufacturers are going to build battery electric
10 vehicles in these early years. They're going to go with
11 fuel cells. But there are secondary manufacturers out
12 there who are anxious to build battery electric vehicles.
13 And so to get them into the marketplace by making their
14 credits worthwhile, we had to create a price structure
15 that would say if you didn't want to make one extra fuel
16 cell vehicle and you chose to make 20 -- buy 20 credits
17 from a secondary battery electric vehicle manufacturer,
18 that would -- there'd be an economic case to do that.

19 So in that case it was an economic comparison
20 much like Dave also tried to apply to the hybrids. But in
21 the hybrid case that's not what we're looking at. We're
22 trying to figure out how to move those hybrid components
23 into the marketplace into volumes such that they will
24 support at a later year battery electric vehicles or fuel
25 cell vehicle production.

1 And so it was a different, more of a
2 technological-based rationale than an economic based
3 rationale.

4 CHAIRPERSON LLOYD: Bob, I'd like to ask you a
5 question -- Bob Cross.

6 If my memory serves me correctly, I saw an E-mail
7 from you yesterday which had some first -- some emissions
8 data on hydrogen IC engines. And I don't know again what
9 the aftertreatment now what it was. But the numbers --
10 despite what David Freeman said, the numbers were
11 non-trivial.

12 MOBILE SOURCE CONTROL DIVISION CHIEF CROSS: The
13 staff actually had a very hard time getting hydrogen data.
14 We pursued it with both BMW and Ford, which are the ones
15 which are doing development.

16 CHAIRPERSON LLOYD: Is your mike on?

17 MOBILE SOURCE CONTROL DIVISION CHIEF CROSS: It
18 should be.

19 I have the wimpy mic of the day, I guess.

20 We contacted both BMW and Ford, which have
21 development programs going on hydrogen vehicles. And BMW
22 refused to provide us the data, saying that it wasn't
23 representative of what could be done with hydrogen.

24 And Ford provided us with the data, and it was
25 not impressive when you look at the LEV brothers emission

1 standards. And I think that one can argue that they can
2 do better, as you probably hear. But I think the issue
3 with hydrogen becomes that what they do is they get the
4 engines -- to get the NOx down they get them extremely
5 lean. And then they run into drivability problems.

6 And so their -- they have a different combustion
7 regime than what people are used to running our
8 conventional vehicles in, and there's more development
9 work that may need to be done there. So it's not a slam
10 dunk to do hydrogen, because if you want -- if you want
11 good fuel economy and good emissions, you have to be in
12 this lean regime. And you have fuel storage problems
13 because hydrogen's so hard to store. If you bring it down
14 to the technological approach we all know, which is
15 three-way catalysts, then you consume the hydrogen too
16 fast. So that it's not going to be just ask-for-it kind
17 of technology, we don't think.

18 And there's a one-pager in your folder discussing
19 the numbers.

20 CHAIRPERSON LLOYD: Do you agree with that, Dave?

21 MR. HERMANCE: I'd have to suggest that I'd have
22 to find somebody else in the company to respond. I
23 haven't done any hydrogen development. Sorry.

24 CHAIRPERSON LLOYD: Well, Kelly's coming up. So
25 I'm sure Kelly will have the answer to --

1 BOARD MEMBER DeSAULNIER: What's he driving?

2 CHAIRPERSON LLOYD: Ben Knight, Honda; and then
3 Kelly Brown, Ford.

4 And then we're going to take a ten-minute break
5 for the court report before we get into additional
6 witnesses.

7 With this batch we will finish the testimony from
8 the auto manufacturers.

9 (Thereupon an overhead presentation was
10 Presented as follows.)

11 MR. KNIGHT: I'm Ben Knight with Honda R&D
12 Americas. On behalf of Honda, I appreciate this
13 opportunity to give you comments. And we've also
14 submitted written comments.

15 Honda has demonstrated a longstanding commitment
16 to the advancement of cleaner technology in the light-duty
17 fleet. This includes our efforts to advance battery EV
18 technology, near-zero emission natural gas vehicles,
19 hybrid electric vehicles, as well as near-zero emission
20 gasoline vehicles like the Accord PZEV.

21 In addition, we've recently certified and
22 introduced the Honda FCX fuel cell vehicle that's now
23 seeing daily use with the City of Los Angeles. So when we
24 talk about what is working and what has not worked and
25 what pathways can be effective to technology advancement

1 goals and air quality, we speak from real experience with
2 these technologies.

3 We're also familiar with some of the latest
4 ongoing research on real-world emission performance of
5 near-zero emission gasoline vehicles. Now, these vehicles
6 are now demonstrating real-world emission reductions far
7 below what was considered possible just a few years ago.
8 They have air quality impacts that are similar to battery
9 electric vehicles when you take into account upstream.

10 This really is startling news and very positive
11 news. And clearly this is the fastest and most effective
12 path to improve air quality.

13 We also actively participate in the California
14 Fuel Cell Partnership. This unique partnership promotes
15 technology advancement, cooperation on broad issues to
16 prepare the infrastructure and market, and facilitates
17 fleet trials of vehicles and infrastructure as the next
18 important step. Key international players, OEMs,
19 component suppliers, and energy companies, including
20 hydrogen providers, are actively participating in this
21 partnership and developing the pathway towards commercial
22 success. It's an organization that is one of champions.
23 It has been working. And the progress is worthy of your
24 respect. In my career I'm seeing better results from this
25 partnership in success than most any other.

1 There's not been a lack of progress on technology
2 addressing clean-air goals. On the contrary, the options
3 in past cleaner air are broader and more successful than
4 anticipated in the original ZEV regulation. This has been
5 reflected in changes in the ZEV Program.

6 Staff's direction as developed in the March 5th
7 regulatory proposal is a positive direction. More
8 effective and realistic technologies and pathways are
9 promoted. Yet further ZEV progress through the
10 demonstration of a limited number of zero emission fuel
11 cell vehicles and advance in air quality goals and
12 technology pathways through the promotion of near-zero
13 emission hybrid EV's, natural gas vehicles, and
14 clean-burning gasoline PZEVs. These are technologies and
15 directions which Honda believes are worth pursuing.

16 We do have some specific comments to improve the
17 regulation. We note that the volume of AT PZEVs required
18 in the out-years grows perhaps unrealistically large.
19 These are very ambitious numbers for products whose mass
20 market consumer acceptance is still unclear. Note that
21 the four-percent requirement grows rapidly to ten percent,
22 and the credits for hybrids decrease over time.

23 We suggest the Board ask staff to reconsider the
24 limited and declining credit values or add a review
25 perhaps within this decade.

1 Second, regarding hydrogen fuel cell vehicles.
2 There's good reason why staff's plan could not find
3 volumes for industry for 2009. It's simply premature to
4 realistically meaningfully determine these volumes. We
5 strongly support staff's direction to leave it to be
6 determined. That's not zero. It's to be determined. And
7 it's not clear at the moment exactly how fuel cells and
8 hydrogen infrastructure will develop. An independent
9 panel of scientists and experts can help determine a
10 status and fairly advise the Board on the progress and
11 effort that has been going on.

12 A third positive comment. PZEVs offer truly
13 outstanding emission reductions. Their near-zero emission
14 performance real-world use is being confirmed by research
15 at the universities. When this science-based assessment
16 is taken into account, PZEV credit values may be at least
17 0.5 credits. This may be justified in light of the air
18 quality impact of these vehicles. Board should encourage
19 staff to reconsider these credit values as credible data
20 as provided for justification. There's a full spectrum of
21 ZEV technologies now that can be studied. We're in a very
22 different era from 1990, and it's very exciting.

23 I do have a couple slides to show on the internal
24 combustion.

25 --o0o--

1 MR. KNIGHT: But first the slide shows some of
2 the key clean air technologies Honda's doing. It is a
3 wide spectrum. All of these vehicles are near-zero
4 emission. They're PZEVs or SULEVs pure ZEVs. And there
5 has been a synergy, and it's helped us identify pathways
6 that work.

7 --o0o--

8 In the next couple decades if we want to make
9 rapid improvements in air quality and, frankly, have a
10 good chance to be further validated but a good chance of
11 meeting air quality goals, light-duty component internal
12 combustion engine vehicles need to play a role.

13 --o0o--

14 MR. KNIGHT: We've continued our investments here
15 and address cold start emissions, which have always been
16 thought to be the most difficult of the problem. But now
17 there's some real solutions that are very effective.
18 Catalyst deficiencies are approaching 100 percent. And
19 this is over the useful life, of the full life of the
20 vehicle.

21 Robust real-world control. What's the real-world
22 emissions like? What if the air conditioning's on or you
23 go on an upgrade, you go uphill, you accelerate rapidly?
24 These are real issues, but again we're seeing dramatic
25 excellent results and very durable systems that are

1 warranted for 150,000 miles.

2 --o0o--

3 MR. KNIGHT: One of the ways we're confirming
4 this is through on-board instrumentation. We've done this
5 both at Honda, and the universities our in a third
6 generation of this, where they're using equipment that can
7 measure less than a part per million at a part per billion
8 level. They can measure at ambient levels even if you
9 drive along the seashore with an ocean breeze passing, you
10 know, from the ocean into the city. And they can measure
11 that ambient level.

12 --o0o--

13 MR. KNIGHT: There's a slide showing an Accord
14 with -- driven for one hour on-road, real-world, air
15 conditioning on, hills, on-ramps, freeway on-ramps,
16 high-speed cruising, whatever the traffic demanded. And
17 what's startling is the ambient level of hydrocarbons is
18 in red and the car is shown in green. And this is one
19 hour of driving and measurement.

20 CHAIRPERSON LLOYD: Does this have the Premier
21 catalyst?

22 MR. KNIGHT: This is the exhaust. And Premier is
23 another way to even further enhance the performance of
24 these vehicles toward air quality.

25 --o0o--

1 MR. KNIGHT: Let me expand a portion of this in
2 the next slide just to show you how the car is performing
3 right at zero even on transients.

4 --o0o--

5 MR. KNIGHT: Dr. Lloyd, I thought I would stop
6 the slides there. But actually I'd love to give equal
7 time to ZEVs and fuel cell vehicles, if you indulge me.

8 CHAIRPERSON LLOYD: I will.

9 MR. KNIGHT: So I'll skip rapidly through
10 hybrids. I'd like to give all these equal time because we
11 have equal enthusiasm within Honda.

12 Hybrid vehicles really are advancing the electric
13 technologies, motor, transmission, power electronics, and
14 electrical energy storage on a right battery unit in order
15 control. Very high tech cars that we try to make
16 transparent to the user.

17 --o0o--

18 MR. KNIGHT: Honda has two of these now in
19 service. And if the Insight showed the public that these
20 can be exciting vehicles with tremendous performance and
21 air quality value, the civic five-passenger car broadens
22 that market.

23 --o0o--

24 MR. KNIGHT: Motor -- is the highest density
25 motor in the world, very high torque, very effective for

1 regen and propulsion.

2 --o0o--

3 MR. KNIGHT: And different -- on the second point
4 here I do want to say that different than generally
5 anticipated, the emission performance is largely
6 independent of the hybridization. And I think you can see
7 that from the earlier slide on an Accord.

8 --o0o--

9 MR. KNIGHT: Key issue with the hybrids right now
10 is seeing larger market penetration of value, of cost
11 pricing to the customer. That'll be the key to advancing
12 the market. And right now it is -- they are expensive.
13 They carry a premium price.

14 --o0o--

15 MR. KNIGHT: This is Honda's fuel cell vehicle
16 that is now with the City of Los Angeles. It's the first
17 car in the world that's been certified and put into
18 commercial use. We've had to go through all the hoops at
19 EPA and Department of Energy, and were tested there in
20 Michigan by EPA where they gave it fuel efficient -- well,
21 it has a window label just like a conventional car because
22 it went through the full process.

23 --o0o--

24 MR. KNIGHT: We had a great event launching it
25 with L.A. City on December 2nd. It was well attended.

1 --o0o--

2 MR. KNIGHT: Just to go back to that. The mayor
3 and his staff is driving the car on a daily basis, as well
4 as other people who have access. We'll have five cars
5 there by the end of June. Just part of their fleet.

6 --o0o--

7 MR. KNIGHT: And this is the layout of the car.
8 It's an electric vehicle. The motor about the size of a
9 basketball now. And everything's under the floor. And
10 the hydrogen tanks are well packaged. And we're getting
11 good mileage, serviceable range. This is double the range
12 we ever had with the electric vehicle. We can recharge in
13 four or five minutes. So it's very exciting to keep
14 pushing this technology forward and make it practical and
15 affordable, which is going to take a lot more time.

16 --o0o--

17 MR. KNIGHT: We're also using an ultracapacitor
18 on board to extend the range, increase the performance.
19 And this substitute for a battery. It has higher
20 efficiency and higher output than the battery, so it's
21 perfect for this application. I just want to point out
22 that there's several pathways to our objectives. And we
23 think this technology's a very interesting one, so we'll
24 keep working with it.

25 --o0o--

1 MR. KNIGHT: And, finally, the approach is so
2 important. And the fuel cell partnership has been good
3 for us and been very motivating to Honda. And it's great
4 to have top champions of the world at one place and have
5 thorough discussions for moving on to real-world
6 applications. Infrastructure should be matched to these
7 fuel cell vehicles carefully as we progress and evolve on
8 the technology and issues.

9 --o0o--

10 MR. KNIGHT: I also want to add that natural gas
11 vehicles are even cleaner than the internal combustion
12 gasoline car upstream. It's not exotic. It doesn't have
13 a great image to people. But from an air quality
14 viewpoint, it's tremendous. The market's very limited.
15 It relates to infrastructure. Difficult issues even for
16 natural gas, which is economically well priced. Honda is
17 working on that with other parties in North America. In
18 fact, some ways, depending on the boundaries of the
19 analysis, if you do a well-to-wheel analysis, the natural
20 gas vehicle exceeds or maybe farther exceeds the battery
21 electric unit's air quality value. So ultimately
22 performance-based evolution of ZEV policy more fairly
23 recognize the real contributions of these vehicles.

24 In summary, staff's ZEV Program direction
25 emphasizing or creating optional pathways based on fuel

1 cell vehicle technology advancement and demonstration and
2 near-zero emission hybrid EV's, natural gas vehicles, and
3 near-zero emission gasoline PZEVs more closely matches the
4 clean technologies and pathways that are more effective
5 and realistic than achieving ZEV Program goals.

6 Staff's left a placeholder for fuel cell volumes
7 in 2009 and beyond, and that's appropriate. Insertion of
8 an arbitrary vehicle number at this time can be very
9 counterproductive to the advancement of the technology.
10 So leave this to be determined.

11 Honda has concern for the post-2010 ramp-ups.
12 And we want to nurture these markets carefully, and so
13 reviews I think make a lot sense and we forward to that in
14 the future.

15 Based on this, we expect CARB's ZEV Program to
16 move toward performance matrix for credits as data becomes
17 available. And Market incentives encourage the advanced
18 technology vehicles. They can be very effective. We all
19 want to see those succeed in the marketplace.

20 Thank you.

21 CHAIRPERSON LLOYD: Thank you, Ben, for you and
22 your team's leadership in many of these areas in the full
23 spectrum of advanced technology. Again, I think you do a
24 great job there.

25 And with that, Mr. McKinnon.

1 And then I have a couple of questions too.

2 BOARD MEMBER McKINNON: I'm going to ask you a
3 question that's redundant to each auto company. That is,
4 what are your plans with respect to the vehicles when you
5 bring them back from lease? Are you willing to re-lease
6 or sell them to the lessees?

7 MR. KNIGHT: We certainly went beyond the MOA
8 program. We intended a real-world test, went all out on
9 that program. And when it was concluded we continued --
10 we set up a re-lease program even before there were
11 credits. So we've been extending the lease term for one
12 or two years -- actually more than two years. And so we
13 still have over 100 vehicles on the road. There are
14 technical issues that limit the life of those vehicles,
15 mainly related to battery performance. But we're so far
16 keeping them on the road. And of course there are some
17 credits for doing that now.

18 BOARD MEMBER McKINNON: Thanks.

19 CHAIRPERSON LLOYD: Could I also ask, Ben, two of
20 the questions I asked Dave.

21 How do you see plug-in hybrids and also how do
22 you see hydrogen IC engines?

23 MR. KNIGHT: You know, plug-in hybrids has been
24 an exciting concept. But I think we've learned a lot by
25 developing both battery EV and Hybrids in many

1 configurations. And the plug-in hybrid actually if you
2 wanted to run all-electric range you need about a full
3 electric motor, a full size battery like a battery EV.
4 Even on our EV we had a 25-percent power-down switch.
5 Even our customers mostly did not want to use that. It
6 didn't have enough acceleration in so many normal traffic
7 situations getting on freeways. And so that plug-in
8 hybrid even with a large electric motor is going to kick
9 on the engine, you're going to have a cold-start emission.

10 So, first, I don't think the emission performance
11 is necessarily better or different because that's going to
12 kick on on every on-ramp, you know, every time you get
13 into the US06 kind of modes. A little bit higher speeds
14 on the freeway, very normal speeds or accelerations.

15 Secondly, to get battery life -- we can do it on
16 a hybrid when we just tap the sweet spot of the battery.
17 And that's what we're doing on our hybrids, and Toyota's
18 doing. Then you can get a very long battery life. It
19 works well. But you get high chemical stress when you
20 bring it up to full charge or deeply discharge it. And
21 that you need to do everyday. So it's really an issue of
22 battery technology not being there for that type of
23 configuration.

24 CHAIRPERSON LLOYD: Hydrogen IC?

25 MR. KNIGHT: Hydrogen ICE. You know, if we had a

1 perfect renewable grid it would be very exciting to work
2 on that. Right now, the environmental performance of
3 those vehicles I think does not compare to our natural gas
4 vehicle. So we're using natural gas directly in the
5 vehicle. And near-zero emissions, zero toxics, zero
6 particulate matter. Just absolutely starting emissions
7 performance, upstream and downstream.

8 And with a hydrogen vehicle range gets much
9 shorter because the density is a third. And that's why
10 hydrogen is a great pick for the fuel cell. They really
11 go together. We've got in our car today 2 1/2 times the
12 efficiency of a conventional vehicle. So we're getting up
13 to a serviceable range, at least for the City of L.A.
14 Maybe not for consumers yet.

15 And so I think that you -- one concept is to
16 promote the hydrogen internal combustion vehicles as if
17 they'll pull through the infrastructure. But I think from
18 what we know today, it makes much more sense to work on
19 the infrastructure technologies options. They're so
20 exciting. Work on that in tandem with the fuel cell
21 vehicles, match them up, and step by step decide what
22 halfway really makes sense.

23 So I would just urge a little caution there.

24 CHAIRPERSON LLOYD: What's your annual sales of
25 natural gas vehicles in California?

1 MR. KNIGHT: In California, well, we work hard --
2 it's a couple hundred vehicles per year. And we're going
3 to try to increase that with the home refueling option in
4 the future. We think that could bring alternative fuel
5 like natural gas to a consumer market, have a new
6 convenience.

7 CHAIRPERSON LLOYD: And your sales of EVs when
8 you had them there?

9 MR. KNIGHT: The sales of EV'S, to the consumer's
10 side we're less than 100 a year. And we had a
11 full-fledged program for two full years with newspaper ads
12 in all the major California cities, magazines for two,
13 three full years coming out every week. Direct mail
14 campaigns. And we saw so few customers.

15 CHAIRPERSON LLOYD: Dr. Burke.

16 BOARD MEMBER BURKE: Everybody knows David
17 Freeman's a real close personal friend of mine. But I
18 have to take unabridged with his statement "not in my
19 lifetime." Well, when you're 77, that's a pretty safe
20 statement to make about anything.

21 (Laughter.)

22 BOARD MEMBER BURKE: I had the good fortune
23 wearing my South Coast Air Quality Management hat to go to
24 the presentation at the city hall for the FCX. It
25 obviously created a lot of interest and curiosity of the

1 first commercially used fuel cell car in California.

2 But my concern was durability. And my concern
3 was, you know, did it really have a place in real life
4 market today.

5 So what I did was -- last Wednesday I had one of
6 my staff -- because I didn't think that if I called, I'd
7 get the real answer. I had one of my staff call the
8 maintenance department of the City of Los Angeles and ask
9 the maintenance director what he thought of the FCX. And
10 he said, "There's only one problem." And the guy said,
11 "Well, what was that?" He says, "I don't have a hundred
12 of them." He said, "This thing" -- he said, "This is it."
13 He said, "If I had a hundred of these" -- he said, "My
14 problem is keeping the councilmen off me because they want
15 them." Well, it wasn't five minutes later that my phone
16 didn't ring. It was one of the city councilmen calling,
17 he says, "Look, man, I want to get one of those fuel cell
18 cars. I want you to call Ben Knight out at Honda." So
19 thank God, Ben wasn't at his desk.

20 (Laughter.)

21 BOARD MEMBER BURKE: So I left the councilman's
22 name and phone number in his voice mail and told him to
23 contact him.

24 But I just think that Honda's work on this fuel
25 cell thing has been phenomenal. And anybody who says that

1 fuel cells can't work in cars needs to go see this vehicle
2 and ride in it.

3 CHAIRPERSON LLOYD: All right. I think also last
4 night a couple of the Board members had a chance to go out
5 to the partnership. And we'll probably get into that.
6 After you drive some of those vehicles -- and they're all
7 excellent vehicles.

8 So we appreciate it. And thank you very much.

9 Any other questions from the Board?

10 Thanks, Ben.

11 Kelly, before the break. And, by the way, you
12 really didn't need the armed guard to come today.

13 MR. BROWN: It may be too early to tell, Mr.
14 Chairman.

15 (Laughter.)

16 BOARD MEMBER DeSAULNIER: Wait until we make our
17 decision.

18 MR. BROWN: I asked them who called them in
19 actually.

20 BOARD MEMBER McKINNON: He works for the great
21 State of California, so we're clear that he's one of us.

22 I play ball at his academy every Wednesday night.
23 So we welcome him here. And I'm sure after he's heard us
24 all get miserable about, you know, what little quantities
25 when he's out doing patrol and he sees a car smoking and

1 spewing, remember us.

2 MR. BROWN: For the record, my name's Kelly
3 Brown. I'm Director of Vehicle Environmental Engineering
4 for Ford Motor Company.

5 I left the products lights at home this time.
6 The last time I remember, Dr. Lloyd, you told me not to
7 turn it into a sales pitch.

8 CHAIRPERSON LLOYD: Well, if you're still selling
9 the city car and whatnot, we're okay.

10 (Laughter.)

11 MR. BROWN: Just as a little background. I have
12 a couple of background slides. And then I'll get into the
13 meat.

14 There have been a lot of air quality
15 improvements. We all know this but tend to forget it.
16 The South Coast, for example, has cleaned up dramatically
17 in the last 20 years or so. Still isn't down to where it
18 needs to be, but it's a dramatic improvement. And the
19 reason I bring that up is we also sometimes forget that
20 our industry played a part in that.

21 --o0o--

22 MR. BROWN: Occasionally, we hear how much the
23 stationary source has done. And I don't think people
24 really realize how much our product as an industry, not
25 just my company but my competitor's too, have done. If

1 you look at the chart on the left to see where we've come
2 from uncontrolled just on hydrocarbons, for example, and
3 then moving to the right. I stopped it at 1993, because
4 if you try and put it in there, you can't find it. So we
5 blew that up on the right as to what happened from '93 on.

6 And as you move out to the right -- and I think I
7 was probably the guy that Chuck Shulock was talking about,
8 the PZEV guy. In fact, I thought at the beginning, Mr.
9 Chairman, you said give PZEVs a chance. Was that what you
10 said?

11 (Laughter.)

12 CHAIRPERSON LLOYD: That's good.

13 MR. BROWN: I'm the type of guy that thinks that
14 PZEVs are kind of the Rodney Dangerfield of our
15 profession.

16 If you look there just on hydrocarbons -- and
17 this isn't the best example for a PZEV, if you look at the
18 hydrocarbons on the PZEV versus a ZEV with the powerplant
19 emissions, You can see it's pretty darn close. So PZEVs
20 aren't something to wrap the fish in. They're good
21 products.

22 --o0o--

23 MR. BROWN: Mrs. Ford was insistent on getting an
24 electric vehicle, even though it was competitive because
25 she didn't like internal combustion engines. But she

1 bought from a family friend, Thomas Edison. And this is
2 her car up here. And this is a truly ZEV, because they
3 lived on the Rouge River and he put his own powerplant in.
4 He dammed the river, and you didn't need permits then.

5 And so this is truly a zero emission vehicle.

6 And I put in the charging station on the right just to
7 show that it doesn't conform to the CARB standards.

8 (Laughter.)

9 MR. BROWN: But the bottom line of the
10 presentation I really think the staff as much as I like to
11 get my licks in, just like everybody else who piles on
12 with them, did a good job of trying to not please
13 everybody, and sometimes you don't please anybody.

14 But in the near term the requirements are
15 achievable, at least out through 2008. We have plans in
16 place and we can deliver that.

17 The longer term 2009 and beyond there's some
18 pieces of that that aren't sustainable. And the minimum
19 ZEV requirement needs some evaluation. I'm going to go
20 into each of these in a little more detail.

21 --o0o--

22 MR. BROWN: The longer term requirement I thin a
23 lot of you have heard me say this before, if you look at
24 the curve on the right, a lot of this happened after the
25 last board meeting, in the 11th hour. There was confusion

1 over adding more trucks.

2 This is a manufacturer that looks an awful lot
3 like my company, and that's just the AT PZEV and PZEV
4 requirement ramp up on the right. And the reasons for the
5 ramp up are shown on the left. First, the mandating
6 increases from 10 percent to 16 percent, inclusion of
7 light trucks which, in my company's case, about doubles
8 the volume. Collection of manufacturers. We just
9 happened to have the fortune to buy up a bunch companies
10 recently.

11 And while all this is happening, it's almost
12 like the perfect storm, the vehicle credits per unit are
13 dropping down. They phase out. So as the demand for
14 credits goes up, the vehicle credits decrease.

15 And the last point as some in, I think, the
16 public sector once we referred to as the credit glut. By
17 2008, most of the credit glut, if there is one, should be
18 done.

19 --o0o--

20 MR. BROWN: First the AT PZEV volumes. The long
21 term AT PZEV volumes don't reflect a market demand. And I
22 think I can see how this happened. If you keep 10 percent
23 mandate you cap PZEVs at 6 percent, and you drop the pure
24 ZEV to zero or near zero, that only leaves the silver to
25 grow. I mean It's a zero sum game.

1 And in retrospect, we were a little surprised as
2 we ran the out years and saw how big that got. So I don't
3 think that was done with any great malice in mind. I
4 think it was just an artifact of changing ga lot of
5 numbers.

6 But one way we can handle that is PZEVs could
7 handle greater than 6 percent. It's something that we
8 haven't solved in all our products, but it's something,
9 again, that's very close to ZEV, it's darn near a ZEV.

10 It is from an emissions standpoint, it's dead on
11 equal to an AT PZEV. So there's no -- if you let more
12 PZEVs satisfy the AT PZEV category, you don't lose
13 anything from an environmental basis. They're dead on
14 even. They're both PZEVs.

15 The PZEV standards, again, were set to
16 approximate the powerplant emissions to recharge a ZEV.
17 And I'm not saying here to give up on the -- you have to
18 give up on the zero program. All, I'm saying is in the 3
19 binning you've got you can do some reshuffling and make
20 the program more sustainable, and you don't have to give
21 up on your principles.

22 The long-term requirement, this is where it gets
23 a little tougher. We think it makes sense to allow
24 greater flexibility to use mixes of ZEVs, AT PZEVs' and
25 PZEVs. Part of the reason the staff had such a hard time

1 trying to figure out what to do, we in industry tried to
2 see if we could come to one mind to make it simpler to
3 tell you what we want.

4 And the companies' positions are so different
5 that there's no one scheme that fits all companies. And I
6 guess that's good news that we are competing. And when
7 you're in small niche markets, when everybody piles into
8 one area, we've seen what that does, it destroys the
9 product. Because we all end up with fire sales, giving
10 them away and it damages the credibility of the product.

11 --o0o--

12 MR BROWN: The minimum ZEV requirement. Here's
13 where we get to the controversial piece and you're all
14 starting to smile or frown. We think the staff has taken
15 a correct approach. And I tried putting your hat on to
16 think of how I'd deal with this too.

17 It's too difficult to determine how many ZEVs
18 make sense, especially they're bound to be fuel cells I
19 think, in the 2009 and beyond period. We support the
20 expert review panel. We also think that that panel and
21 the staff and the Board can make use of the fuel cell
22 partnership as input to learn, because we're going to be
23 making this up as we go along. And this would avoid
24 having you pull a number out of the air and running the
25 risk that in all likelihood unless you were very lucky,

1 it's going to be wrong and we're going to have to do
2 something again in a few months.

3 The requirements in 2009 ought to be based on the
4 conclusions of that panel, but I'm not suggesting you
5 abdicate your authority either to the panel, the process.
6 And I think this is what staff envisioned, is to include a
7 to-be-determined in the ZEV revisions.

8 I think a lot of people read the 2009 and beyond
9 as zero, but I don't think that's what the staff
10 envisioned. I read it as to-be-determined, it's a number
11 to be set later. The expert staff would do the study.
12 And I think the battery panel was probably one of the
13 better examples of a credible, independent review. The
14 battery panel, I think, was very thoughtful and pretty
15 honest on both sides.

16 The staff would then consider the input from the
17 review. They'd obviously put their own input to it, take
18 the -- but not necessarily be bound to take their
19 conclusions and recommendations. And then again the staff
20 would make recommendations to the Board, and you've never
21 been shy if you disagree to say so.

22 I think that's a good process and it sends the
23 right message to all the parties. If you pick a number
24 out of the air, as a company, the senior management of a
25 company is it's not their money, it's stockholder's money.

1 And if they know it's just a number that's picked out of
2 the air, and it looks unreasonable and it's probably going
3 to be changed, they shouldn't waste a lot of stockholder's
4 money shooting for that number, they've got to wait and
5 see what the real number is going to be.

6 Not because they're evil pull, but because they
7 have no other choice. If there's a reasoned number that
8 comes out of a good process, and it's a fair number,
9 they're going to shoot for it and they're going to compete
10 hard against the competitors.

11 It also sends the right message, I think, to the
12 suppliers. If you tell somebody in this business that
13 even if you don't improve your product and the
14 improvements we need in fuel cells are to get -- mainly to
15 get the cost down. It's manufacturing improvements and
16 some design improvements to get the cost down. If you
17 send a signal to the supplier community that no matter
18 what do over the next few years, these guys are going to
19 have buy them and they're going to have to buy them on
20 your price and terms, it doesn't give them an incentive to
21 be hungry. And right now, we want them to be hungry and
22 working hard and to see their future is linked with ours
23 in trying to solve the open issues.

24 So sometimes the message you send isn't the
25 message that's received.

1 With that I'll take some questions, including
2 hydrogen questions.

3 CHAIRPERSON LLOYD: Thanks very much, Kelly.
4 Those are very constructive comments there.

5 Questions from my colleagues?

6 Mr. Calhoun.

7 BOARD MEMBER CALHOUN: If I were to summarize
8 your testimony, Kelly, I would, in effect, say that the
9 alternative compliance step that's currently allowed is
10 the best of the two options that are available to you; is
11 that correct?

12 MR BROWN: I'll make that decision when we're
13 done, and to see what all the requirements are including
14 the out years. And then we'll make a decision as to which
15 path we can go down.

16 Actually, if it went as currently written, we
17 could go either way.

18 BOARD MEMBER CALHOUN: Thank you.

19 CHAIRPERSON LLOYD: Mr. McKinnon.

20 BOARD MEMBER MCKINNON: Yeah. I have a little
21 bit of trouble understanding the logic that a
22 stockholder's investment, that officers of a company won't
23 invest stockholder's money in development if we put a
24 number. That somehow to-be-determined would work better.

25 Because frankly to-be-determined means I don't

1 invest until it's determined. You understand what I'm
2 saying.

3 MR. BROWN: Yeah, I'm not talking about the
4 investment. The investment is going to go on no matter
5 what you do here. Even if you wiped it out, our
6 investment is going to go on.

7 BOARD MEMBER McKINNON: For competitive.

8 MR. BROWN: Yeah. I'm talking about putting
9 programs in place to try and meet a number. If you just
10 pick a number out of the air, and people know that it's a
11 number that's picked out of the air, you have to spend a
12 lot of money to hit that number. And if you think, after
13 you spend the money, there's good reason to believe that
14 you probably did the wrong program, because that number
15 isn't real you wouldn't do that.

16 BOARD MEMBER McKINNON: Okay, well, I guess, you
17 know, something I tossed out to the industry the other
18 day, and we've seen the Department of Energy steps, the
19 sort of steps, is that somewhere along the line here we
20 need to come up with a rational number for those steps,
21 and a date that has some reasonable rational place, and
22 then think about someday, if it doesn't work, that -- if
23 there's some failure in the development of technology,
24 then, of course, we have a discussion.

25 So I'm really clear about what sort of my

1 fundamental disagreement is, is I think if we say
2 to-be-determined, we may get sort of the U.S. fuel cell
3 development stuff going on and the partnership and we may
4 have really small quantities. And I that's a real
5 different thing than getting to commercialize, you know,
6 people buy them product.

7 And I think until we push numbers, we don't head
8 there. And so we disagree on that.

9 But All I'm asking is help us with rational
10 numbers. If we're out of line, and if we're way out of
11 line, then talk to us about that. And I think there's
12 going to be numbers coming up as the day goes on, and you
13 know we do respect your opinion about it.

14 MR. BROWN: And not to be repetitive, but the
15 reason we suggested the independent panel approach is,
16 one, right now, I don't know enough to give you numbers.
17 We could, you know, pick a number out of the air. I don't
18 think anybody does, to be honest with you. We have our
19 first vehicles that are just now being used.

20 The way you normally do a development program and
21 I think if you heard a little bit of this in the Toyota
22 testimony too, you put the first sets of vehicles out and
23 you learn what you've got to learn. And then you figure
24 out what do we do for the next generation. And then how
25 many of those do we need in order to evaluate that group.

1 That hasn't been done yet. That, if we go
2 through the process of getting the feedback back from the
3 early vehicles, go through the independent panels so that
4 people don't see that it's just the auto industry putting
5 the input in and come back with the numbers, I agree with
6 you. I think the only place we really disagree is should
7 we try and do it today on a knowledge basis zero or should
8 we do it in, like, maybe 2 years from now when we actually
9 have some reasonable to believe that what we're doing
10 makes sense.

11 CHAIRPERSON LLOYD: Kelly, you just to follow up
12 on that, you say we don't know what's going to be post
13 2009. And yet you say you know that the numbers for AT
14 PZEVs post-2009 is too high. How do you know that?

15 (Laughter.)

16 MR BROWN: How do I know -- oh, that's real
17 simple. And if it's not clear, I'll be glad to clear it
18 up. The uncertainty I mentioned in answering Mr.

19 Calhoun's question, largely had to do with the number.

20 That will have a great bearing as to which path we take.

21 The HEV piece or AT PZEV which is really HEV,
22 that's too big regardless of what number you put in there.

23 There's more -- as you get in the out years of the HEV,

24 there's more numbers in there than think any of us ever

25 conceived of doing. If you look at the numbers for Ford

1 Motor Company, it's about five times our wildest dreams.

2 And so we know that's too big. And the other two
3 qualifying pieces are CNG, which we have and we sell on
4 the hundreds of units per year. Every year it's a few
5 hundred units a year, so that's not going to help.

6 And hydrogen, which without a refueling
7 infrastructure, we're not going to sell many of those. So
8 it's really an HEV requirement.

9 CHAIRPERSON LLOYD: So are you going to get to
10 the other two questions I had --

11 MR. BROWN: But I have a fix though. I didn't
12 just raise a problem. I have a fix too. The fix is we can
13 make more than 6 percent of PZEVs. AND that was my whole
14 reason for going through the background saying that
15 they're not as bad as one of the Board members, the one
16 who's grinning thinks.

17 CHAIRPERSON LLOYD: Well, would it also be
18 helpful if staff proposed the review panel would also
19 assess the appropriateness.

20 MR. BROWN: Oh, absolutely. Thank you. I meant
21 to bring that up because I listened very carefully to the
22 staff proposal and then forgot to mention it. Thank you.

23 Yes, it does sound like the right thing, because
24 it's not something we have to know tomorrow. It's not the
25 snake that's closest to our door right now. We've got a

1 lot of other things to worry about and there is time to do
2 that.

3 CHAIRPERSON LLOYD: So you come and are you going
4 to build hydrogen IC engine?

5 MR. BROWN: If we have infrastructure and if we
6 can get the NOx down.

7 CHAIRPERSON LLOYD: So you a NOx is an issue.

8 MR BROWN: Yeah. But I wouldn't say stop based
9 on that. Because in 1990 if you asked me the same thing
10 about CNG I would have said I don't know how we're going
11 to get the NOx down and we did. And the issue is very
12 similar, you're running so lean that typical catalysis
13 doesn't help you.

14 The numbers that we sent to Bob, there is no
15 add-on emission controls to that engine. Because when
16 you're running that lean, a three-way catalyst, it's very
17 similar to the problem that diesel guys have. When you're
18 running that lean, a conventional three-way catalyst
19 doesn't work.

20 CHAIRPERSON LLOYD: Then what about plug-in
21 hybrids?

22 MR BROWN: We've wrestled with that so often.
23 And the biggest reason why we never went down that path is
24 we looked -- when we started to go to a hybrid, we wanted
25 to get ride of all the things that customers didn't like.

1 And the things that customers didn't like is when they
2 have to do something that they don't normally do.

3 If they to stop at a refueling station more often
4 just for regular gasoline, they don't like. If they have
5 to hunt around to find like CNG or methanol or something
6 like that, they don't like that. If they have to run
7 around and find a plug to plug in, they don't like that.

8 The benefit of the type of hybrid that we're
9 going to do is the customer doesn't have to do anything
10 other than buy one and drive it and like it and stop for
11 gas less than they normally do.

12 CHAIRPERSON LLOYD: Supervisor Roberts,
13 Supervisor DeSaulnier.

14 MR. BROWN: It's not a technical issue.

15 BOARD MEMBER ROBERTS: Just a quick question.
16 I'm trying to figure out what the difference might be in
17 setting a number and reviewing it in a couple years or not
18 setting a number and review it in a couple years. And
19 what I'm hearing from you in a couple years we're going to
20 have some perspective that's going to affect, even if we
21 were to put something in today, that it seems that is
22 probably going to force us to review anyway.

23 And I'm wondering if there's a down side to
24 setting a number and then reviewing that every two years
25 as opposed to not setting any number and reviewing -- and

1 trying to set it in two years.

2 MR BROWN: The only thing from our standpoint
3 there's a number out there, and then we have to decide is
4 that a real number or not. Depending on the size of the
5 number, it will probably make a difference as to how you
6 execute the program or programs. And if the number is too
7 big, then we just throw our arms up and say okay now what
8 do we do. Do we hope that that the next time they're in a
9 better mood or do we wait a little while and there's
10 another administration, and the next board, I've done that
11 before, and it didn't work.

12 BOARD MEMBER DeSAULNIER: It didn't work.

13 (Laughter.)

14 BOARD MEMBER DeSAULNIER: A lot of us have been
15 through that.

16 (Laughter.)

17 MR. BROWN: In fact I just saw your predecessor
18 in the back of the room a little while Alan, I thanked him
19 for being here again.

20 CHAIRPERSON LLOYD: I saw him too.

21 BOARD MEMBER DeSAULNIER: We're fuel neutral.

22 BOARD MEMBER ROBERTS: You know, I know there are
23 people that would disagree with me, but I think if there's
24 anything that we learned, if just setting a number was
25 going to give us a solution, we'd be all driving electric

1 cars today. Setting the number didn't all of sudden set
2 aside the laws of physics and everything so all this stuff
3 is working.

4 But I'm just wondering in terms of a strategy,
5 and part of the reason why I asked for the Department of
6 Energy time line, I'm trying to figure out where our we
7 between now and then. And do we know and what do we know
8 it. And, you know, how clear is this in two years, how
9 clear is it in four years. It's very easy to set a
10 number.

11 And, in fact, if the research is done and we're
12 very successful and it happens very quickly, any number we
13 set is probably -- maybe we've blow right through that and
14 we sort of laugh, because we set a number so low. On the
15 other hand, if it doesn't come out, if not this Board,
16 some future Board is going to be having this same hearing,
17 same meeting, saying well these were all -- this was the
18 promise. This is where we had hoped to be. These are all
19 the things that we had hoped would happen that didn't
20 happen.

21 I've been through that once. And I'm trying to
22 figure out what I've learned from that, and maybe what
23 we've learned from that as a board. But I'm almost not
24 seeing the difference between saying you have a number.
25 You're going to review it in a couple of years or you

1 don't set a number and you're going to set in a couple of
2 years.

3 CHAIRPERSON LLOYD: Well, I think we're going to
4 hear a number of witnesses who would provide an
5 explanation for why we should set something.

6 BOARD MEMBER ROBERTS: That's what I'm trying to
7 bring into this discussion and get a response back. I
8 mean, we haven't talked about a number. And we're going
9 to get to the end of a very long hearing and we're going
10 to have heard from the industry. And then all of a sudden
11 somebody is going to put a number out and put it on the
12 table. And, you know what, what he's saying is right,
13 it's going to be arbitrary.

14 CHAIRPERSON LLOYD: Well, I don't think, again,
15 we haven't got a number yet, so I don't think it's
16 arbitrary. Also, I do think --

17 BOARD MEMBER ROBERTS: It will be when it comes
18 later today, watch.

19 CHAIRPERSON LLOYD: Professor Friedman. Mr.
20 McKinnon.

21 BOARD MEMBER HUGH FRIEDMAN: I was going to wait
22 a little longer on this, but since we're on the point. I
23 wasn't around. Were you, Ron, when this mandate was first
24 adopted.

25 BOARD MEMBER ROBERTS: Not in 1990.

1 BOARD MEMBER HUGH FRIEDMAN: It seems to me that
2 nothing could have been more arbitrary than to say that in
3 12 years, more speculative, more aspirational, but without
4 any real fundamental scientific basis than to say that ten
5 percent or what some percent of all sales in California of
6 motor vehicles were going to be zero.

7 And so from the get-go this was aspirational.
8 It's like in 10 years, we're going to have a man on the
9 moon or by the end of the decade. That's identifying a
10 specific thing in space, and it's a specific timeline.

11 And it seems to me that the tradition and what
12 we're continuing is an aspiration. And we have a lot more
13 data and information now. We read that CEOs of major auto
14 companies are talking about specific numbers. They're not
15 committing, obviously, but they're stating this is their
16 goal. By the year 2010 we're going to have 10,000 fuel
17 cell vehicles. Now, nobody is going to say that that's a
18 contrary, that's legally enforceable, but it's
19 aspirational.

20 So what's wrong with an aspiration, setting a
21 goal, whatever it is, 250 is what the staff's proposing
22 starting in 2009. That's the way I read it anyway.

23 Am I wrong?

24 And whatever the number is, as a signal that this
25 is what California wants, and expects at a minimum, and

1 then have an expert panel advise us or our successors and
2 have a review and listen to the industry as we've
3 listened. I've been through two of these now. And we've
4 paid attention.

5 We've questioned whether you made every possible
6 college effort try to sell, to market what you did
7 develop. And we've heard Toyota's case on the RAV4. And
8 we appreciate what is being done, and the way you're
9 developing things. But what's wrong with taking a number?

10 BOARD MEMBER ROBERTS: That's what I was asking.

11 CHAIRPERSON LLOYD: I think. Well, I think --

12 MR. BROWN: It's A good question and it deserves
13 an honest answer. And I hope it doesn't offend anybody.
14 It's not intended to be offensive. It's's the answer. It
15 has to do with credibility. This isn't the first time
16 we've gone back to the well. And our management is
17 skeptical. My management is. And I suppose the
18 management of the other companies are.

19 If we come back and they say I've got some good
20 news and some bad news. And, you know, tonight I've got
21 to -- or tomorrow you know whenever this ends, I've got to
22 write something up and try and explain what happened,
23 other than just saying it was 3 to 97 and we got killed.

24 If I say, that it's 2,500 or 6,000 or 9,000 or
25 some of the other numbers I've heard, they'd say where did

1 that come from? And I'd say well, it just came out of the
2 air. And they put it in there.

3 And they'd say based on what? And I'd based on
4 nothing. Didn't you tell them? Yeah, I told them. I
5 suggested we go through this panel. They didn't listen?
6 No, they didn't listen.

7 And they'll say, so what do we do? And I've got
8 to tell you what I'd tell them and that is we've got to
9 wait and find out what the real number is.

10 CHAIRPERSON LLOYD: Not so many years ago your
11 CEO was also claiming large numbers in much sooner than
12 2010. How did you address that point?

13 MR BROWN: I had the distinct privilege of going
14 in and telling the guy who's name is bolded to the
15 building that that wasn't a good number. I don't want to
16 do that again, either.

17 (Laughter.)

18 MR. BROWN: I think you get to do it once.

19 CHAIRPERSON LLOYD: Supervisor DeSaulnier.

20 BOARD MEMBER DeSAULNIER: Actually thanks for
21 asking that question, because Kelly you remember in 2001 I
22 went outside during a break and mentioned to you that your
23 now Chairman had made a public pronouncement that by 2020
24 Ford wouldn't be making internal combustion engines any
25 longer.

1 So when he asks where they come up with the
2 number, we followed his lead was part of the answer.

3 (Laughter.)

4 (Applause.)

5 MR. BROWN: I'll quote you on that. I won't say
6 I immediate that up myself.

7 BOARD MEMBER DeSAULNIER: Well, you probably
8 won't be able to spell my name, so that's fine.

9 (Laughter.)

10 BOARD MEMBER DeSAULNIER: Are you the one who has
11 got Dave's car? Are you the one who's interested in
12 producing a hydrogen Prius or is that another auto
13 manufacturer, Kelly?

14 MR. BROWN: I don't know who it was. I'll find
15 it.

16 CHAIRPERSON LLOYD: The Ucar. Ucar.

17 MR BROWN: No, we've got our own.

18 BOARD MEMBER DeSAULNIER: So in regards to what
19 Alan was asking about in terms of infrastructure and the
20 chicken and egg, are you interested in the idea of
21 pursuing credit for infrastructure, hydrogen
22 infrastructure?

23 MR BROWN: No, and for two reasons. The first of
24 which is I've learned that all the alternative fuel
25 programs that we've been through, we're not fuel

1 providers. And if we start getting into that business,
2 All we have is public relations sessions. We don't
3 actually accomplish something.

4 The fuel providers in this country are pretty big
5 organizations. And if they're not involved and they're
6 not doing it, it's not going to work.

7 BOARD MEMBER DeSAULNIER: But the problem dealing
8 with fuel providers and the refinery industry that I deal
9 with because four of the 13 refineries in the State of
10 California are in Contra Costa County, is they tell me
11 they don't think there's a future in this.

12 So we get in this position where the fuel
13 providers aren't interested. And at least what we're
14 talking about is trying to do some clearly defined
15 demonstration projects, where you would get credit for
16 that. Is it just something that is culturally
17 unacceptable to Ford?

18 MR. BROWN: If we can get the NOx down, that's
19 probably something we might be interested. On that kind
20 of basis, but it would have be to small. It's not going
21 to be something big that's going to, you know, move the
22 needle a lot.

23 BOARD MEMBER DeSAULNIER: I just want say to say
24 that it's hard to go through a ZEV hearing without you and
25 Sam Leonard here together so we miss Sam.

1 MR. BROWN: I heard from him last night by Email
2 and I'll send him and Email back.

3 CHAIRPERSON LLOYD: Ms. D'Adamo.

4 BOARD MEMBER D'ADAMO: Yeah, just a quick
5 question. What are you doing with the your EVs once the
6 leases are up.

7 MR BROWN: To go through the range, the Ranger
8 EVs with lead acid batteries, most, if not all -- I'm not
9 positive of all them, there may have been some that we
10 took out of service. We upgraded a lot of those to Nickel
11 Metal Hydride batteries and put them back out.

12 Now, some of these are just starting to come up.
13 In fact, two days ago, I got asked one of the Parks wants
14 us to donate the vehicle to them, because their lease is
15 up, and they don't want to give it up. We're trying to
16 decide what to do with that. We may just end up giving it
17 to them.

18 On the Think neighborhood vehicles, those were
19 all sold units. So those people own them for -- and
20 they'll probably be out there for a long time. The think
21 cities we're brought into this country under bond with
22 NHTSA, because they meet European safety requirements and
23 not U.S. And we have to get them out of the country after
24 three years or they come looking for me. They take the
25 bond and they take me if they find me. So we have to get

1 those out. We have no choice.

2 AND they won't extend them because, you know,
3 you're a very positive agency, you wouldn't believe how
4 many other government agencies are anti-ZEV. We ran into
5 it in our ZEV program in the State of California, in New
6 York, in Massachusetts. And they head of NHTSA, when we
7 had him out wouldn't even sit in any of our ZEVs. He
8 didn't like them. So for every proponent we have in
9 government, we've got a couple of very well placed
10 antagonists.

11 BOARD MEMBER RIORDAN: That's something, Mr.
12 Chairman we might --

13 CHAIRPERSON LLOYD: Mrs. Riordan.

14 BOARD MEMBER RIORDAN: Well let's follow along on
15 that. That's something we might need to help you with.

16 MR. BROWN: Yeah, the staff in California, by the
17 way, we probably wouldn't have gotten through the
18 bureaucracy at DMV, if it wasn't for your staff. And also
19 in Massachusetts, there were very helpful. We had less
20 than stellar success in New York, my old home State of New
21 York.

22 BOARD MEMBER RIORDAN: I mean, I don't know if
23 there's a, you know, what the attitude is and why. But if
24 there is something that meets our needs, and I say that
25 because it's -- we'd have to evaluate it. But if there is

1 something that's not working amongst other governmental
2 agencies for what we want to support, I think we ought to
3 be very helpful.

4 MR BROWN: Well, based on ZEVs and also natural
5 gas experience, I would suspect that we could use a lot of
6 help from this Board when we start placing hydrogen. I
7 suspect there's going to be no shortage of government
8 agencies that are going to try and put up road blocks.

9 We had a horrible time with CNG. And we even had
10 a horrible time with electric vehicles. If there's
11 anything different, there's bureaucracies that are against
12 them. We had the highest levels in some of the other
13 states, even governors involved, trying to help us.

14 CHAIRPERSON LLOYD: Well I know on that issue,
15 both at the California Fuel Cell Partnership level and at
16 the South Coast Air Quality management level, I think
17 we're trying to do everything we can to facilitate that,
18 because we recognize, Kelly, this is basically going to be
19 a. -- teamwork is required, because if we're pushing you
20 to produce the vehicles, in turn we've got to help you
21 with the infrastructure.

22 So we really do take that seriously and we're
23 actively involved. And, of course, I say the partnership
24 is a great vehicle for doing that as well as the group
25 we're talking about statewide.

1 Thank you.

2 With that, we're going to take a, this time, a 15
3 minute break till 20 of 5, for the court reporter, who's
4 dying.

5 Thank you.

6 (Thereupon a recess was taken.)

7 CHAIRPERSON LLOYD: I'd like to start. And we're
8 going to start with Mr. Reagan Wilson from Stanislaus
9 County. He has a meeting later.

10 The plan here is to go till 7:00 o'clock. And
11 then we'll have to take another break for the court
12 reporter, and probably the Board will take a break for
13 some refreshments, maybe for a half an hour, and then
14 reassemble after that time period.

15 Clearly, we've got still a lot of witnesses.
16 We've got approximately over 70 witnesses to go. So we
17 would really appreciate if you can keep to three minutes.
18 And for those of you who are, again, majority may be
19 opposing, if you can be as specific as possible in terms
20 of to what you object in the staff proposal, so we can
21 focus the comments. And as I said earlier, if there's a
22 duplication, if you can basically come up and just stress
23 that that's what you object to or you support, et cetera,
24 so that we can really move this along, but also capture
25 very explicitly, and provide us some advice of how we

1 might move ahead.

2 So I say we'll take, Mr. Reagan Wilson. Then we
3 will have Scott Briasco, Bill Warf, John Boesel.

4 MR. WILSON: Thank you, Mr. Chairman and members
5 of the Board. I appreciate your indulgence. My name is
6 Reagan Wilson. I'm the Chief Executive Officer of
7 Stanislaus County in the central valley of California.

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

10 MR. WILSON: Modesto is the County seat. I'm
11 here today because the central valley has as a serious air
12 pollution control problem. And for those of you from the
13 bay area, you know how serious we are about it, when we
14 pushed the issue of Smog II not too long ago.

15 BOARD MEMBER DeSAULNIER: Yes, I'm familiar.

16 MR. WILSON: But that's just one tool that we
17 need in the valley to help deal with a problem that's very
18 serious un federal law right now. And today the central
19 valley, the San Joaquin Valley Air Pollution Control
20 District considered issues that relate to the farming
21 industry around diesel use and those kinds of things.

22 So the air pollution issues in the central valley
23 are affecting all of us and they're starting to affect us
24 in very serious ways.

25 This program that you're talking about today is

1 important to us. And this is certainly important to my
2 county, because we think it is an important tool, both as
3 a matter of public policy and as matter of real reductions
4 in air pollution emissions in an area that needs it
5 desperately.

6 In 1990, the California Air Resources Board did
7 adopt an ambitious program to dramatically reduce the
8 environmental impact of light-duty vehicles through the
9 gradual introduction of zero emission vehicles into the
10 California fleet.

11 Your staff report says today the challenge facing
12 the Board is to determine how to achieve a sustainable
13 commercial market given the uncertainties in costs and the
14 pace of technological development. I'm not a scientist,
15 but as I've listened to the debate go on back and forth
16 today, it struck me the complexity of the issue is
17 probably perhaps more complex than a land use issue at a
18 local government level.

19 Nevertheless, I put on chart on the Board behind
20 you. And it's the only chart I have available. But I
21 think it illustrates a very important point, the green
22 chart, the bars at the back, was where your standards were
23 for zero emission vehicles in 1990.

24 The next chart, the blue one, is where you
25 revised those standards in 1996. The orange chart is

1 where you revised them again in 1998. The yellow bars is
2 where you went in 2001. And the orange and white bars,
3 which don't make any three-dimensional impact on the
4 chart, is where the staff proposal has taken you, if you
5 should adopt it today.

6 I think the message is real clear that perhaps
7 this Board isn't as committed to zero emission vehicle
8 programs as they started out to be in 1990.

9 We know in the central valley, and in Stanislaus
10 County, I actually have a program prepared to go, which
11 would purchase 200 zero emission vehicles over the next
12 three years and another 100 hybrid vehicles. We already
13 have in our fleet about 100 CNG gasoline dual use
14 vehicles. Our board's going there for several reasons.
15 One, it makes a broad public policy statement.

16 Two, as we go to mandatory car pooling, if valley
17 goes to extreme designation, we will use those vehicles to
18 have employees carpool back and forth to home, which means
19 you get two benefits out of that.

20 Three, we've looked zero emission vehicles, and
21 found out that most of our transportation in and around
22 our valley, which covers 1,500 square miles by an employee
23 is less than 50 miles a day. And so when you start
24 looking at the operational aspects of zero emission
25 vehicles, in fact, they fit very nicely into that kind of

1 environment.

2 The next thing is --

3 CHAIRPERSON LLOYD: Can you bring close here.

4 MR. WILSON: I'm working on that sir. The next
5 thing is that with things like OnStar, mobile sources can
6 now be tracked, mobile source data can now be accurately
7 identified. And when you can do that, you can start
8 really crunching down the amount of air pollution from
9 mobile sources, certainly in the central valley.

10 In the valley 65 percent of our pollution comes
11 from mobile sources, stationary sources are 35 percent.
12 This program is important. This program is one of many
13 tools we're going to need to become in compliance.

14 You have in front of you letters signed by more
15 than 60 city officials from all over the state of
16 California.

17 In addition to that, you have people like the
18 Building Industry Association of Central California, the
19 American Lung Association, the California League of
20 Conservation Voters, the Farm Bureau, Natural Resources
21 Defense Council, and others who are normally at odds on
22 public policy issues like this, who are all very much in
23 favor of preserving this ZEV Program that you adopted in
24 2001.

25 We would ask that you sustain the ZEV Program

1 that this Board set in 2001, it was not going to back off
2 of. If you can't go there, then what we would ask is that
3 you seriously consider some compromise proposals that have
4 been floated around that are in front of your staff, that
5 have been shared with people, because we truly believe
6 that the elimination of this program sends the wrong
7 message to everybody when it comes to fighting air
8 pollution.

9 Thank you.

10 CHAIRPERSON LLOYD: Thank you. One comment I
11 would make on the chart behind, you talk about a limited
12 number of vehicles. Of course, what we're trying to do is
13 eliminate pollution. And I don't think that's a
14 reflection of elimination of pollution. I think the staff
15 showed you in fact with one of the alternatives there was
16 actually greater air quality benefits than was proposed
17 the 1990.

18 MR. WILSON: Well, I've read the charts and I
19 read the numbers and I don't reach the same conclusion.
20 So I'll respectfully disagree.

21 CHAIRPERSON LLOYD: Well, I understand that.
22 I've been at this a long time so I know what I believe in.

23 Ms. D'Adamo.

24 BOARD MEMBER D'ADAMO: Yes. A question and then
25 a comment. Reagan, it's been awhile since we've talked,

1 but I understand your enthusiasm and your commitment to
2 this program and that the vision is that it be much
3 greater than what you just described, and that perhaps it
4 would move on to other areas of the valley.

5 Where have you left off with those discussions,
6 for example, going to Fresno Bakersfield, et cetera?

7 MR. WILSON: Well, Fresno is seriously
8 considering the program as a city. In discussions in
9 local governments, just in Stanislaus county, we have nine
10 cities and 22 school districts. All of them recognize
11 that this is a good cost effective way to go.

12 The other thing we figured out in running the
13 numbers is that electric vehicles are just a heck of a lot
14 cheaper to operate as a fleet. Some of us recognize
15 there's a budget crisis in the State of California, so
16 this is a way to help address some of that issue as well.

17 The last thing is it really does help us manage
18 our fleets better, which just means moving people to where
19 they need to go and a more cost effective way works as
20 well. So there are huge benefits from this program beyond
21 just the reductions in air pollution.

22 BOARD MEMBER D'ADAMO: Okay. And then just for
23 the benefit of my colleagues. I can't impress upon you
24 all enough this is the third hearing that I've been at and
25 this is the closest that I have ever felt that this

1 program has a direct impact in my neighborhood.

2 And it's just really exciting to see someone's
3 commitment in the valley. We're just now starting to talk
4 much more seriously than we ever have in the past about
5 the impact of air quality. And to see someone as well
6 respected as this individual come up to the plate and say
7 he's going to put the county's money there because it's
8 important to make a statement for other residents of the
9 valley and for other communities.

10 And I would just like to impress upon you all and
11 to staff that we've got to find a good ratio so that
12 there's enough of an incentive for these battery electric
13 vehicles, so that we can actually get them in the valley
14 and hopefully other areas of the state as well.

15 MR. WILSON: I'd like to leave the Board with one
16 thought and it goes back to the health issues. We did a
17 quick survey of the school districts in Stanislaus County.
18 And there are more than 2,800 children K through 12 that
19 suffer from asthma, in Stanislaus County alone.

20 And that is in part because we have the Highway
21 99 and I-5 I corridors. And so there's intense
22 concentrations of pollution on the cities around those.
23 Again, these programs help, and zero emission, not partial
24 emissions has got to be a part of that solution.

25 Thank you.

1 CHAIRPERSON LLOYD: And, as you know, we funded
2 the Fresno asthma study, so we're fully aware of that and
3 very supportive by the way of the community for helping us
4 on.

5 So thank you very much.

6 MR. WILSON: Thank you for your indulgence.

7 CHAIRPERSON LLOYD: Scott Briasco, Bill Warf,
8 John Boesel.

9 MR. BRIASCO: Good evening. My name is Scott
10 Briasco. I'm manage the Electric Transportation Program
11 at the Los Angeles Department of Water and Power. And I
12 appreciate the opportunity to address the Board at this
13 very important hearing.

14 The City of Los Angeles through the City Council
15 opposes the latest proposed revisions to the zero emission
16 vehicle program, and recommends that the Air Resources
17 Board take appropriate action to resolve serious problems
18 with the staff's proposal related to battery electric
19 vehicles.

20 In 1990, the Board took a look at California's
21 air quality future and took a dramatic step towards
22 cleaning air by establishing the ZEV requirements.
23 Tremendous progress has been made in EV technology as a
24 result of that action. The Board production requirements
25 have accelerated development of ZEV technologies. Quality

1 vehicles have been produced and demonstrated. EV
2 components have improved. Battery costs have been reduced
3 and will continue to drop.

4 The ZEV program has revolutionized the car market
5 by encouraging automakers and others to invest in the
6 research and development of zero emission technologies.
7 The electric and hybrid electric vehicles on the road
8 today owe their existence to the air Resources Board's ZEV
9 program.

10 Does anyone really believe progress will continue
11 at the same pace if the BEV requirements are essentially
12 eliminated, as proposed today?

13 Electric vehicles are essential to Los Angeles
14 and California because of the severe air quality problem
15 that we have here. The State has the resources and the
16 ability to lead the rest of the country and world in
17 transportation technology, which means not only cleaner
18 air but also a stronger economy with more and better jobs
19 for Californians.

20 A tremendous amount of planning and
21 implementation has been done since the inception of the
22 ZEV program to prepare the State of California for the
23 launch of the electric vehicle. This work is the
24 foundation which supports the commercialization of a
25 sustainable electric vehicle market.

1 Government agencies, utilities and private
2 businesses have contributed substantial financial
3 resources to this effort, and have become partners with
4 the California Air Resources Board.

5 LADWP was the first utility in the nation to
6 offer an EV charging rate.

7 CHAIRPERSON LLOYD: But Scott how would you
8 specifically change the staff proposal? Give us some
9 help.

10 MR. BRIASCO: Okay. I guess what I'm proposing
11 is not a whole-sale gutting of the battery electric
12 vehicle requirements. And I would encourage some kind of
13 a compromise to achieve that result. We have over 300
14 electric vehicles in our fleet of different types. The
15 vehicles work extremely well. It's been a positive
16 experience. It's not a test. We've logged over 2 million
17 miles on those vehicles.

18 The biggest problem we have is product
19 availability. We can't get the vehicles. And we have a
20 requirement under the Energy Policy Act, that 90 percent
21 of our vehicle purchases have to be alternatively fueled.
22 And we'd like to buy electric vehicles. It's our fuel.
23 And they're just not available.

24 There's been a substantial effort to put public
25 charging throughout California. Seven hundred and fifty

1 public charging stations have been installed at 450
2 different locations.

3 CHAIRPERSON LLOYD: So I think your part of the
4 compromise proposal put forward that we met with you the
5 other day, so you would support that?

6 MR. BRIASCO: I would definitely support that.

7 CHAIRPERSON LLOYD: Thank you.

8 MR. BRIASCO: Just I'll conclude. And the City
9 of Los Angeles appreciates the vision and record of
10 support for the ZEV technologies that have been
11 demonstrated by the Board over the past decade. We
12 understand that additional work needs to be done and some
13 adjustments may need to be made to the current regulation.

14 Unfortunately, the current proposed amendments
15 before you today do not sustain a ZEV program for the
16 future. So we would encourage some kind of a compromise
17 that would prevent a ZEV black out and to strengthen or
18 maintain the State's ZEV production requirements.

19 CHAIRPERSON LLOYD: Thank you very much.

20 Questions?

21 Yes, Dr. Burke.

22 BOARD MEMBER BURKE: Yeah, I really appreciate
23 you coming today. But what I would appreciate is as a
24 community member in Los Angeles is you not dismantling
25 DWP's green power program, which seems like what you're

1 dealing. And as a citizen who'd involved in the
2 environment, I would also suggest that the City Council
3 take a look at buying power for you from a coal-fired
4 plant outside the State.

5 MR. BRIASCO: Okay.

6 CHAIRPERSON LLOYD: No compromise.

7 (Laughter.)

8 CHAIRPERSON LLOYD: Thank you.

9 Any other questions?

10 Thanks.

11 Bill Warf, John Boesel, and I'm not sure whether
12 Ed is going to give his time to someone else?

13 Ed Kjaer and Dave Modisette.

14 (Thereupon an overhead presentation was
15 Presented as follows.)

16 MR. WARF: Mr. Chairman and members of the Board
17 I'm Bill Warf. I work at SMUD. I'm a systems engineer
18 and a project manager for SMUD.

19 --o0o--

20 MR. WARF: The red button. Smud supports a
21 strong ZEV mandate.

22 BOARD MEMBER HUGH FRIEDMAN: Could you please
23 speak more closely to the microphone. So some of us who
24 have a little hearing impairment can hear you.

25 MR. WARF: I was still dancing and getting used

1 to the spot.

2 SMUD founded its electric transportation group in
3 1990. I'm going do this very quickly in light of time. I
4 have eight slides in three minutes.

5 --o0o--

6 MR. WARF: We've invested more than \$21 million
7 to date related to EVs and EV research. And we've managed
8 an additional \$20 million in research related to power
9 electronics batteries in vehicles to support electric
10 vehicle development and deployment.

11 We've installed over 1,000 EV chargers statewide
12 and invested about \$10 million.

13 --o0o--

14 MR. WARF: Our research has included a number of
15 different battery types including advanced lead acid
16 nickle metal hydride, sodium nickel chloride. We've also
17 done a number of fuel cell projects. The integrated fluid
18 management technology fuel cell project was the forerunner
19 of the H-Power stack. We worked and funded the fast-track
20 fuel cell bus with Sunline and IFC Research and DOT. That
21 bus is in service now at Sunline.

22 We've done a fuel cell APU project in a
23 heavy-duty truck where we showed performance of a OEM fuel
24 cell at minus 39 C on the truck.

25 Our experience shows that battery electrics along

1 with infrastructure are available now. Fuel cells are
2 promising but development and cost reduction are still
3 needed. They're still very expensive.

4 --o0o--

5 MR. WARF: Nickel Metal hydride -- now I want to
6 talk a little bit about batteries. Battery advances since
7 2000 improved the battery electric vehicle business case.

8 Nickel Metal Hydride advances are still being
9 made. Previous speakers have talked about that, and I
10 won't go into it.

11 Lithium Ion batteries are now reaching market
12 viability. Staff in the last reported a 25 percent
13 improvement in energy capacity. They also now have
14 batteries with 150 watts per kilogram. That's double the
15 energy density of nickel metal hydride.

16 High energy versions appear very cost competitive
17 in lap tops. Enough work hasn't been done yet to make
18 cells for cars out in the marketplace, but they're very
19 close. A couple years behind nickel metal hydride.

20 Sodium Nickel chloride batteries are produced by
21 a company by the name of Mesdaya in Switzerland. They're
22 cost -- we bought those batters for \$655 a kilowatt hour
23 in 2002. They're available today for \$400 a kilowatt hour
24 in hundred module quantities, that' hundred pack
25 quantities.

1 And they're available for \$220 a kilowatt hour in
2 30,000 unit per year quantities.

3 The energy storage capacity of those batteries
4 has improved 18 percent in the last three years to 118
5 watt hours per kilogram.

6 --o0o--

7 MR. WARF: Battery technology continues to
8 improve. What I did to make this chart was I took the
9 mass of an EV1 pack, about 400 kilograms, and I calculated
10 the range if you were to use the other technologies.

11 CHAIRPERSON LLOYD: Bill, can you summarize
12 quickly.

13 MR. WARF: I'm going as fast as I can. Let's
14 see. I think the point of this is that you can put an
15 awful lot of range in an EV if you use the advanced
16 technologies.

17 That has some benefits. One of the benefits of
18 that is you have less mileage between charges of the
19 vehicle or at least you could.

20 What I hear the battery experts telling you is
21 the lithium ion batteries have say 1,200, 1,500 cycle life
22 if you cycle them to 80 percent depth of discharge. But
23 people don't really drive that way. The way people really
24 drive, and what I've learned in the last 10 years, is they
25 drive 40 or 50 miles a day, and they might drive 20 miles

1 between charging.

2 If they do that, the data on this battery from
3 DOD tests an OEM information given to me showed that those
4 batteries could last, if you charged three times a day,
5 which would be 1,000 cycles a year, they'd like 20 years.

6 --o0o--

7 MR. WARF: Battery costs are reduced with volume,
8 process improvement and capital investment. It takes all
9 of those things to reduce the cost of batteries. I
10 reported on an earlier slide that the zebra battery had
11 seen a dramatic reduction in price in the last two years.
12 Well, Mesdaya invested \$66 million in a new plant.
13 They've diversified in to other markets and are achieving
14 some volume.

15 CHAIRPERSON LLOYD: Bill, I've given you over a
16 minute.

17 MR. WARF: Conclusions, SMUD supports a strong
18 ZEV mandate with significant battery EVs and grid
19 connected hybrids, beneficial to near-term air quality.
20 Battery technology is improving somewhat more than
21 reported in the staff report. The staff report is a
22 little narrow. It only talks about nickel metal hydride
23 in any depth.

24 The cost effectiveness of battery EVs improves as
25 technology gains are made, fuel cell vehicles show promise

1 for the long-term.

2 I'd be happy to entertain questions.

3 CHAIRPERSON LLOYD: Thank you. Questions from
4 board members?

5 Again, thank you very much, Bill. But I stress
6 for witnesses again, I'm not -- from the faced expression
7 I'm getting from some of you, it's not a desire here. We
8 are under time constraints. We have a long way to go.
9 We're trying to absorb all this information.

10 So if you flood us with a lot of stuff we have to
11 sort out, it makes it very difficult for us. So that's
12 where I'm coming from. I say we have 70 witnesses to go
13 and if it's repetitive, it gets very difficult.

14 MR. WARF: It would be easier to absorb if I
15 could speak a little more slowly and explain it. I think
16 that we've been a contributor to this marketplace too
17 and --

18 CHAIRPERSON LLOYD: I agree. But remember there
19 are many of you we just we're giving more time to the auto
20 manufacturers. There are just a few of them talking
21 today.

22 The other part, Bill, I do appreciate you
23 providing this written stuff as well, so we do have this.
24 So, again let's get it clear. I'm not trying to show any
25 bias or anything here. It's a matter of my colleagues and

1 we're trying to go through -- and it's very difficult. As
2 I said at the beginning, we don't have all the answers.
3 We need your help to craft this through.

4 Staff has spent hours and hours and hours on this
5 stuff. So please understand it doesn't -- if I had all
6 day or we had two or three days, that would be optimum.
7 We done have it unfortunately.

8 Thanks, John.

9 MR. BOESEL: Mr. Chairman and members, my name is
10 John Boesel, the president of Calstart. We are 10 year
11 old nonprofit organization that works with companies and
12 governments to try to help develop an advanced
13 transportation technology industry, and in the process
14 trying to clean up the air, reduce our dependence on
15 foreign oil and slow global warming.

16 I want to just say -- and all my comments will be
17 directly related to the staff proposal, is that going
18 through this review again is very difficult for a number
19 of our member companies who have invested in the
20 regulations, in the 2001 regulations, hope that they would
21 be coming to bear. And now to have this review come up
22 again is really very difficult for them. It creates a
23 very uncertain marketplace. And one in which it's very
24 difficult to attract investment.

25 We see the staff recommendation as effectively

1 eliminating the gold standard. Two hundred and fifty fuel
2 cell vehicles will not drive fuel cell vehicle technology.
3 Don't get me wrong, we are very supportive of fuel cell
4 technology. We're very supportive of hybrid technology.
5 We believe there are many paths to the future.

6 But 250 fuel cell vehicles are not going to drive
7 that industry forward. There are billions of dollars
8 being invested annually in fuel cell technology. The
9 Japanese plan to have five million fuel cell vehicles on
10 the road by the year 2020. There are similar large scale
11 programs planned for Hong Kong and Singapore.

12 So if we think about the CARB ZEV Program,
13 driving change, this -- that's to that -- if all that's
14 left is 250 fuel cell vehicles, it will not be driving
15 change.

16 Hybrid technology is very impressive. And I
17 think I really want too applaud Toyota and Honda's
18 leadership in this area. And I think they have shown the
19 rest of the market that there is a demand for those types
20 of vehicles. And I think we will see large numbers of
21 hybrid electric vehicles sold, whether there is a mandate
22 or not.

23 And I question whether or not the staff proposal
24 simply supports what will be occurring in the marketplace.

25 In terms of battery electric technology. Have we

1 really seen the end of battery technology development?
2 Are we at the pinnacle? Can anybody say that with
3 certainty?

4 We've actually seen a lot of progress in the last
5 2 to 3 years. Dr. Anderman had his view. I think we
6 could consult other people, experts who have opposing
7 views.

8 So I think that technology is evolving. And I
9 think what we need is a zero emission vehicle standard.
10 We do need to be driving toward that gold standard, but
11 why pick a winner. Why do we say fuel cells over ZEVs. I
12 don't know that it's critical that we make that
13 distinction at this point.

14 Now, I would also say I support Board Member
15 McKinnon in that I think there's a very important role for
16 plug-in hybrids. And perhaps plug-in hybrids could also
17 be part of that gold standard going forward.

18 I think the original 2001 proposal is a decent
19 proposal as it stands. It could be refined. There could
20 be some additional flexibility in there. I think it could
21 be a lot less complex. And I think creating the
22 complexity that it did all these different credits allowed
23 for a gaming of the system, giving away of advanced golf
24 cars. And I think we need to make things simpler and less
25 complex.

1 That's the end of my testimony.

2 CHAIRPERSON LLOYD: Thank you.

3 (Applause.)

4 CHAIRPERSON LLOYD: Any comments from the Board?

5 Okay.

6 Ed Kjaer.

7 MR. KJAER: Thank you, Chairman Lloyd,
8 distinguished members of the Board. SCE for obvious
9 reasons, I'm sure you can appreciate, with all due
10 respect, oppose the current staff proposal. We've been a
11 long-time supporter of this regulation.

12 For over 10 years our shareholders have made a
13 significant investment in the regulations -- because of
14 the regulations. We created a retail company called
15 Edison EV. At the time that the regulations were
16 retrenched in 1998, that company folded. That investment
17 was lost.

18 Unlike the OEMs, there was no learning or patents
19 or technology related to EVs that we could then pass on to
20 other Edison companies. It was lost.

21 In '95 we committed to meeting our energy policy
22 act E-Pact requirements with electric drive vehicles. For
23 almost ten years we've been acquiring EVs exclusively to
24 meet the E-Pact requirement. We were one of the first
25 to buy EV prototypes, which I might add, were extremely

1 expensive.

2 Today SCE operates the largest and most
3 successful fleet of EVs. Working with the State we
4 developed fire and safety programs, electric vehicle,
5 implemented off-peak rates and other efforts designed to
6 help CARB and the State achieve the goal of zero emission
7 vehicles.

8 We are in discussions with Toyota at the moment,
9 the only OEM prepared to provide released used vehicles to
10 you us in the next 2 or 3 years. We are hoping that we'll
11 be able to release these vehicles in enough quantity to
12 meet our E-Pact requirements, at least bridging through
13 the ZEV blackout period, which we see 2003 to somewhere
14 between 2007 and 2009.

15 We ask you to encourage the OEMs to make these
16 used vehicles available to the users in the State and
17 certainly to help utilities meet their E-Pact requirement.

18 As good as the hybrids are and I'm referring to
19 the engine hybrids we see today, they are not the best
20 they could be. They have no true ZEV mile capability and
21 they still rely on one fuel and that's petroleum.

22 With the EPRI battery report that we wanted to
23 present this morning, I believe that it clearly shows that
24 the next logical step with hybrids is adding a plug.

25 These are much better than the silver category

1 hybrids but aren't truly gold category like the battery EV
2 or the fuel cell EV. From SCE's perspective, plug-in
3 products such as City EVs, full-size EVs, plug-in hybrids
4 and fuel cells all would be E-Pact compliant, because they
5 rely on an alternative fuel.

6 We also see these plug-ins as a bridging
7 technology. They're going to help make a business case
8 for battery EVs stronger and they're going to have a
9 positive impact to helping to lower technology costs for
10 fuel cells in the future.

11 From the air quality perspective, plug-ins emit
12 50 percent less NOx and ROG than an engine hybrid. Up to
13 50 percent less CO2, and mid-size SUV plug-in hybrid with
14 60 mile ZEV range could save over 350 gallons of gasoline
15 annually when compared to engine hybrid. All this is in
16 the battery report and I do encourage the Board, if they
17 haven't had a chance to read the executive summary.

18 You are going to see a presentation following me
19 that is a compromise proposal. And I think that is the
20 spirit in what I am up here in front of the Board today.
21 We are trying to work with staff and with the Board to
22 reach the goals of clean air in California.

23 CHAIRPERSON LLOYD: Is it chose to the end?

24 MR. KJAER: Yes, it is.

25 I do encourage the Board and frankly all the

1 stakeholders to continue the march toward ZEVs. We ask
2 CARB to address the ZEV blackout 2003/2010. We ask you to
3 consider how to incent and encourage OEMs to continue to
4 release existing ZEVs, even ZEVs that were originally
5 registered out of state, encourage them to come back into
6 the State.

7 Help us bridge this '03 to '07 blackout period,
8 and frankly reaffirm this regulation and help the
9 stakeholders such as the utilities to be reassured that
10 their past investments are secure and in our E-Pact
11 compliance is viable with electric drive.

12 Thank you.

13 CHAIRPERSON LLOYD: Thanks, Ed.

14 Any questions?

15 Thank you.

16 Dave Modisette, Bonnie Holmes-Gen, Roland Hwang.

17 (Thereupon an overhead presentation was

18 Presented as follows.)

19 MR. MODISETTE: Thank you, Mr. Chairman and
20 Members of the Board. I'm Dave Modisette. I'm the
21 Director of the California Electric Transportation
22 Coalition. And there's actually quite a few things I'd
23 like to say to the Board today, but because of the time
24 constraints, I'm just going to jump right into a
25 compromise proposal.

1 We did get the message last week loud and clear
2 that we needed to come forward with a very specific
3 proposal and one that tried to build off of the staff
4 proposal.

5 --o0o--

6 MR. MODISETTE: And so what we are going to
7 explain to you today is a compromise proposal. We feel
8 like it's a middle-of-the-road proposal. It's not
9 everything that we want. It's not everything that other
10 stakeholders want. But we do think it's a proposal that
11 many of the stakeholder groups we believe would be able to
12 rally around and support. It has five parts.

13 The first part is to have modest but known ZEV
14 requirements in each and every year from 2005 through
15 2014. Within those requirements, we think that there
16 should be technology diversity and options, flexibility
17 for automakers to make choices within those options. We
18 think the near-term ZEV numbers need to be increased. And
19 I'm going to show you the numbers in just a minute.

20 In 2015, we believe we should actually return to
21 the so-called red line, that's the number of vehicles that
22 was defined in the 2001 regulation. This proposal also
23 allows flexibility, so that if you did want to establish a
24 minimum requirement for fuel cell vehicles, you know, that
25 is a part -- or could be a part of this proposal.

1 --o0o--

2 MR. MODISETTE: Mr. McKinnon asked for the
3 numbers. These are our numbers. You can see we actually
4 start with pretty modest numbers from 2005 through 2008.
5 There are vehicles there expressed. And it says instead
6 requirement or fuel cell vehicle equivalent there on the
7 left-hand column. So that if an auto manufacturer
8 actually wanted to make all of their vehicles in fuel
9 cells, those would be the numbers that they would produce.

10 From 2005 through 2008, there are 500 fuel cell
11 equivalent vehicles there. So we have doubled the number
12 of fuel cell vehicles in the staff proposal.

13 However, what we would propose to do is to allow
14 other types of technologies to qualify. And so on the
15 right-hand side there you see we have a scenario where an
16 auto manufacturer decides that they want to do 50 percent
17 of their requirement in fuel sell vehicles.

18 So you can see, let's just take the first year
19 2005 as an example. All of the automakers. This is for
20 all six automakers would do 25 fuel cell vehicles. Then
21 they would have a choice of either doing 500 Type 2 EVs.
22 Now, these are the full function EVs or they could do
23 1,000 Type 1 EVs, which are the City Cars.

24 Or in our proposal, we believe that plug-in
25 hybrids should be another option available to automakers

1 under this pathway. And in this example, they could do
2 750 HEV 20s, that's a plug-in hybrid with a 20-mile range.

3 After 2008 we do have ramp up. We believe it's a
4 very modest ramp up. It's, you know, much fewer number of
5 vehicles, you know, than others are asking for, but it
6 does ramp up to quite significant numbers by 2014. And
7 then, as I said, by 2015 we're actually back on the red
8 line requirements in the 2001 regulations.

9 --o0o--

10 MR. MODISETTE: The second part of the compromise
11 is that what's referred to in the staff report as the 2001
12 base requirements pathway, should reflect the actual
13 provisions of the 2001 adopted ZEV regulations, after
14 correcting for legal issues. I think one of the things
15 that's difficult to understand in the staff proposal is
16 that the staff proposal does not do this. They make it
17 sound like it does this. But there are 5 or 6
18 concessions, if you will, weakenings of the 2001
19 regulation in what's referred to as the base requirements.

20 And we believe that's a mistake. I mean, one of
21 the things, we're trying to do here is to give automakers a
22 choice where they can choose the base pathway or they can
23 go to the alternative compliance path.

24 And we want them to go to the alternative
25 compliance path, because that's the way we get rid of this

1 ZEV blackout problem. So the thing to do is to allow
2 automakers to pursue the 2001 base requirement pathway,
3 but don't make it so attractive to them, don't put so many
4 concessions in that that they will decide to do that
5 instead of doing the alternative compliance pathway.

6 --o0o--

7 MR. MODISETTE: Number three. Eventually we want
8 to get back to a full 2 percent pure ZEV requirement, a
9 gold requirement. Under the staff proposal there's
10 eligibility of so-called silver vehicles into the gold
11 system for ever. So we believe that the staff proposal
12 does not get back to or provides no pathway to a full 2
13 percent gold requirement.

14 So the third part of our compromise is that there
15 should be some phase out of eligibility of silver vehicles
16 in the alternative compliance pathway to meet a
17 manufacturer's gold obligation.

18 And the way we would actually propose to do it is
19 to phase out by vehicle types so that you start in the
20 early years through 2008 with all the silver vehicles
21 eligible, even mild hybrid vehicles, which would normally
22 be PZEVs would be eligible in that category. That's fine.
23 We can accept that.

24 But then in the next category, we think, you
25 know, you should make that more strict and drop out some

1 of the weaker silver vehicles, all the way until the last
2 section, which would be 2012 through 2014. We believe
3 only the best of the best silver vehicles, which would
4 include plug-in hybrid vehicles and some of the other
5 technologies, you know, the more exotic technologies. The
6 technologies that are actually giving you much better air
7 quality than just a standard AT PZEV. Those should be in.

8 And then eventually in 2015 all the silver
9 vehicles would be phased out, as I said, and we'd be back
10 to a red line requirement.

11 CHAIRPERSON LLOYD: Dave, are you coming to a
12 close?

13 --o0o--

14 MR. MODISETTE: Yes. Just two more points.

15 Fourth is to close the so-called
16 placed-in-service loophole, which contains no minimum
17 requirement for a vehicle to be in California. We think
18 that that can be done with a relatively easy incentive
19 multiplier. And it goes directly to this issue that
20 you're talking about to provide incentives for
21 manufacturers to re-lease vehicles or even to sell the
22 vehicles to people.

23 Those automakers that do that should get more
24 credit. And we have a specific proposal to give them more
25 credit if they do that.

1 --o0o--

2 MR. MODISETTE: Last point. Technology Review
3 Panel. Under the staff proposal, it's proposed for 2005
4 or 6. We just don't think that that makes very much sense
5 with a program that's only going to begin in 2005. How
6 much data are you going to have to be able to evaluate the
7 technology. So we think it would be make sense to have
8 several years worth of experience with this program, these
9 are requirements in place, before you do that evaluation.
10 So it's our recommendation that you postpone that to 2009
11 or later.

12 As I said, this builds off the staff proposal. I
13 think it corrects its major flaws. It's a
14 middle-of-the-road compromise and I believe that many of
15 the stakeholders could support this.

16 Thank you.

17 CHAIRPERSON LLOYD: Thank you very much, David.
18 A very constructive situation.

19 (Applause.)

20 CHAIRPERSON LLOYD: Professor Friedman.

21 BOARD MEMBER HUGH FRIEDMAN: Okay. I had a
22 couple quick questions. First of all, you mentioned the
23 2001 base requirements pathway, and that the staff report
24 and recommendation is weakening in 4 or 5 or 6 respects.
25 Could you identify that for me?

1 MR. MODISETTE: Yeah. And they're actually -- if
2 you look at the hard copy that I passed out, there's a
3 more detailed explanation of the proposal and that's
4 actually --

5 BOARD MEMBER HUGH FRIEDMAN: Well, I've got a
6 whole book here. And I'm sorry I just --

7 MR. MODISETTE: It's not in the book. The book
8 is unrelated to that.

9 BOARD MEMBER HUGH FRIEDMAN: Okay.

10 MR. MODISETTE: This is what I tried to identify.
11 You know, I think that this is accurate. I hope this is
12 accurate. But one of the problems is that the regulations
13 are so complex that it's difficult even for a person
14 that's been working in this field for many many years as I
15 have.

16 Here's what they are.

17 BOARD MEMBER HUGH FRIEDMAN: I have it here now.

18 Thank you.

19 I can look at it quickly. I would like to ask, I
20 think, Dr. Bill as well, if the staff would respond, if
21 they have any comments on these proposals.

22 EXECUTIVE OFFICER WITHERSPOON: I'm going to give
23 a general response and ask to help me with the rationale
24 for each individual change.

25 In general, as we picked up the regulation from

1 2003 and moved it to 2005, we had to address what happened
2 in 3 and 4. And so some of the changes we're trying to
3 keep momentum going and reflect that when the reg took
4 effect again in '05.

5 And other things we did, for example, we had a
6 40-vehicle fuel cell -- 40 credits for fuel cell vehicles
7 that was to have expired this year.

8 And when we picked that up and moved it into '05,
9 we had to ratio all the other ZEV type credits to be, you
10 know, a fair ratio. So we had cascading effects.

11 Dave's proposal also talks about having change
12 the minimum performance requirements for hybrid electrics.
13 Well, in point of fact, we threw out the entire mechanism
14 we had before and created a new one. This was part of the
15 legal challenge.

16 And as we did that a three-tier concept emerged,
17 which includes mild hybrids, stronger hybrids, the high
18 voltage, high powered, those different characteristics
19 staff talked to you about before. And so it wasn't so
20 much a weakening as a diversification of hybrid categories
21 as we learned more about them from the different
22 automakers.

23 Some of the other things that have been brought
24 to our attention is when you used a neighborhood electric
25 vehicle to meet a gold requirement, it counted as a real

1 vehicle in the baseline of what you sold, but it only
2 counted as 1.5 for credit. And so you were digging
3 yourself a hole because the next year you had to make more
4 electric vehicles and you had a greater obligation.

5 So we asked by auto manufacturers can they
6 subtract the pure electrics, or pure ZEVs they built in
7 any given year before we calculated their obligation for
8 the next year, so they weren't hurting themselves by
9 making ZEVs.

10 And then we also changed the battery warranty
11 requirements for hybrid vehicles that had been 15 years.
12 We went to 10. We kept the same mileage of 150,000 miles.
13 And this was necessary given the technical data you saw
14 about battery life and the financial liability for having
15 to stand behind them and being told that hybrids simply
16 would not come to market with a 15-year warranty, and we
17 were working against ourselves in wanting to see more
18 silver vehicles on the road.

19 In none of those instances were we trying to
20 weaken the 2001 amendments, but just to make them coherent
21 and carry them forward and have every technology weigh
22 appropriately against the next.

23 MR. MODISETTE: And maybe just to clarify, I'm
24 not objecting to those changes in the alternative
25 compliance pathway. I think that those changes are

1 additional positive things that are going to draw
2 automakers to that pathway, which is what you want.

3 But if you make all those same changes in the
4 alternative compliance pathway in the base path, then
5 you're just encouraging automakers to go to the base path
6 and then we're going to have tremendous ZEV blackout.

7 CHAIRPERSON LLOYD: Dr. Friedman and Mr.
8 McKinnon.

9 BOARD MEMBER WILLIAM FRIEDMAN: I just wonder if
10 staff could also comment about the suggestion about the
11 tech review panel being put off.

12 EXECUTIVE OFFICER WITHERSPOON: In our staff
13 report we had suggested a date by which the independent
14 review panel would convene based on the customary three
15 model year's lead time that are given to automakers before
16 we impose any regulatory requirements.

17 It has been brought to our attention that they
18 might not need that much lead time depending on what the
19 target is. If, for example, in the next period of time
20 each manufacturer needed to build, let's say, 500 fuel
21 cell vehicles a piece, they could potentially do that in a
22 single year toward the end of the three-year window, and
23 not have to go into production and not have to know three
24 years before 2009 what the requirement is going to be,
25 because they could build them all in 2011.

1 But as you choose and whatever number you all
2 come up with, if, you in fact, put a number in today, the
3 higher it is, the sooner the panel would have to convene
4 and give them some guidance, because it works backwards in
5 terms of production line changes, versus hand built,
6 supply commitments, et cetera in order to know who they're
7 going to accomplish that goal.

8 CHAIRPERSON LLOYD: Yes, Mr. McKinnon.

9 BOARD MEMBER McKINNON: I, for one, am pleased to
10 see numbers. And I think there's a lot of logic to this.
11 Some of the reluctance to move very far is that there's
12 one in particular and marginally some other auto companies
13 that really went and did what -- there's actually a
14 couple -- that really kind of went and did the job.

15 And so there's sort of, should we be penalizing
16 them or should we be making them do something early if
17 they did what they were supposed to do.

18 And I guess what I think the beauty of this
19 proposal is is that it's saying we had a 2001 rule. We
20 were serious as a heartache about the 2001 rule.

21 And so if folks were going down the line of
22 following that rule, understanding there was a lawsuit and
23 there are some things we had to correct and maybe double
24 counting of cars is something we shouldn't be doing in
25 terms of the requirement numbers.

1 But essentially, you know, there's the 2001 rule.
2 Somebody is going down that path. Great. Perfect.
3 That's what we said we wanted. Somebody did it. We should
4 be happy. You know, we should be happy about that.

5 To the extent a lawsuit caused there to be this
6 break that isn't a one-year break, it really works out to
7 be more than that, because of how -- you've laid out some
8 numbers that give an alternative way to get there.

9 And, you know, everybody I met with in the last
10 week, I've said put some numbers on the table. And you
11 did. Thank you. And I think they're worthy of serious
12 consideration.

13 CHAIRPERSON LLOYD: Thank you.

14 Ms. D'Adamo.

15 BOARD MEMBER D'ADAMO: Ditto. I appreciate you
16 doing this. I know I asked you the same question, and I
17 am hoping that, depending on if it looks like we may end
18 up going two days, would like to really encourage staff to
19 take a close look at this. Any future witnesses, it would
20 be helpful for us to hear what you have to say about this
21 proposal. I don't know if the future witnesses have had a
22 chance to digest it or not. And I would encourage the
23 automakers that are here to sit and chew on these numbers
24 as well.

25 Thank you.

1 CHAIRPERSON LLOYD: Yes.

2 BOARD MEMBER HUGH FRIEDMAN: I just want to
3 clarify. You are both referring to this proposal as a
4 modification of the alternate pathway, correct?

5 BOARD MEMBER McKINNON: No, it's --

6 BOARD MEMBER HUGH FRIEDMAN: You talked about
7 2001 --

8 BOARD MEMBER McKINNON: It's saying the 2001 rule
9 essentially -- if you chose to go down that pathway, you
10 really ought to go down that pathway without us making a
11 bunch of changes.

12 BOARD MEMBER HUGH FRIEDMAN: I understand. But
13 that wasn't this.

14 BOARD MEMBER McKINNON: Yeah. No, it says that.
15 It says go down the 2001 pathway, the real one. The one
16 that we originally set out to do, or do this alternative.

17 BOARD MEMBER HUGH FRIEDMAN: This is the
18 alternative.

19 BOARD MEMBER McKINNON: Yes.

20 BOARD MEMBER HUGH FRIEDMAN: So we're saying the
21 same thing. I wanted to understand that. I was confused.

22 CHAIRPERSON LLOYD: This is a variation of the
23 staff today.

24 EXECUTIVE OFFICER WITHERSPOON: Just a
25 clarification to Mr. McKinnon. No one can do the 2001 reg

1 exactly the way it was done, so there do have to be some
2 changes as we reinitialize in 2005.

3 MR. MODISETTE: Just to explain, the binder you
4 received is a compilation of letters of resolutions from
5 local governments of letters from labor and business and
6 environmental organizations. You know, these are the ones
7 that we are aware of. And these are all letters of
8 opposition to the existing staff report.

9 Obviously, we have not, you know, been able to
10 get back to all these people and show them the compromise.
11 But I believe that many of these organizations would
12 support the compromise proposal.

13 CHAIRPERSON LLOYD: We have received those
14 letters too. We're aware of them, not in such a neat
15 form, but we're thank you.

16 MR. MODISETTE: Thank you.

17 CHAIRPERSON LLOYD: Thank you very much.

18 Bonnie Holmes-Gen, Roland Hwang, Jason Mark.

19 MS. HOLMES-GEN: Mr. Chairman and board members,
20 Bonnie Holmes-Gen with the American Lung Association of
21 California. Get that name correct this time.

22 I'm here also on behalf of the California
23 Thoracic Society. I first of course want to thank you for
24 your strong record of support for the ZEV Program. It's
25 gratifying to hear that you're serious as a heartache.

1 I'll tell you, it's very gratifying.

2 (Laughter.)

3 BOARD MEMBER HUGH FRIEDMAN: Well, as a past
4 president of the American Heart Association, you could
5 have thought of a better analog.

6 (Laughter.)

7 MS. HOLMES-GEN: I am here to oppose the staff
8 proposal. As I believe you're aware from our letter from
9 the Lung Association and our allied groups that we have
10 very serious concerns about the staff report. We feel it
11 falls very short of achieving the objectives that we would
12 like to see it achieve.

13 Specifically, we're most concerned that it does
14 not continue to push zero emission vehicle advancement
15 with clear, enforceable and increasing regulatory goals
16 over the next decade and beyond. We believe this is
17 critical. And that basically means you need to set a
18 number, I guess, in the parlance you've been using today.

19 We believe that by proposing no zero emission
20 vehicle requirement in 2009 and after, the staff report
21 sends a very bad signal. It sends a signal that the car
22 companies may be let off the hook. I think that it
23 fosters a wait-and-see-what-happens mode rather than
24 purposeful forward movement on the part of the car
25 companies. And that's our great concern, and why we

1 believe you do need to set a number for 2009 and after.

2 CHAIRPERSON LLOYD: Bonnie, you've got some very
3 nice recommendations. Could you get to them.

4 MS. HOLMES-GEN: But I do want to just remind you
5 that establishing technology forcing goals, I mean, that's
6 been the key aspect of the Board's legacy, and you need to
7 continue that legacy in air pollution control. And please
8 don't be afraid of setting goals in the future, even if
9 you have to come back and revisit them again, that's part
10 of being a visionary body, and we expect that of you.

11 So together with my colleagues from the Union of
12 Concerned Scientists, and the Natural Sources Defense
13 Council, we have forwarded some specific recommendations
14 to you.

15 The concepts are similar in many ways to what
16 you've heard from my colleague Dave Modisette. And the
17 specific action items that we are asking you to take are
18 number one to redesign the alternative compliance pathway
19 and the staff proposal to allow other ZEV technologies to
20 compete, but we want to make sure that there is a fuel
21 cell floor in that number.

22 So you have a proposal in the staff report of 250
23 fuel cell vehicles by 2008. We think that's a very
24 extremely reasonable goal for fuel cell vehicles, but if
25 we're going to open up this pathway to diversity, we want

1 to see you add some additional vehicles to that number.
2 We're recommending a fuel cell vehicle equivalent number
3 of 500 for that first phase.

4 We believe that that number is very reasonable.
5 And my colleague Jason Mark will by explaining in more
6 detail why that number is very reasonable for that
7 timeframe. And it would also allow you to open the door
8 to battery technologies right away.

9 Second of all, we're asking you to establish a
10 minimum requirement for car companies to produce at least
11 5,000 new zero emission vehicles or fresh ZEVs, fuel cell
12 equivalent, that is cumulatively in the 2009 to 2011
13 period, and then restore the ramp to the 2001 program.

14 Again, we believe these are reasonable but
15 challenging numbers for the car companies. They're very
16 much in line with other projections that have been made
17 specifically by those in the fuel cell industry. And the
18 Board would not be picking a number out of the air if you
19 established this number. This is not about picking
20 numbers out of the air and just going on no rationale.

21 We're talking about going on solid rationale.
22 Car companies, as you know, have said they can make
23 commercially marketable fuel cell vehicles by the end of
24 this decade. And we know we already have the viable
25 alternative of batteries of various kinds also to fill in

1 on some of those numbers.

2 Definitely if you set a goal of 5,000 over that
3 people or higher, you would be setting a very reasonable
4 goal, but a technology forcing goal. We're asking you to
5 do that. Third, we ask you to move the expert review
6 panel to a post-2006 timeframe. I think my colleague
7 suggested 2009, but just any time in that latter half of
8 the decade is much more reasonable than the earlier time
9 period that's projected in the staff report.

10 We believe it's critical to ensure time for new
11 steps in technology advancement to occur to allow the
12 panel to get a better picture of the pace of technology
13 advancement. And we also want to make sure that when you
14 adopt your resolution that you clarify that the panel's
15 scope should be narrowly defined to focus on technology
16 review.

17 We don't want there to be any confusion that this
18 is a policy making body of some type that's going to
19 actually establish specific numbers of vehicles that the
20 Board should consider.

21 And fourth, we do strongly support the staff
22 proposed increased requirements for silver category AT
23 PZEVs. And my colleague Roland Hwang is going to go into
24 more detail about the importance of that piece of the
25 staff recommendation. And again we believe that it is

1 especially important to have these high numbers in the
2 silver category especially when the Board is providing
3 more flexibility, and really, you know, giving some
4 additional flexibility and assistance to the car companies
5 in meeting the gold category requirements.

6 And you know we believe that the silver category
7 AT PZEVs you know, are proven technology. Hybrid
8 passenger vehicles are here. There's a commercial case to
9 be made for them. Car companies are signing up to put new
10 models of hybrid electric vehicles out. So we think it's
11 very reasonable to stand by those increasing numbers over
12 the next decade that are in the staff report. We
13 appreciate your strong record of support.

14 And finally, I just want to remind you that this
15 decision is a historic decisions. And we'll establish a
16 legacy for the future. And we believe that it's important
17 for you to continue your historic role of leading the
18 country and the world in pushing vehicle technologies and
19 making the car companies meet new challenges, setting real
20 and continuing challenges before the car companies,
21 ignoring the nay sayers that say we can't do it, embracing
22 diverse zero emission technologies and staying at the
23 forefront of public health protection.

24 So we want to encourage you and challenge you to
25 move forward and set a strong number.

1 Thank you.

2 CHAIRPERSON LLOYD: Thank you, Bonnie.

3 Jason and Roland switched. So Jason Mark, Roland
4 Hwang, Tom Gage.

5 (Thereupon an overhead presentation was
6 Presented as follows.)

7 MR. MARK: Thank you. If you're amenable to
8 switch, it will make things a little bit more efficient.

9 CHAIRPERSON LLOYD: By all means.

10 MR. MARK: I first want to thank you for your
11 endurance, not just for today, and I think this evening
12 and perhaps tomorrow, but also for your endurance in
13 maintaining the path to zero.

14 I want to talk about the needs to really maintain
15 that path to zero as we move forward. My name is Jason
16 Mark and I'm an engineer. So thank you for the earlier
17 comments about giving engineers a chance, and director of
18 the clean vehicles program at the Union of Concerned
19 Scientists, which is a nonprofit partnership between
20 citizens and scientists.

21 We've, I think, had over 2000 of our members
22 throughout California write to you directly in support of
23 strengthening this regulation in the proposal. In
24 particular UCS is concerned about the staff's proposal
25 that it could stall progress in the technology fuel cells

1 that the industry itself claims is the next generation of
2 vehicle technology.

3 And we believe that there is ample evidence to
4 justify much more concrete determination about fuel cell
5 vehicles in the future, and far more aggressive than even
6 the optional numbers that staff has discussed this
7 morning.

8 --o0o--

9 MR. MARK: So towards that end, let me just touch
10 first on automakers statements regarding fuel cells.
11 Nearly everyone in the automobile industry has dubbed fuel
12 cells as the technology of the future. And they have
13 actually been quite aggressive about how quickly they
14 think that technology can move to market.

15 I'm particularly taken by General Motors'
16 assertion that they think they'll have a compelling and
17 affordable car by 2010, which is in stark contrast to the
18 \$100,000 vehicle premium incremental price that the staff
19 suggests in the initial statement of reasons.

20 So again, I think we have to at some point take
21 the automakers at their word and the tremendous amount of
22 press that they've been bringing to the issue of fuel cell
23 technology and really suggest that they can deliver on the
24 promise that they're articulating to us.

25 Second of all, let me talk very briefly about

1 targets that the fuel cell industry itself has
2 articulated. This is -- you can see all of the groups
3 that have signed onto this document that talk about very
4 realistic targets for getting to zero. The path forward
5 is the name of this document. And this is both fuel cell
6 industry as well as potential fuel suppliers to the fuel
7 cell industry.

8 --o0o--

9 MR. MARK: They talk about 500 passenger vehicles
10 from the period 2004 through 2007 and 5,000 passenger
11 vehicles annually from '08 to '11. So in other words
12 there will be 20,000 vehicles over that four-year period,
13 from 2008 to 2011. That's a real concrete target that the
14 fuel cell industry itself has set out.

15 --o0o--

16 MR. MARK: And finally this is the chart that
17 many of folks have already talked about from the
18 Department of Energy, which was actually created in
19 collaboration with several automakers over a year ago.
20 The Department of Energy's vision is to start building on
21 the 50 fuel cell vehicles that will be demonstrated in
22 California through the fuel cell partnership over the next
23 year or two, go to that next stage of a ten fold increase
24 to 500 and then finally 5,000 by a 2012.

25 My sincere hope is that the State of California

1 will be at least as aggressive in promoting fuel cell
2 vehicles as the Bush administration. And I note for
3 reference that in fact our colleagues across the seas have
4 already articulated far more aggressive goals.

5 The Japanese Ministry of Economy, Trade and
6 Industry has, for example, recently articulated a goal of
7 50,000 fuel cell vehicles by 2010, perhaps a bit more in
8 line with the sorts of public statements that we're
9 hearing from General Motors.

10 --o0o--

11 MR. MARK: To help put the staff's perspective in
12 perspective, I wanted to just share with you some of the
13 numbers that the bar on the left for each of the times
14 period either by 2008 or from 2009 through 2011 would be
15 the 2001 rule. So you could see that if automakers were
16 to meet those requirements through the fuel cell
17 technology, it would have required 6,500 by 2008 and
18 nearly 30,000 by over the time period 2009 through 2011
19 cumulatively.

20 Next, just two months ago staff was proposing
21 numbers more on the order of 1,000 by 2008 and 11,000 over
22 the next three year time period. The latest proposal in
23 front of you today is 250 by '08 and zero thereafter.
24 Then I put on the chart, the two sets of, sort of,
25 benchmarks that I just described, the Department of Energy

1 goals 500 by 2008 and 5,000, in this case their goal is by
2 2012, and I want to be clear about that. I've shown here
3 by 2011.

4 And second of all, the fuel cell industry which
5 was 500 by 2007 but an additional 5,000 per year
6 thereafter. So that's how those numbers work out.

7 And what really what I think we're asking you to
8 do today is not pick a number out of thin air, but in fact
9 pick a number in a range that is well established by both
10 the fuel sell industry the Department of Energy and their
11 research targets as well as some of the statements that
12 we've been hearing from the automakers themselves.

13 And we think that quite clearly, and I want to
14 crystal clear on this point, we believe that the numbers
15 in the 2009 time period are absolutely vital for three
16 reasons.

17 Number one, to maintain the flow of investment to
18 fuel cell technology. Number 2, to focus and foster
19 complementary policies that speed the fuel cell
20 transition.

21 And number three to ensure ultimately steady
22 progress to zero.

23 --o0o--

24 MR. MARK: And so here's my final -- sorry,
25 nearly final slide. This is the proposal. This is the

1 path to zero proposal that we're recommending to the Board
2 today, which would require by 2008 500 fuel cell vehicles.
3 Over the next three years, 5,000. Over the next three
4 years 30,000.

5 And the concept there is to build on going from
6 the 50 vehicles that we'll see by year's end in the fuel
7 cell partnership to 500, then to 5,000 and then ultimately
8 build a smooth ramp getting back to what was originally
9 called the red line or the original program by 2015, and
10 that's how we derived that 30,000 vehicle estimate.

11 OUr vision is to build on the same mechanism
12 proposed by staff in the alternative compliance path. So
13 these would be new vehicles. And moreover, though we
14 think that diversity is absolutely critical, and that this
15 shouldn't just be fuel sell vehicle numbers, but in fact
16 ZEV technology. We've expressed the numbers in terms of
17 fuel cell vehicle equivalents, if you will.

18 But we think that all technologies ought to play.
19 AND we, in fact, support the option that staff has
20 proposed to also create hydrogen infrastructure credits
21 over the next three perhaps six months to develop a
22 concept for crediting hydrogen infrastructure.

23 --oOo--

24 MR. MARK: The last slide. To put this all in
25 perspective, one is to just sort of give you a sense for

1 where we've been and how this path to zero might map out.
2 The red line on the top is our estimate of the fuel cell
3 requirements associated with the January 2001 rule. And
4 the green dash line is the number that we propose.

5 To be clear, we're not proposing annual
6 requirements. We're proposing the flexibility that you
7 gain by offering three year averages, essentially, or
8 cumulative requirements, to allow some of the industry
9 laggards to catch up and the accelerated folks to continue
10 to move forward.

11 We also think that the technology is, even though
12 we've shown just fuel cell vehicles should be ZEVs.

13 --o0o--

14 MR. MARK: So in sum, our proposal is 500
15 vehicles over the time period by 2008, 5,000 fuel cell
16 vehicles over the next three years, 30,000 and then return
17 to the rule by 2015. We urge you to send the strong
18 signal the automakers need to develop fuel cell
19 technologies on a timeframe that we believe is reasonable.

20 CHAIRPERSON LLOYD: Thank you Jason. One
21 question of clarification. I know the answer, but the
22 5,000 vehicles that DOE, of course that's a national
23 number that's not a California number.

24 MR. MARK: It is a national number. My view is
25 that we're not going to be seeing a lot fuel cell vehicles

1 in Louisiana, number 1. And number 2, more importantly,
2 your staff had proposed allowing these vehicles to qualify
3 for another LEV/ZEV states. And under that schematic, of
4 course, I think you get the extremes of let's say whether
5 and temperature environments that you really want to test
6 the fuel cell technology.

7 So I think you'd capture I think a reasonable
8 timeframe. And remembering also the fuel cell industry is
9 talking about 15,000 vehicles in that same time frame.

10 CHAIRPERSON LLOYD: It's the fuel cell industry,
11 not the auto industry.

12 MR. MARK: Right.

13 CHAIRPERSON LLOYD: Professor Friedman.

14 BOARD MEMBER HUGH FRIEDMAN: Your numbers, have
15 you had a chance to compare your numbers with Mr.
16 Modisette's.

17 MR. MARK: I think the principle is very much the
18 right.

19 BOARD MEMBER HUGH FRIEDMAN: But the numbers are
20 quite different. And when you speak of equivalent BEV
21 requirement would be hire, what kind of ratio were you
22 thinking of.

23 MR. MARK: We have not, in fact, thought through
24 the types of credit scheme that would be needed, but I
25 think it stands to reason that battery electric vehicles

1 would garner fewer credits than fuel cells given where the
2 technology is.

3 CHAIRPERSON LLOYD: Mr. McKinnon.

4 BOARD MEMBER McKINNON: I just want to kind of
5 compare the two proposals as best as I get it here. In
6 the Modisette proposal, it's initially about 300, but it's
7 segmented annually. You know, there's like a 50 and 100
8 and 150.

9 Yours, you have three years that you're saying
10 five years, 500. So if you looked at three years in his,
11 it's 300. That's in terms of -- so there's three years
12 sliding sort of gives companies sort of a running start.

13 Okay. And then the next period it's 5,000 versus
14 3,000. And then the next period it's the same, I believe,
15 30,000, 30,000. And the other differences is three year
16 sliding.

17 Great. Thank you for doing numbers and a basis
18 for them.

19 This is good stuff.

20 MR. MARK: Thank you.

21 CHAIRPERSON LLOYD: Roland Hwang, Tom Gage, Dana
22 Muscato.

23 MR. HWANG: Thank you, Mr. Chairman, Members of
24 the Board.

25 (Thereupon an overhead presentation was

1 Presented as follows.)

2 MR. HWANG: I appreciate the opportunity to
3 present our perspective on this very important program.
4 My name is Roland Hwang. I'm a senior policy analyst with
5 the Natural Resources Defense Council.

6 And what I want to speak to you this evening
7 about is the role of the advanced technology partial ZEV
8 pathway, particularly the hyper electric vehicles in
9 getting us to zero. We view this as a critical pathway.

10 --o0o--

11 MR. HWANG: The role of the AT PZEV pathway, I
12 think, there's a broad consensus and you heard that today.
13 Dr. Anderman, I think you heard from Toyota. But there is
14 broad consensus. There should be no debate that hyper
15 electric vehicles are a stepping zone to fuel cell
16 vehicles and other pure zero emission vehicle
17 technologies.

18 That issue, I believe there is very little or
19 absolutely no debate about.

20 Second of all, which there is a little bit more
21 discussion here today, is the issue of volumes. I think
22 We've seen past history volumes do matter. Higher volumes
23 will bring down the cost of the electric drive components,
24 as well as AT PZEVs, also natural gas vehicles, for
25 example, the gaseous storage technologies, that will

1 enable fuel cell vehicles also. So volumes do through
2 matter.

3 --o0o--

4 MR. HWANG: Finally the degree of hybridization.
5 A hybrid with a bigger electric motor with more batteries
6 is going to have a large componentry link to a pure zero
7 emission vehicle.

8 --o0o--

9 MR. HWANG: When we're looking at getting to say
10 fuel cell vehicle commercialization or any kind of pure
11 ZEV commercialization, essentially we need -- in this
12 case, my example will be on fuel cells, but the same
13 principles apply for battery electrics. We need to have
14 three pathways converge, three technology pathways
15 converge.

16 First, in terms of fuel cells, we need the fuel
17 cells stacks performance and cost to come down to a point
18 where we can have a competitive product.

19 Second, of course, we need hydrogen
20 infrastructure to be in place. And third, we need
21 electric drive components to come down in cost and
22 increase in performance to the level where, as a package,
23 the fuel cell infrastructure electric drive componentry
24 all can come together to deliver a commercializable
25 product, again where it's fuel cells or battery electric.

1 In this case, the example is on fuel cells.

2 The zero emission program can address all three
3 critical paths. And I think it's very important to
4 understand that the zero emission vehicle program has
5 evolved quite a bit over time, and, in my mind, has
6 successfully evolved to meet some of the new challenges
7 that we have faced and what we have learned over time. On
8 the first pathway fuel cell stack and auxiliaries, clearly
9 pure gold requirement, we're asking the Board to restore
10 some level of pure gold requirement.

11 That will help us with the fuel cell stacks and
12 the auxiliaries that going along with the fuel cells.

13 Hydrogen infrastructure, we've heard discussions
14 today about infrastructure credits. We need those
15 infrastructure credits and more in order To get that
16 critical component in place.

17 And of course the electric drive components, what
18 I'm focusing on my presentation is incentivized through
19 the you AT PZEV pathway. Again, these are the three
20 critical pathways the program addressed in a coherent
21 manner.

22 --o0o--

23 MR. HWANG: Volumes, of course, do matter. And
24 this is the cost curve from one of my colleagues for BPM,
25 Brushes Permanent Matter electric motors, electric motors

1 for hybrid electric vehicles the same as for fuel cell or
2 battery electric.

3 As you can see in this cost curve, the numbers
4 for the cost keep coming down. This is obviously per
5 manufacturer keep coming down to the tune of 1,000 volume
6 level.

7 --o0o--

8 MR. HWANG: The AT PZEV volume I think we've
9 heard some discussion about whether those are achievable
10 or not. Just some quick numbers. And what I'm going to
11 compare them are to announced goals for production global
12 production numbers, I believe, they are. So you have to
13 divide your global production numbers by what's required
14 in California and the northeast. But you can see that
15 Toyota in 2005 would be required to build 17,000 vehicles,
16 if they did not use any of their gold credits. And that
17 would include California and the northeast.

18 And General Motors in 2007, would be 32,000. The
19 reason I show these years is that Toyota has announced a
20 global production goal of 300,000.

21 --o0o--

22 (Thereupon the power for the overhead
23 presentation went out.)

24 MR. HWANG: And General Motors has announced a
25 global --

1 CHAIRPERSON LLOYD: That's the new mechanism for
2 cutting you off.

3 (Laughter.)

4 MR. HWANG: Yes. That's a very effective way.
5 The technology definitely works there.

6 I'm almost done. If I had maybe 30 more seconds
7 and indulgence I can complete it. I don't know if we can
8 get the over heads back up.

9 CHAIRPERSON LLOYD: We've got the copies here.

10 MR. HWANG: I guess, I'm flying a little blind
11 here. Let me see what do I have here.

12 The other point, of course, on the volumes that
13 being achievable, I've listed out a number of reasons why,
14 by the volumes, from the staff, a March proposal, are
15 likely on the high side.

16 But primarily I want to one focus the fact that
17 we are all absolutely hoping that you will restore the
18 zero emission vehicle pure gold requirements, and that
19 will also drive down the volumes of AT PZEVs. We do not
20 think the volumes of AT PZEVs are a problem in terms of
21 market achievability.

22 We think that there are clearly volume benefits
23 to the technology performance cost at the levels even in
24 the staff report. But I wanted to reinforce the concept
25 that the numbers are likely to be lower.

1 Level of hybridization matters. Let me point out
2 that staff is proposing to allow some allowances for
3 what's called 42 volt stop start systems.

4 --o0o--

5 MR. HWANG: Clearly, there is a difference in
6 technology between a vehicle with a five kilowatt motor,
7 it runs on 42 volts, versus a fuel cell vehicle that would
8 run, say, on a much higher voltage say 600 volts and
9 electric motor size 80 kilowatts.

10 --o0o--

11 MR. HWANG: So in sum, the recommendations that
12 we have, of course, is to restore the gold ramp, as my
13 colleague Jason Mark spoke of.

14 Second of all, is to, as staff proposed, require
15 AT PZEVs to backfill any differences between the 2001
16 amendments and whatever transpires at the end of this
17 board meeting.

18 Finally, we recommend you adopt credit levels
19 future AT PZEV vehicles, because we do think the volumes
20 are achievable and we think that there are significant
21 economies of scale and innovation benefits going out to
22 those higher numbers.

23 And finally, we do oppose, from a technical
24 perspective, oppose the inclusion of the 42 volt, so
25 called, Level 1 vehicles. But at very minimum, we would

1 ask the Board to make sure they enforce the phase out of
2 that to be used on silver compliance by 2008.

3 Thank you for your attention.

4 CHAIRPERSON LLOYD: Thank you very much.

5 Any questions, comments?

6 Thank you very much Roland.

7 Tom Gage, Dana Muscato, Daniel Rivers.

8 MR. GAGE: Good evening, Chairman and Members of
9 the Board. I'm Tom Gage. I'm with AC Propulsion, a come
10 in Los Angeles that builds EVs one at a time. We would
11 like to build them by the hundreds or the thousands, and
12 for that reason, I oppose the production mandate.

13 I'd like to run through my presentation. I will
14 edit for brevity as I go. I hope I remain coherent.

15 Let me start. California needs electric vehicles
16 now more than ever. We need their environmental benefits,
17 and more important we need their fundamental energy
18 benefit. The efficient use not imported, not petroleum,
19 secure and renewable energy resources.

20 EV should be a major element of California
21 environmental policy. Do not shirk away from these
22 broader objectives using the excuse that it's not an air
23 quality issue. Energy consumption affects air quality.

24 As many of you know, energy consumption, green
25 house gas emissions and air quality are closely related.

1 They cannot always be neatly partitioned according to
2 organizational boundaries of the State bureaucracy. You,
3 the Air Resources Board, have the EV bit. I urge you to
4 run with it.

5 The United States uses too much petroleum. We
6 use 45 percent of the worlds gasoline for five percent of
7 the world's people. Our per capita energy consumption of
8 petroleum for transportation is double or triple of
9 developed economies. It's order of magnitude is higher
10 than countries like China, Brazil and India, all of whom
11 are pursuing their legitimate aspirations to high levels
12 of automobility.

13 We need to reduce gasoline consumption by using
14 it more efficiently and substituting other energy sources
15 for it. Starting now, we need to substitute new sources
16 of energy from secure non-petroleum and renewable
17 resources for gasoline. And we need to use that energy
18 efficiently.

19 EVs do this better than ULEVs, SULEV, PZEVs, AT
20 PZEVs, hybrids, fuel cell vehicles or any other type of
21 automobile.

22 This is why now, especially we must not turn away
23 from EV commercialization. The original ZEV mandate was a
24 bold and commendable to achieve EV commercialization.
25 Thirteen years later, it's obvious to me that the

1 production mandates have not worked. I don't think they
2 ever will.

3 Under the staff proposal of March 5th, the
4 expected number of commercial zero emission vehicles is
5 zero. You can and should avoid this outcome.

6 At the end of my remarks, I will briefly describe
7 how you can shift the momentum you have created in a new
8 direction. You can work around the adversarial stale mate
9 that has developed between staff and automakers, and you
10 can foster continuing progress toward EV
11 commercialization.

12 The automakers say EV commercialization is doomed
13 to failure. I disagree, for at least five reasons. EV's
14 do have enough range for typical driving, because most
15 trips are short. Batteries are getting better, a lot
16 better, as we have heard. People like EVs. EVs have
17 virtues that offset their limitations.

18 A small electric car drives like a bigger more
19 luxurious car. Listen to EV driver testimonials. They
20 have a product they really like. They're not odd balls.

21 Do not underestimate or overlook your ability to
22 affect change in the market. And be certain that where
23 the market goes the automakers will follow. Okay could
24 you go to slide seven please.

25 --o0o--

1 MR. GAGE: Fuel cell vehicles use more energy
2 than EVs. A hydrogen cycle has too many steps with losses
3 at each step. So even at high cell efficiency, the
4 overall efficiency Of the fuel cell vehicle is low. This
5 chart compares a RAV4 electric to a Honda FCX. And you
6 can see that well to wheels in terms is mile per gallon,
7 EV, is better oh even a lot better than a fuel cell car.

8 This is an example of how air quality goals
9 cannot be separated entirely from energy considerations.

10 Next slide, please.

11 --o0o--

12 MR. GAGE: Fuel cell stocks are down, much more
13 than the Market as a whole. This may just mean that the
14 market view fuel cell commercialization as beyond its
15 investment horizon. But more important it reduces the
16 auto maker executives appetite for R&D and fuel cell
17 related acquisitions because it will no longer boost their
18 stock price.

19 Auto makers are reevaluating their fuel cell
20 programs. Many do not want even to commit to building a
21 few dozen fuel cell vehicles over the next five years.

22 Next slide.

23 --o0o--

24 MR. GAGE: Why not EVs?

25 The need is real and increasing. The technology

1 is ready and getting better. Compared to 1990 or even
2 1996, a market has been established. There are no
3 near-term alternatives to the EV for the ZEV vehicle.

4 I decided to take a step back and get
5 perspective, and this is what I saw. In the big picture I
6 see a State and a nation that need the benefit EVs. I see
7 automakers so desperate to avoid any production mandate
8 that they spend millions of dollars on ZEV R&D but they
9 refuse to produce any.

10 I see dozens of fleets and thousands of
11 individuals who will buy EVs if they can. I see at least
12 five and maybe 10 small companies like mine here in
13 California, and many others throughout the world that want
14 to build and sell EVs and EV components, but who cannot
15 attract sufficient investment due to market uncertainty.

16 And finally, I see an agency of the state that
17 has regulatory authority over automakers and established
18 outreach programs to the EV market, and knowledge staffers
19 some whom are enthusiastic about EVs.

20 All these elements are in a log jam right now.
21 No one can move. I do not see why you, the Board, cannot
22 break up the log jam with revised regulations that incite
23 less automaker opposition to provide more certainty for
24 planning and foster a market environment where
25 entrepreneurs will have their best opportunity to sell,

1 and consumers their best opportunity to buy electric
2 vehicles.

3 Here is what I propose.

4 Next slide.

5 --o0o--

6 CHAIRPERSON LLOYD: Can you bring it to a close,
7 Tom.

8 MR. GAGE: Yes, these are my five
9 recommendations.

10 Do not abandon EV commercialization. Do not
11 approve the March 5th proposed modifications. It is not
12 in California's best interests to abandon EV
13 commercialization.

14 Second, accept the fact that you cannot force the
15 can companies to build EVs. It seems that you have lost
16 that battle. But do not conceive the war because of it.
17 Work without the OEMs, but keep pushing for EVs.

18 Third, you have a mandate. Keep it, strengthen
19 it and enforce it. It is a credit mandate. Car companies
20 do not have to produce EVs. They just have to buy credits
21 from those who do.

22 Fourth, join forces with other State bodies
23 including the California Energy Commission, the PUC and
24 the Legislature. This is about energy and air quality.
25 Restore, strengthen and unify California's commitment to

1 pioneer the transformation to electric transportation.

2 And fifth, remember the car buyers are the real
3 agents for change in vehicle technology. What people buy
4 determines what automakers build.

5 Last slide, please.

6 --o0o--

7 MR. GAGE: Regulations and policies that provide
8 incentives and encouragement to both supply side and the
9 demand side, and that avoid confrontation with the
10 automakers will give EV commercialization the best chance
11 for success. If it fails, it will have failed in the
12 marketplace not in back rooms and court rooms.

13 Next slide.

14 --o0o--

15 CHAIRPERSON LLOYD: Tom, come on.

16 MR. GAGE: If it succeeds, you can be sure that
17 auto companies will be paying attention and they will be
18 only too glad to join. As this slide shows, they can do
19 this so well, design, invest, manufacture and sell, if
20 they have reason to. And that's really what you've wanted
21 all along.

22 Thank you.

23 CHAIRPERSON LLOYD: Thank you.

24 Dana Muscato, Daniel Rivers, Dan Sturges.

25 MR. MUSCATO: Good evening, Dr. Lloyd, and

1 members of the Board. I'm Dana Muscato, chief Executive
2 Officer of Phoenix Motorcars, Ojai, California.

3 We build full-function freeway speed, batter
4 electric vehicles for purchase. We appear today in
5 opposition, not so much to the 2003 proposed changes to
6 the rule, but to the supplemental changes proposed by the
7 staff early this month.

8 We believe that for the Board to take any action
9 at this time that reduces the requirements for
10 manufacturers to put zero emission vehicles on the road,
11 is tantamount to snatching defeat from the jaws of
12 victory.

13 It's essential to maintain a pure ZEV gold
14 standard. This, after all, is what has driven the
15 development of the various power, drive train and battery
16 technologies and has developed the infrastructure.
17 Phoenix motorcars currently has a fleet order for dozens
18 of vehicles and request for quotes on fleets equaling
19 hundreds of additional vehicles. You all know how much
20 demand government agencies alone have put out there.

21 We have participated in various CARB workshops,
22 manufacturers public comment forms, advisory committee
23 meetings on the matter. And to paraphrase the
24 overwhelming sentiment of all the participants that came
25 to those meetings, ZEVs on the road in California now.

1 Whatever action this Board takes today, that's
2 should be the objective. The current staff proposal
3 eviscerates the zero emission vehicle program, and
4 guarantees that there will be no ZEVs placed in service in
5 California in this decade.

6 I've been hearing numbers today, dates 200 what,
7 2009, 2012, 2013. I think someone needs to say this is
8 2003. What are we doing today?

9 The technology is here now. The public
10 acceptance and interest are here now. Put ZEVs on
11 California's roads now.

12 Thank you.

13 CHAIRPERSON LLOYD: Thank you very much. Thank
14 you for keeping it concise. Daniel Rivers, Dan Sturges
15 Michael Coates.

16 DR. RIVERS: Mr. Chairman and Members of the
17 Board, thank you for giving me the opportunity to speak
18 here today. I'm Dr. Dan Rivers, president of Compact
19 Power, a small company making battery packs for hybrid
20 direct electric vehicles and related application.

21 I've labored in this impossible EV supplier
22 industry for about 13 years now, starting out with the
23 management of the EV1 GM's EV1 program. And now going on
24 to battery packs.

25 And no doubt your esteemed Board has been very

1 important inspiring technological improvement, but I'm a
2 little afraid that maybe you are not taking due cognizance
3 of how far you have spurred the industry and how far the
4 battery industry in particular has come.

5 I'm here to speak specifically about Lithium Ion
6 batteries and the promise they hold for the hybrids, for
7 the fuel cells for the pure electronics. --

8 My company took the hard way, doing it right. We
9 make manganese based lithium ion. We can make cobalt
10 lithium ion you go down a blind path -- a blind alley
11 because you can't, in the end, mass produce it.

12 By taking specific energy we get the safety and
13 the cost and environmental qualities that we want in a
14 battery. Belcorps pioneered this kind of technology in
15 1994 at the one hundred watt hours per kilogram.

16 And Dr. Lloyd, four years ago, I briefed you on
17 the program that I had. And I proudly told you that I had
18 achieved 123 watt hours per kilogram. Well, I guess, I'm
19 about the only one holding up hardware here, but here's a
20 cell we made more recently up, 164 watt hours per
21 kilogram.

22 Manganese. And we expect to optimize it 175. If
23 you put this in a EV1, battery pack for an EV 1, you could
24 drive it 300 miles and cut the weight by 450 pounds. And,
25 yes, I do have test data on this cell.

1 We have made similar cells from hybrid electric
2 vehicle application, just the same size, just a little bit
3 thinner achieving 2000 watts per kilogram and yet getting
4 more energy per kilogram than nickel metal hydride
5 technology.

6 The cost is coming down. In 1994, lithium ion
7 technology sold for \$3,000 per kilowatt hour. Today it's
8 \$275 per kilowatt hour and that is for small individually
9 wrapped cells using lap tops.

10 R&D is continuing to improve. As we all know,
11 necessity is the mother of invention. And it's not just
12 the auto industry that's pushing this technology, but also
13 the military, and the space industries. We have contracts
14 both with the Air Force and with NASA. And so all of
15 those are combining to drive the technology forward.

16 My message today is very simple, I urge the Board
17 not just to look at where the technology has been or where
18 we think it may have been one or two years ago or is
19 today, but to try to project a little bit.

20 The fact is that this is not yet mature
21 technology, that lithium ion is advancing rapidly, and the
22 few problems that you may see with it today, will no doubt
23 be done away with in future years, just as happened with
24 nickel metal hydride.

25 So my point is simply look ahead and look ahead

1 to what lithium ion will be and not only what it is today,
2 which is quite remarkable compared to just a few years
3 ago.

4 Thank you.

5 CHAIRPERSON LLOYD: Thank you very much.

6 Just a question. Did you speak to Dr. Anderman
7 and the people who are surveying the batteries.

8 DR. RIVERS: Pardon me?

9 Yes, I've spoken to Dr. Anderman. And I respect
10 him highly. I just think that maybe there's a difference
11 between Him and your board and me, in that I'm not an
12 analyst I'm an evaluator. I have to actually produce the
13 hardware. And I think I kind of know where it is today
14 and what we're achieving today. And I think it's quite a
15 bit ahead of where it was two or three years ago.

16 And so I think that's the difference, but I do
17 have very high regard for Dr. Anderman. And by the way,
18 the cost numbers I cited, came out of his report in 2001.
19 And I agree with those numbers. And I believe they're
20 going to be even better with this technology here because
21 the materials are lower cost.

22 CHAIRPERSON LLOYD: Thank you very much.

23 Dan Sturges, Michael Coates, Tom Fulks.

24 MR. STURGES: Hi. My name is Dan Sturges. I'm
25 Executive Director of Mobility Lab, a nonprofit design

1 company working with communities and cities on sustainable
2 transportation systems.

3 I quit my job at General Motors designing cars
4 two years before you did your first regulation in 1990 to
5 pursue designing small vehicles and that work led to the
6 first NEV. And now in 1997 I started working with ITS
7 Davis on transportation systems that included small
8 vehicles with car sharing and with transit.

9 And most recently, I'm a subcontractor to
10 CALTrans me on the new car sharing statewide initiative.

11 Essentially I'm hear to talk about the NEV
12 essentially the way it's using losing credits into the
13 future here and that all means in terms of solving
14 comprehensive problems. I've been here all day. I've
15 heard all kinds of passionate arguments to create zero
16 emission transportation and to imagine the day that we all
17 have our fuel cell cars.

18 And so sometimes as a designer, I imagine that.
19 So if it's 2020, which it is like with us all having our
20 fuel cell cars. And if we're going to work in the morning
21 in San Francisco or down in Los Angeles on the 405, we'll
22 probably be stuck in traffic, in our \$40,000 fuel cell
23 cars.

24 And so I'm not trying to solve air problems. I'm
25 really looking at air problems, but also congestion

1 problems, and also how to make transpiration less costly
2 for people. So there's a lot of opportunities now to look
3 at systems and what Mark talked about with the Smart
4 Mobility systems is really something that needs to take
5 place and needs to develop.

6 I see a real interest in a city electric vehicle
7 Board here today. And what a city electric vehicle is is
8 a great vehicle that's not commercially here yet, but I'm
9 sure not too far down the street. And that's a nice
10 vehicle to could be used to drive down the train station
11 or to the bus station as sort of a multi-modal solution.

12 But that vehicle is a limited range vehicle with
13 a limited top speed. It's probably not for the freeway
14 like the Think City or the Ecom or the Hyper Mini.
15 They're really not freeway vehicles. They're local
16 vehicles. And that's essentially what a NEV is. A NEV is
17 also a local vehicle that just doesn't go as fast and it
18 doesn't go as far.

19 But essentially there's a price point to this.
20 If I'm going to go from San Francisco one day on BART down
21 to Fremont or out to Pleasant Hill, and I want to go just
22 two miles from the BART station, if there's a \$20,000 City
23 Car there to be rented or a \$5,000 NEV, which is going to
24 cost more for that hour?

25 And right now your proposed regulation is

1 essentially taking NEV off the table. And as the NEV goes
2 off the table, for example, the credit goes down to .625,
3 then it goes down to .15 in 2006. A City vehicle gets
4 like seven credits and the NEV gets .15 and if you put the
5 City Vehicle into the transportation system, like we're
6 talking about with SanDEG right now of NEVs driving down
7 to Vanpool.

8 Because let me backup for one second. If you're
9 in New York City and you take transit, you can get off the
10 train and get to where you need to go. But in low-density
11 American, you can't and you need a vehicle that can go
12 either the last two miles, the last one mile or the last
13 five miles. And we need a toolbox of vehicles, a choice
14 of vehicles.

15 And right now as you take the NEV off the line,
16 basically what you get is, I mean, seven or eight credits
17 for the City Vehicle, .15 for the NEV. And then it says
18 in terms of the shared use intelligence, the ZEV, that
19 vehicle gets another six credits, and so the City Vehicle
20 is going through the roof, but the NEV, you say, oh the
21 NEV is not eligible to earn credit for a transportation
22 system.

23 So I have a real problem with that. So if I'm
24 down in San Diego trying to get somebody to get a NEV and
25 get down to Vanpooling, which takes a car off the road and

1 which cuts down congestion and Does exactly what you want
2 to do with reducing VMT, that's not getting anything --
3 that's actually getting less credit than a PZEV that might
4 be a new General Motors Malibu with a gasoline car that
5 would go right onto freeway.

6 So I guess I think that's really your policy
7 starts conflicting with what we're trying to do in the
8 State on congestion.

9 Thank you for that time.

10 CHAIRPERSON LLOYD: Thank you very much. I'd
11 like on that particular one since Supervisor DeSaulnier
12 has been intimately involved with that, how do you
13 respond? I think you make a good point, but on the other
14 hand, I know that NEVs have also got a bad name. But
15 you're looking at --

16 MR. STURGES: Well people attack them for not
17 being high technology, but neither is bicycles and neither
18 is walking. And we need to start finding solutions that
19 comprehensive and meaningful and make living in California
20 better and get past these terms that are being moved back
21 and forth.

22 CHAIRPERSON LLOYD: The point you make about the
23 PZEV getting more than the NEV, in that particular case
24 you raise and issue I think.

25 Maybe you're not ready?

1 BOARD MEMBER DeSAULNIER: No, I'm ready. I'm
2 wide awake down here. I'm ready to go. Are you going to
3 cut me off though, if I go on to long.

4 (Laughter.)

5 BOARD MEMBER DeSAULNIER: Please do. I think the
6 point is well taken, Dan. I think what Susan has learned
7 and Dan Spurling and you and your work together is a tool
8 box approach is a right approach to take. And I think
9 that's what we're going to try to do with looking at the
10 credits and the three months after we pass this.

11 MR. STURGES: Well to keep it at .625, even
12 though that's so much less than a City Vehicle, but just
13 to keep that, that would be enough to, you know, make
14 other manufacturers want to come into the area, just keep
15 the incentive alive for this vehicle, rather than pushing
16 it off the table when it really has a central role to
17 these new systems.

18 BOARD MEMBER DeSAULNIER: I think the question is
19 a toolbox to be honest, and Alan may be picking on me,
20 some of the discussions I've had with him and with Susan,
21 has been more focused on the City Car in terms of
22 something viable that we can get, the auto manufacturers
23 maybe interested in placing. And since you mentioned some
24 places in my county where suburban uses, were there aren't
25 any other options once you get off the BART station, that

1 people would be more likely to use the NEVs.

2 MR. STURGES: The parking is becoming a big
3 problem. And if I'm in Pleasant Hill and I'm two miles
4 from the station. If the \$20,000 car is, you know, like
5 for Flex Car who's doing rental system, it's like \$6 an
6 hour. So if I was going to leave BART for two miles and
7 pay \$6 an hour. That's \$20 for that trip versus a NEV
8 might be \$2 an hour.

9 BOARD MEMBER DeSAULNIER: Well, I think the point
10 that I would say, and I appreciate Alan asking me this, is
11 I don't think I disagree with you. The question is can we
12 create a venue within the credit system, and we're really
13 going to look at that hard, in the next 3 months that we
14 can include those kind of incentives. So we're flexible
15 enough, but we can also bring the auto manufacturers to
16 the table to use in Station Car projects that are
17 different.

18 MR. STURGES: Well, sure and with NEVs we can get
19 started now showing how this multi-modalism works and then
20 you can start building on it with City Vehicles as they
21 arrive.

22 BOARD MEMBER DeSAULNIER: Well, I think we look
23 forward to working with you particularly in the next three
24 months.

25 MR. STURGES: Thank you.

1 CHAIRPERSON LLOYD: Supervisor Roberts, and Mr.
2 McKinnon.

3 Hold on.

4 BOARD MEMBER ROBERTS: Mr. Chairman, well, I
5 don't have a question, but I want to comment, is we went
6 through this discussion in San Diego just a couple weeks
7 ago and we decided to initiate a program. But unless I'm
8 wrong, it's based on City Vehicles not on NEVs.

9 And there was --

10 MR. STURGES: Well, the SanDAG people we've been
11 working with have known about the idea of NEVs being
12 feeder vehicles to transit --

13 BOARD MEMBER ROBERTS: I'm part of that. I was
14 part of that vote, part Of SanDAG. I'm not talking about
15 who I talked to I was there. And the concern was to have
16 vehicles that are going to give you a little greater
17 range, and are going to allow you to get out on the road
18 systems in a way that a NEV is. I don't think that we
19 are --

20 MR. STURGES: No, it just depends on the
21 environment. Some communities and some --

22 BOARD MEMBER ROBERTS: Okay. Since you mentioned
23 San Diego, I want to say that it doesn't make any
24 difference what credit you give in terms of what's driving
25 our program, and our concern is congestion although not

1 with this hat on here, it says a member of the
2 Transportation Board, SanDAG.

3 MR. STURGES: It's just if you have one solution
4 that's a getting a car off the road and you're not giving
5 it anymore incentive than a gasoline, you know, efficient
6 gasoline car that's going to go on the freeway, that's my
7 issue, I guess.

8 CHAIRPERSON LLOYD: Mr. McKinnon.

9 BOARD MEMBER MCKINNON: Yeah. I want to comment
10 that that consideration is how NEVs got put in to the rule
11 last time.

12 And we still have this problem. And the problem
13 is is that there were very affordable ways of getting
14 credits built up. And so at least one automaker gave them
15 a way to make them. And what this ended up doing was
16 forcing out the City Car and some of the others. So I
17 think we have to be really careful.

18 It isn't that we don't recognize that they are a
19 tool that fits in the puzzle. But it is, unfortunately,
20 the way that their credit scheme was abused caused just
21 about, you know, in my mind, sort of a collapse of the
22 whole BEV piece of this. And so I think we have to be
23 really careful about how we do it.

24 MR. STURGES: Yeah. I just don't think whatever
25 someone did with putting those vehicles in a dumping

1 environment. I mean there's work to be done in the places
2 we talk about, in terms of the Pleasant Hill and BART.

3 BART right now, as you probably know, is running
4 out of parking space. And so they're charging people \$63
5 a month to drive down there and park now which is actually
6 sending people away from transit.

7 And so we need some solutions. And I think that
8 you're right, that somehow there needs to be some safety
9 measures that it's not abused. But to push this thing off
10 the table and say we want to do transportation systems,
11 but every car in it has to be over \$20,000, that's not
12 going to happen. I mean, it really needs --

13 BOARD MEMBER McKINNON: I guess what I'm trying
14 to get to you is the risk is if we don't did it right, you
15 don't get the \$20,000 cars, You don't get the NEVs. They
16 get given away, and you've got nothing.

17 And that's sort of the way this has worked out so
18 far. So we're going to have to craft it a lot more
19 carefully than we did last time.

20 MR. STURGES: But like I said, what would be the
21 ECom, the City Vehicle could get 7 credits, and the NEV
22 gets .625. I mean that's not like a huge give away there,
23 I mean, relative to all things considered.

24 I'm not asking for the NEV to be way up the list
25 or anything like that. I'm just saying once it gets down

1 to .15, it's just off the table.

2 CHAIRPERSON LLOYD: Thank you very much.

3 Michael Coates and Tom Fulks. Are you going to
4 change the way.

5 MR. FULKS: Yes. Thank you. Mr. Chairman, and
6 Board Members, my name is Tom Fulks. I'm here
7 representing an organization called Green Car Institute We
8 have provided testimony to you in the past on the electric
9 vehicle market in California. And I'm here today to give
10 you some data about a study we did at Otai Ranch down in
11 San Diego county.

12 I guess the conclusion of the study is I'm here
13 to argue in favor of the aluminum foil standard in
14 electric vehicles. That would be the NEV.

15 It's either that or the clay standard. I can't
16 figure out exactly which one it would be. But what I
17 would like to do is share with you some results of a study
18 that we did with the Mobility Lab, Dan Sturges, and the
19 automaker who didn't dump the NEV product.

20 We outfitted 28 families in the Otai Ranch, which
21 is a master planned community, what's considered by the
22 Urban Land Institute to be a Smart Growth Community, that
23 has multi-modal nodes that has a road system designed
24 specifically to encourage transit, multi-modalism,
25 bicycling, walking, it's got a trail system designed for

1 all sorts of various mobility purposes.

2 We let the families use the NEVs for 60 days, and
3 then we had them keep a log of the use this vehicle every
4 day. And so what we found at the end of the study and
5 once we collected the data, was that nine out of ten trips
6 that these families took within the community of Otai
7 Ranch, was used in the NEV. When they had the choice
8 between using their internal combustion engine vehicle or
9 a NEV, they chose the NEV nine out of ten times.

10 Of those trips that were taken, two-thirds of
11 them were considered trips of necessity, which would be to
12 the supermarket, to the school, to work, to do something
13 that they ordinarily would have had to do in their
14 internal combustion engine vehicle. So what we ended up
15 with was a dramatic reduction in cold-start emissions from
16 internal combustion engines when people were given the
17 choice.

18 And interestingly, at the end of the study when
19 the vehicles were retrieved, we asked them in a focus
20 group setting, would you consider buying a NEV now that
21 you have been able to test one? Fifty percent of the
22 participants said yes, they would buy a NEV priced, at
23 that time at the higher price points, which of course have
24 come down since then.

25 I guess my point is if people are given a choice

1 of vehicles and we don't talk about the political
2 implications and we don't talk about the numerical
3 implications, what we talk about are the ultimate users
4 who actually use the products, they do use the products.

5 And so the point of our study was that the zero
6 emission mandate, even though it may not have ended up
7 with a product it wanted, it did create an electric
8 vehicle market. There are actually more than 10,000 of
9 these vehicles in California that have been purchased, not
10 necessarily have been received for free. And those 10,000
11 electric vehicles users actually have found quite a bit of
12 utility in these vehicles.

13 And the most important part, as far as you are
14 concerned, this Board should be concerned, is that the
15 number of cold starts eliminated have been significant.

16 And then the last point, the concept of VMT,
17 vehicle miles traveled, has never entered the calculus of
18 the decision to use the NEV for mobility purposes. It
19 wasn't the distance of the trip that mattered, it was the
20 purpose of the trip. And the NEV was used specifically to
21 replace trips taken in internal combustion engines.
22 Again, it's not the VMT it's the trips replaced.

23 So the staff report to eliminate the multiplier
24 credits, I agree with Dan Sturges, I think we ought to
25 stick to .62. It's not that big of a deal and it keeps

1 that little niche market alive in places like Otai Ranch
2 and other master planned communities throughout
3 California.

4 Last point, we also are now studying master
5 planned communities at Otai at D.C. Ranch in Arizona and
6 at Celebration in Florida to drill down and find out
7 specifically why are you so attracted to these vehicles,
8 people who live in these types of communities. And we
9 will be sharing that data with you when we're completed.

10 Thank you.

11 CHAIRPERSON LLOYD: Thank you. Thanks, Tom.

12 Michael Coates, Diego Miralles, Robert Kittell.

13 Hi, Mike.

14 MR. COATES: Hello Chairman and board members. I
15 really don't have a whole lot to add to Dan and Tom's
16 testimony, because --

17 CHAIRPERSON LLOYD: Remember from two years ago
18 that's good. But you may have under-estimated your time.

19 MR. COATES: Well, also they stole a few of my
20 lines there. But I have been working with Global Motor
21 cars and other NEV manufacturers for the last two years in
22 public relations and marketing work.

23 There are 10,000 NEVs in use in California right
24 now. Every day they're being used in reducing emissions.
25 They're a functional zero emission vehicle and they do

1 deserve a place at the table and in the toolbox as Dan was
2 talking about.

3 Thank you.

4 CHAIRPERSON LLOYD: Thank you very much. I'm
5 impressed, I didn't realize there were 10,000 out there.
6 That's excellent.

7 Thank you.

8 Diego Miralles, Robert Kittell, and Tom Addison.

9 MR. MIRALLES: Good evening. I'm a bit new at
10 this I apologize. My name is Diego Miralles. I am head
11 of a company called EV Works. And we represent the Arava
12 electric car company, and they're currently based in
13 India.

14 I guess I'll tell you a bit of a success story
15 about a ZEV. Not very long ago a group of people decided
16 that the car manufacturers think again about the
17 life-changing effects of what they sell to the public.
18 And thus inspiring them to think of a few new ways of
19 getting people from here to there. While the big guys
20 were, in a few cases, with good intentions busy thinking
21 of new ZEV concepts that would satisfy new requirements, a
22 few of us were trying it our own way.

23 Over the last decade, we've sent a lot of ZEVs
24 come and go, some of which seem to have no practical place
25 in mass market, be it cost or liability issues.

1 Mean while, in southern California, a small ZEV
2 is created About nine years ago, that would stand the test
3 of time and is now being produced in India for the last
4 two years now.

5 I speak of the Arava electric car. For those who
6 don't know what Arava is, it is a City Class EV, but with
7 a bit better performance envelope and will cost about half
8 as much as its competitors, that is if any City Class
9 competitors are left in the U.S.

10 It has air-conditioning and heating and just
11 about any other feature that an economy car has. They're
12 currently being sold all over India, as well as being
13 introduced in Japan, China Norway, and as of the beginning
14 of this year, it is now being distributed in the UK.

15 One of which is being driven by a member of
16 parliament. It meets Emark and ISO 9000, which
17 incidentally is a bit of an issue here in the U.S. because
18 we've such a chasm between our slow speed vehicles and our
19 high speed vehicles. And it makes it very difficult for
20 City Class cars to really exist when we force them to go
21 so slow to the point where we just, you know, sell them as
22 golf carts.

23 EV Works has been getting a flood of interest
24 from both the consumer to the commercial sector,
25 government agencies. We've seen interest in station

1 commuter car and car sharing programs in southern
2 california far beyond our predictions.

3 CHAIRPERSON LLOYD: Diego, can you focus on the
4 staff proposal and what you'd like to see there.

5 MR. MIRALLES: Well, I guess, I went away from
6 that a little bit while I was sitting back there, because
7 I would have to concur with Dan Sturges' approach to this
8 being kind of in the same boat, except the real -- I
9 guess, what I'm saying here is that we have a product now.
10 It's been in production. And we're trying to find out
11 what, you know, in doing market studies and business plans
12 how are we going to approach this problem, if a lot of bad
13 press is created, possibly by sort of this, you know,
14 stepping away from what I saw as a pure goal at least over
15 the last ten years.

16 And it's a bit of a problem for people like us
17 who have gone the distance. And I would encourage the
18 Board, I guess, just to wrap it up, just to stay the
19 course and allow these vehicles that have proven to be a
20 very practical mode to exist on the streets of the U.S.
21 And not just let the rest of the world reap the benefits.

22 CHAIRPERSON LLOYD: Thank you very much.

23 Rob Kittell, Tom Addison, Henry Hogo.

24 MR. KITTELL: Can you hear me now?

25 Okay. My name is Robert Kittell. I'm a licensed

1 professional engineer in the State of California. I'm am
2 the Chairman and Chief Executive of the Electricab
3 Corporation, whom I represent today.

4 Electricab is an emerging leader in the
5 development of zero emission transportation solutions,
6 range extender upgrade products and aggregate range
7 optimization for refueling constrained vehicle fleets
8 including battery electric vehicle and fuel cell vehicles.

9 I am here today to discuss the commercialization
10 of advanced battery technology and Battery electric
11 vehicles. Additionally, I will provide insight on staff's
12 economic analysis, comment on development and deployment
13 of pure ZEV technologies, and close with a series of
14 responses to various constituents of staff's latest
15 recommendations.

16 In its rationale for further modification to the
17 January 2003 regulatory proposal, staff has concluded that
18 cost and performance characteristics of advanced batteries
19 have not meaningfully changed since their battery
20 technologies advisory panel's findings delivered in 2000.

21 They cite severe cost challenges and base their
22 economic analysis on nickel metal hydride technology. The
23 implied message is no improvements have been realized in
24 nickel zinc, sodium nickel chloride or lithium based
25 batteries in recent years.

1 The staff's report clearly fails to acknowledge
2 nickel zinc battery technology and the break-through in
3 price and performance that it offers. Utilizing Evercel's
4 prior generation of nickel zinc batteries and PFC 50
5 charging Electricab has upgraded the performance of a 17
6 to 20 mile per charge Ford Think NEV to a 300 plus mile
7 per day commercially viable service vehicle.

8 Evercel's current generation, nickel foam product
9 is delivering, in excess, of 32 usable kilowatt hours in a
10 single 28 module string to power Phoenix Motor Car's first
11 production full function five passenger 100-plus electric
12 vehicle.

13 All of this capability is available today at a
14 price point of \$300 per usable kilowatt hour. Again, this
15 is a product that is commercially available today. For
16 about \$9,000, the cost of a nickel zinc battery pack is
17 far less than that of the AC drive system. Evercel's
18 products are rated at 500 cycles at 100 percent depth of
19 discharge, and have demonstrated in excess of 10,000
20 cycles at 10 percent discharge levels.

21 From both an initial -- excuse me. I lost my
22 page here.

23 CHAIRPERSON LLOYD: I can tell you you've only
24 got about half a minute left.

25 --o0o--

1 MR. KITTELL: From both an initial and life-cycle
2 cost perspective, this clearly represents improvements in
3 advanced battery price and performance.

4 Staff also represents these cost challenges
5 strictly from the manufacturer perspective and fails to
6 fully acknowledge the reduced cost of ownership from the
7 consumer perspective.

8 Further more, staff's proposal is inconsistent
9 with our goal of pure ZEV cost reduction through volume
10 manufacturing. By focusing on generic electric drive
11 componentry rather than pure ZEV drive chain subsystems,
12 the business world realities of volume discounts and
13 economies of scale will never apply to their fullest
14 extent under the current proposal.

15 While staff's January report projects a 99
16 percent decrease in the cost deltas for fuel cell vehicles
17 versus ICE's over the same time frame they project zero
18 cost change in Battery electric vehicles. This is an
19 unacceptably poor and lazy assumption and already shown to
20 be in an error.

21 CHAIRPERSON LLOYD: Can you please wrap up.

22 MR. KITTELL: Sir, I will wrap up with my
23 specific responses to selected staff rationale.

24 CHAIRPERSON LLOYD: Do you have a written
25 statement?

1 MR. KITTELL: I can provide a written copy upon
2 completion of my presentation. In order for credits for
3 fuel cell vehicles placed in service in other Section 177
4 ZEV states to be allowed to count toward compliance in
5 California, they should be de-rated by a factor inversely
6 proportional to the square of the distance between any
7 such State in our children's lungs.

8 The point is ZEVs operating outside the state of
9 California do nothing to improve air quality here.

10 CHAIRPERSON LLOYD: I think we've heard enough.
11 I don't know if this is very productive at all.

12 Do you have some significant addition to the
13 staff proposal, comments?

14 MR. KITTELL: Yes, sir, I do. Two hundred and
15 fifty fuel cell vehicles distributed throughout the United
16 States in the next five years will contribute essentially
17 zero toward cleaning the air in California, and will do
18 nothing toward reducing the costs of pure ZEV electric
19 drive train subsystems in pure ZEV vehicles.

20 CHAIRPERSON LLOYD: I think I must cut you off.
21 It's not adding. If you provide a written statement, we'd
22 be happy to take that into account. I'd like to move on
23 to the next speaker.

24 MR. KITTELL: One final comment, please.

25 CHAIRPERSON LLOYD: Tom Addison -- but --

1 MR. KITTELL: I think in total agreement with Tom
2 Gage from AC Propulsion. I believe the solution to
3 delivering near term zero emission battery electric
4 vehicles really lies with the small manufacturers, such as
5 AC Propulsion and Phoenix Motor Cars. And I encourage the
6 Board --

7 CHAIRPERSON LLOYD: I think we heard that just
8 because we don't hear any of the major manufacturers
9 coming forward. So I think we've reached that conclusion.
10 We're trying to craft a way in which that might happen,
11 and give incentives to the large companies so that might
12 be supportive.

13 So I appreciate your sentiment there.

14 Thank you.

15 MR. KITTELL: And any means to make a liquid
16 tradable market for ZEV credits assigned to those
17 manufacturers, those small manufacturers, will go a long
18 way toward putting zero emission vehicles on the road
19 today.

20 CHAIRPERSON LLOYD: Thank you.

21 MR. KITTELL: Thank you very much.

22 CHAIRPERSON LLOYD: Tom Addison, Henry Hogo, Carl
23 Johnson.

24 MR. ADDISON: Good evening, Dr. Lloyd and
25 members. First of all, congratulations, not only making

1 it this far into the evening, but also on the last 12
2 years.

3 CHAIRPERSON LLOYD: We haven't finished yet.

4 MR. ADDISON: In deed. I'll be brief. I will
5 hope you in that respect, Dr. Lloyd.

6 But seriously, I mean the last 12 years really
7 have been, I would argue, a tremendous success. And
8 that's a result of the leadership of this board, of a lot
9 of hard work, a lot of long hours by staff as well as by
10 EV drivers, by car companies and others.

11 Having said that, the Bay Area Air District has
12 concerns with the staff proposal. Three primary concerns
13 with the proposal.

14 Here they are. You've heard these from other
15 people. Post 2009, by essentially From our perspective
16 what you're doing is you're asking the car companies to
17 come back and give you problems then.

18 Plug-in hybrids. Plug-in hybrids, we don't think
19 in the silver category are going to be produced. We see
20 plug-in hybrids as the short-term, hopefully a short-term
21 solution for the next decade for the next maybe two
22 decades, cross our fingers, knock on wood, we'll see how
23 well fuel cells do.

24 But we don't think you're going to see plug-in
25 hybrids being produced with the incentive structure that's

1 set out at this point.

2 Third concern, blackout, short-term blackout,
3 bank credits essentially halting the industry.

4 You've heard a modest proposal. I think Jonathan
5 Smith had something to say about a modest proposal. A
6 modest proposal from Dave Modisette, we thought that made
7 a lot of sense. There's some numbers in there that seem
8 certainly reasonable, achievable modest. You know, that
9 seems from our perspective to be at least something that
10 you could move towards, hopefully beyond.

11 I would just emphasize plug-in hybrids are
12 covered in that CalETC proposal. We'd urge you to look at
13 that and incorporate that. And we'd see that as being a
14 key part of that proposal.

15 I'm out of here.

16 Thanks.

17 CHAIRPERSON LLOYD: Thank you, Tom.

18 You did hear the statements from the OEM where he
19 asked them about the plug-in hybrids?

20 MR. ADDISON: And I've had conversations with
21 your staff about the staff proposal and what effect that
22 would have on plug-in hybrids and some concerns.

23 CHAIRPERSON LLOYD: Thank you.

24 Henry Hogo, and then Carl Johnson. And then
25 we'll probably be -- well maybe one more and then we'll

1 take a break.

2 MR. HOGO: Good evening, Dr. Lloyd and members of
3 the Board. Again, Henry Hogo from the South Coast AQMD.
4 We have submitted written comments. What I wanted to do
5 is talk about the table that we provided in the written
6 comments that shows an alternative to the staff proposal.

7 Again, in there, we believe in numbers also. And
8 as your board knows, the latest draft air quality
9 management plan for the South Coast indicates that there's
10 significant shortfalls in needed emission reductions in
11 order to attain the federal air quality standards.

12 As such the South Coast AQMD staff supports a
13 strong zero emission vehicle regulation that provides the
14 greatest air quality benefits as well as accelerate the
15 advancement of the zero and near zero vehicle
16 technologies.

17 And what I wanted to do was talk about the table
18 that we have provided in the written comment. And what
19 the AQMD staff is proposing is that and we urge your board
20 to retain the 2001 ZEV requirement of two percent adjusted
21 for the time period beginning at 2008.

22 In the interim the next five years, we're
23 proposing that you keep the 250 fuel cell or Type 3
24 vehicle production requirement. In addition, we would
25 recommend that you put in a 2000 Type 2 full function

1 battery EV over the next five years.

2 You heard a lot of testimony today about the
3 satisfaction and performance of the current technology.
4 We believe that technology can move forward, and we would
5 recommend that over a substitution of the fuel cell
6 vehicles, because we really need the fuel cell vehicles
7 out there visible to the public during this timeframe.

8 In addition, we are -- to strengthen this
9 regulation, the staff is proposing that the AT PZEV
10 numbers become a requirement. And what you do here is
11 then you would reduce the PZEV portion of the regulation
12 as time goes on.

13 So this will promote the current technologies
14 that near-term technologies such as plugs-ins and hybrids.
15 And relative to plug-ins, we strongly believe that
16 plug-ins have an important role in reaching the ZEV
17 mandates.

18 As such, the AQMD staff is proposing that for
19 plug-ins and any other technologies in the silver standard
20 that meet the minimum zero emission range credit, for all
21 pollutants at 1.25 be considered as part of the gold
22 standard for a short period of time.

23 We're talking maybe out to the year 2010. That
24 would promote that technology.

25 I wanted to conclude with just two points, and

1 that is that relative to your deliberations today, and
2 most likely tomorrow, that any consideration of mobile to
3 stationary crediting, the AQMD staff really opposes that
4 proposal.

5 We believe that such an action would only serve
6 to impede the development of fuel cell vehicle
7 technologies. And lastly, the South Coast AQMD staff
8 opposes any provision for ZEV credits of zero emission
9 vehicles, sold outside of California.

10 It really sends a wrong message relative to
11 California's interest in fuel cell technology
12 demonstration. And if such a provision is allowed, it
13 would undermine California's effort to bring federal
14 incentive funding to California.

15 And that concludes my comments.

16 Thank you.

17 CHAIRPERSON LLOYD: Thank you, Henry.

18 EXECUTIVE OFFICER WITHERSPOON: May staff direct
19 a question to South Coast?

20 CHAIRPERSON LLOYD: Yes.

21 EXECUTIVE OFFICER WITHERSPOON: We're trying to
22 calculate the cumulative numbers for the vehicles. And
23 Henry in the chart in your letter are those credits or
24 cars, and are they fuel cell car Equivalents or are they
25 BEVs?

1 MR. HOGO: We took the table that was in the
2 staff report, page 25, and equated it across. So you have
3 the 2000 regulation, this is a scenario that your staff
4 proposed with the 2001 regulations, and the March 2003
5 revised staff proposal. And we took those numbers and put
6 them across to the South Coast proposal. So really
7 they're based on vehicles I believe.

8 EXECUTIVE OFFICER WITHERSPOON: Just help the
9 Board with the math. The two proposals you hear
10 previously from CalETC and Union of Concerned Scientists
11 sum up to roughly 30,000 by the end of 2014. The South
12 Coast proposal sums up to 80,518 in the same period.

13 And the three tiers are 4,583, 21,128, and
14 54,807. And again the cumulative total 80,518.

15 MR. HOGO: They are definitely more stringent
16 than the proposal, but we believe we need this yard stick
17 in order to get the technology moving.

18 EXECUTIVE OFFICER WITHERSPOON: Dr. Burke, I was
19 adding them in the intervals of time that the other
20 proposals were recommended '05 through '08, '09 through
21 2011 and 2012 through 2014. And then I summed it for the
22 cumulative total.

23 BOARD MEMBER BURKE: Got it.

24 CHAIRPERSON LLOYD: Thanks, Henry.

25 Carlo Johnson.

1 And then I think we -- Carl and then we --

2 MR. JOHNSON: Thank you, Dr. Lloyd.

3 CHAIRPERSON LLOYD: Welcome.

4 MR. JOHNSON: Good to see you once again. We
5 appreciate the opportunity.

6 I am Carl Johnson. I'm Deputy Commissioner for
7 Air and Waste Management with the New York State
8 Department of Environmental Conservation here today again
9 to build on our very successful relationship over the
10 years with the Board and the staff. And we wish to
11 continue that, and we really appreciate this opportunity
12 today.

13 I will be belief. You have our written comments.
14 I really will just speak to two points that we think are
15 worthy of highlighting this evening. One is the traveling
16 provision. And we very much support the traveling
17 provision in the sense that the number gives certainty to
18 everyone as to what we're talking about in the out years.
19 If 250 is the number, then 250 is the number. And we
20 think that that's a good way to provide that certainty to
21 the industry.

22 However, we are concerned that the traveling
23 provision that credits those vehicles as currently written
24 does not sum sunset -- or should subset. As currently
25 written this provision carries forward after the end of

1 the optional program.

2 So that in 2009 and the subsequent timeframe, a
3 Type 3 ZEV sold in New York would be creditable against
4 the California requirements. In terms of the northeastern
5 states really what that would mean is that the credit
6 structure would seriously negatively impact the placement
7 of AT PZEVs as required in the north east, that you would
8 get so much credit for the fuel cell vehicles that there
9 would be no need, desire or inclination to place AT PZEVs
10 and we would be out of that market. So we have concerns
11 with regard to that and think that a sunset or a phase out
12 of that would be appropriate.

13 We also share the general sentiment, I think,
14 with regard to the gold standard, that there should be a
15 standard out there. We don't take issue with the present
16 expectation that Type 3 ZEVs will not be ready for
17 commercialization before 2009. We don't object. In fact,
18 we would support the independent expert panel review
19 process.

20 But we are concerned that the absence of
21 regulatory requirements for the Type 3 ZEVs could have a
22 negative impact on the development of the technology. As
23 the Board has evaluated ZEV programs in the past, it has
24 recognized that continued regulatory requirements were
25 necessary to promote the continual investment.

1 The same is true here. Clearly, a second
2 generation of fuel cell vehicle demonstration will be
3 needed before the technology is fully commercially viable.
4 But we are concerned that being silent, at this point,
5 with regard to the standard after '09 sends the signal that
6 the program ends in '09.

7 I cannot tell that we know what the number is.
8 And I think it would take more work for us to come to a
9 consensus as to what that might be. But we do think that
10 whatever it is, it's better to commit to that number, even
11 if that number is to be determined later as was suggested,
12 and to develop that number with the recognition that other
13 states are following your lead. That's really the extent
14 of what I have to tell you now.

15 CHAIRPERSON LLOYD: Thank you very much. Thank
16 you for the written statement.

17 Thank you for that. Good to work with you again.

18 Thank you.

19 Now, we're due to have a break, although I have
20 three people here who said that they have to leave and if
21 they take one minute a piece, I'll take them. And that
22 would be Paul Scott, Mike Kane and Zan Dubin Scott.

23 So if they can do that in one minute rather than
24 -- if they have to leave. I know it's a bit of an
25 imposition, but the court reporter is ready to drop.

1 MR. SCOTT: Well, one minute throws. I'm Paul
2 Scott. Thank you very much.

3 One minute throws my report out, but I'll take it
4 anyway.

5 We bought our RAV4. We showed it to all of our
6 friends. We had 80 people over to our house. And we
7 drove them around. We had 15 EVs over there. We had a
8 big EV test drive party. Everybody loved this car.

9 So for the industry to tell you there is no
10 market, just doesn't ring true to us. We talk to people
11 every day when we drive around in our car. They all love
12 it. They all want one. So I just want to make the point
13 that, you know, we really don't want you to eliminate BEVs
14 batter electric vehicles from the program.

15 We feel like these cars have a huge market
16 nationwide, certainly up and down the west coast. The
17 people that I've dealt with throughout my life would love
18 to have one of these cars. So just to end it quickly,
19 please maintain some sort of mandate that would include
20 battery electric vehicles. That's all.

21 CHAIRPERSON LLOYD: Thank you very much.

22 BOARD MEMBER RIORDAN: Mr. Chairman.

23 CHAIRPERSON LLOYD: Yes. A Question.

24 BOARD MEMBER RIORDAN: Not a question. I just
25 was interested in his name, I'm sorry.

1 MR. SCOTT: Paul Scott.

2 MR. KANE: Chairman, Lloyd, I could use a little
3 bit more than three minutes. If you can accommodate me
4 right after the break, I'll let Zan go and then speak
5 right after the break.

6 CHAIRPERSON LLOYD: Yes, okay.

7 MS. SCOTT: I'm Zan Dubin Scott. I'm from LA.
8 I'm married to Paul Scott. And we have the EV. And
9 first, I'm going to be nervous here, but I want to thank
10 the Board and the staff for helping bring ZEVs to the
11 road. I've rewritten my statement today about six times.

12 This is much more complicated than I thought. I
13 walked in expecting for nothing less than sustained
14 competitive volume production of BEVs through car company
15 requirements. Now, I've feared that my -- that request my
16 dismissed out of hand as too simplistic and just too much.

17 But I do know three things. I have never seen an
18 add for a RAV4. I see tons of adds during prime time TV
19 for all kinds of cars, and I frankly don't think that the
20 car companies have given it a college try. We tell people
21 constantly people -- they stop me on the street. They say
22 what is that car? Their faces light up. I tell them
23 about it. I say you can't get them. And their faces
24 fall. I can feel it out there that people want these
25 cars.

1 And the desire and the needs, I know, of people
2 like -- consumers like me must be given equal
3 consideration to the needs and the desires of the car
4 companies. Auto exhaust kills 12,000 people a year. Who
5 has more at stake here? Who has more to lose. I walked
6 through bladder cancer with a family member last year.
7 And I think people like me and other consumers have a lot
8 to lose. I urge the Board to listen to us too.

9 CHAIRPERSON LLOYD: Thank you very much, Zan.

10 We will take a break now till -- well for half an
11 hour.

12 Okay. We're not going to break for half an hour.
13 We're going to break for 15 minutes.

14 So we'll go 15 minutes till 7:20, and then we'll
15 reassemble.

16 (Thereupon a dinner break was taken.)

17 CHAIRPERSON LLOYD: If we can just get the EO
18 we're on. I call the Executive Officer. Oh there she is.
19 I didn't see you there.

20 EXECUTIVE OFFICER WITHERSPOON: I was just
21 chatting with a member of the public.

22 CHAIRPERSON LLOYD: We'll recommence. And I
23 promised we would give Mike Kane a chance. I would just
24 like to lay out the landscape of where we're likely to go.
25 We're expecting to go another one and a half to two hours

1 this evening. Then adjourn for the evening. And then
2 recommence at 8:30 in the morning. So we will not be
3 taking a vote tonight.

4 So those of you who what to stay, feel free.
5 Those of you who you who don't, who would like to
6 coordinate, but we'll be back at 8:30 in the morning.

7 Well, that's true.

8 But an incentive I guess -- instead of your -- I
9 guess I could if we have another 45 people. We understand
10 there's going to be reinforcements tomorrow. So we don't
11 know that this list is going to be limited, because there
12 are other people coming into town. So clearly the more we
13 can get through tonight, the better off we're going to be
14 tomorrow.

15 But clearly that's in your hands. As I said
16 before, if there's stuff that is repetitive, it would
17 really help us and help everyone, if you just could keep
18 it short. With that let's continue.

19 (Thereupon an overhead presentation was
20 Presented as follows.)

21 MR. KANE: Chairman Lloyd and Board Members, my
22 name is Mike Kane. I'm a resident of Newport Beach,
23 California. I'm an electric vehicle driver, and very much
24 a novice, I guess, at public policy and advocacy here, so
25 bear with me.

1 If you're working off of hardcopies, I'm going to
2 skip over a bunch of the charts in the beginning, so I'll
3 do that right now.

4 --o0o--

5 MR. KANE: I think going straight for the jugular
6 here, what I'm hearing from the auto companies and what
7 I've been hearing in the staff report that I read through
8 here recently is that really we need to effectively
9 sacrifice investments in battery electric vehicles so that
10 we can fund the potential promise of fuel cells in the
11 future.

12 I think you've heard a lot of reasons today why
13 that may not be the best course of action. I want to take
14 a slightly different stab at it. I drive emissions free
15 today. I do that using a battery electric vehicle. And
16 I'll walk you through very briefly how I do that.

17 This is the chart that's the first one has a lot
18 of pictures on it.

19 If I had a, you know, theoretical 75-mile daily
20 round trip commute. I could do that with a battery
21 electric vehicle. I would need about 25 kilowatt hours of
22 energy a day to do that.

23 Battery electric vehicles are out there they'll
24 do that today.

25 --o0o--

1 MR. KANE: I picked the Honda EV Plus. I need
2 the car. I need a charger. I need about 450 square feet
3 of solar panels on my home roof and that's roughly the
4 system that I have on my own home today.

5 If I was to do that with a battery electric or
6 with a hydrogen fuel cell electric vehicle, I'd need about
7 one and a half kilograms of hydrogen to do that.

8 I've done the research on how much energy is
9 required to do that. It looks like you need about 90
10 kilowatt hours to produce that much hydrogen.

11 --o0o--

12 MR. KANE: So if I look at that as a system and I
13 say I need a hydrogen fuel cell car, I need a hydrogen
14 generator. This is the one from Stewart Energy, I'm sure
15 you've seen at the fuel cell partnership, and I need about
16 1,100 square feet of roof space to do that.

17 Now, assuming I could get 1,100 square feet of
18 roof space worth of solar panels, that's a dubious
19 proposition on most homes in California. You could take
20 the hydrogen fuel cell car out of the equation all
21 together and the system would be more expensive than the
22 system for a battery electric vehicle.

23 So even if the fuel cell car was free, it would
24 cost know me more to put this system together than it
25 would with a battery electric vehicle. I think you can

1 use that as an example of how could scale this up into a
2 bigger system Where the hydrogen is produced in a big
3 hydrogen barn.

4 --o0o--

5 MR. KANE: I think you've all seen this ad, this
6 was put up by Toyota on a number of billboards around the
7 State and bus kiosks. I want to ask the question I guess
8 is this a marketing program?

9 I can speak with some authority here. I've been
10 a marketer in the hitech field for over 20 years. I've
11 been personally very involved in bringing a number of new
12 technologies from R&D to multi-billion dollar markets.
13 The way you do that isn't by advertising it and expecting
14 people to come buy them. You have to build those markets.
15 You don't find them.

16 You go out. You work with the early adopters.
17 You find out why people are interested. You build case
18 studies around that. And you sell these things one at a
19 time. And the market builds on itself. I'd ask you to
20 think about the first time you bought a home fax machine
21 or personal computer. You didn't do it because you saw an
22 advertisement for a technology that you never heard about
23 before. You bought one because your neighbor had one.
24 You saw them using because you had one at work and you
25 started thinking, you know, gee, I could really make this

1 work at home.

2 These vehicles have to be out there. People have
3 to see them on the streets and get comfortable with the
4 fact that they can use them in their day-to-day life and
5 they're going to provide them utility.

6 In my field of work we call this kind of
7 marketing field-of-dreams-marketing. And if you remember
8 the movie, the terms was, "If you build it, they will
9 come."

10 CHAIRPERSON LLOYD: And we gave you three
11 minutes. That's it.

12 MR. KANE: Quickly what happened, you know, when
13 respondent's came in, they ended up at a Toyota dealer and
14 that Toyota dealer couldn't sell them the car, so they
15 sold them what they could sell them, which was a gas
16 vehicle. It was very hard to get to someone in Toyota who
17 could actually sell you a car and then you had a long wait
18 to get one.

19 --oOo--

20 MR. KANE: What I'm asking the Board to do is to
21 create strong regulations and stick with them. This
22 market needs consistency. People aren't going to invest
23 in the technologies necessary. These small companies
24 aren't going to be there if there's that much regulatory
25 uncertainty.

1 What I'm asking the Board to do specifically is
2 reject the current staff proposal and reaffirm the 2001
3 program amendments and really do it only with what's
4 necessary to make the program enforceable.

5 --o0o--

6 MR. KANE: Step two is to look at the things that
7 I believe are important a look at. That's the credit glut
8 issue I think you're heard about. Cars going off of lease
9 and leaving the state. We need to get cars out there that
10 stay on the road for the balance of their life.

11 And we need to look at incentivizing Fuel cells,
12 but not at the expense of battery electric vehicles that
13 are here today, and incentivize plug-in HEVs.

14 And lastly there's a lot of drivers out there
15 that would love to be involved and demand creation
16 programs. We'd love to volunteer our time to the Board,
17 to the AQMDs. We'd be interested in pursuing that if the
18 cars are still there.

19 CHAIRPERSON LLOYD: Thank you.

20 We have Christine Kirby, Amanda Flores and Tim
21 Hastrup.

22 Welcome from Massachusetts.

23 MS. KIRBY: Thank you. Good evening, Mr.
24 Chairman and Members of the Board. Thank you for the
25 opportunity to testify this evening.

1 My name is Christine Kirby and I manage the
2 Low-Emission Vehicle Program for the Commonwealth of
3 Massachusetts.

4 We've worked with the Air Resources Board for
5 many years as well as the staff and we look forward to
6 working with you in the future. I did submit written
7 comments so I want to keep my comments very brief and
8 focus on the travel issue.

9 Section 177 of the Clean Air Act allows states
10 outside of California to adopt the California LEV program.
11 The march 5th proposal includes a provision where if
12 manufacturers place Type 3 ZEVs in any LEV State, the
13 credits could be used to count towards the California ZEV
14 requirement.

15 Massachusetts recognizes that an important goal
16 of the program is to focus on fuel cell research and the
17 need to target this research. However, we believe that if
18 successful, fuel cells will be deployed not only in
19 California but in other states as well.

20 Ultimately, the goal of the program is to deliver
21 long-term air quality benefits. And clearly it's crucial
22 to expand the market for zero emission vehicles beyond
23 California to move towards true commercialization.

24 Therefore, we suggest that the regulations
25 include a specific provision to sunset the pilot program

1 phase of the alternative compliance strategy and
2 specifically section 1960(d)(5)(c).

3 We also suggest that the ARB include a provision
4 in the regulations to allow for some number of fuel cells
5 to be placed in states outside of California. And we
6 don't think that the regulations are clear on that point.

7 We've included some suggested language that
8 will -- well it's in my written comments for that section.

9 CHAIRPERSON LLOYD: Thank you very much.

10 Staff any comment on that?

11 EXECUTIVE OFFICER WITHERSPOON: Our attorney, Tom
12 Jennings, is looking at this travel issue because of the
13 question New York raised and then also how it may apply to
14 Massachusetts. And I was just asking Tom -- a piece of
15 the language I don't understand. So we'll get back to you
16 tomorrow.

17 CHAIRPERSON LLOYD: Maybe tomorrow morning.

18 That's fine. Yes.

19 MR. FLORES: Good evening, Chairman and Board.

20 It's my pleasure to be here and I thank you for the
21 opportunity to come and present a diversity of
22 perspective.

23 My name is Armando Flores and I'm attorney from
24 Modesto. I'm here on behalf of the Stanislaus County
25 Hispanic Chamber of Commerce, the Latino Political Action

1 Committee of the Central valley, and the Latino Community
2 Roundtable of Modesto.

3 And I'm here to talk a little bit more about
4 demographic numbers as opposed to hitech numbers. And
5 there are several points I want to make, and I'll be
6 brief.

7 Point number 1, from a business perspective, I
8 would like to inform you that whereas California's
9 business economy is suffering a down turn, the Hispanic
10 busy economy is the fastest growing segment and most
11 viable element of California's business. And we want to
12 continue to see that trend increase and grown in
13 pollution. And the central valley, in particular, will
14 diminish that.

15 Point number 2, from a Latino health perspective
16 we would like this Board and staff to think about the
17 outdoor labor workforce, particularly in the central
18 valley. Think about agricultural workers, construction
19 workers, outdoor landscapers, lawn and maintenance
20 workers, landfill workers. That workforce is
21 predominantly Hispanic. And what we are concerned about
22 is that air pollution can and will have a disproportionate
23 impact on this community. And we ask you to think about
24 that and analyze that among the other elements of your
25 discourse and analysis.

1 So our conclusion, our position is that we hope
2 and encourage you to be forceful and be considerate and be
3 inclusive in your analysis. We urge you to implement
4 stronger not less stringent air pollution regulations from
5 the health perspective from the Latino perspective.

6 Thank you.

7 CHAIRPERSON LLOYD: Thank you very much.

8 Robert Gibney, Daniel McCarthy, Tim Hastrup.

9 MR. HASTRUP: Yes, good evening. I'm Tim
10 Hastrup. I'm up next I think.

11 CHAIRPERSON LLOYD: That's fine. We'll take you
12 next. I had some others, but that's fine.

13 No, there was some confusion. Carry on.

14 (Thereupon an overhead presentation was
15 Presented as follows.)

16 MR. HASTRUP: Okay. Well, I wanted to share,
17 we're still very much happy to be a ZEV family. I think
18 Toyota said it very nicely when they talked about a
19 successful launch. We just started this ZEV program and
20 we'd like to see it continue on.

21 --o0o--

22 MR. HASTRUP: And I'm kind of a simple guy. I
23 manage a bunch of R&D engineers, and we like to set the
24 goal for a --

25 BOARD MEMBER HUGH FRIEDMAN: Excuse me, Mr.

1 Hastrup, could you put that mic up higher.

2 MR. HASTRUP: I thought it was pretty high. Oh,
3 that's better.

4 BOARD MEMBER HUGH FRIEDMAN: That's better.
5 Thank you.

6 MR. HASTRUP: -- like to set the goal for them of
7 what to do. And I have a problem when I read the ZEV
8 regulations. They were pretty good. I had trouble
9 sleeping the other night. I read them. I fell asleep
10 pretty quickly because they were so complex. And my
11 recommendation would be, boy, could we look at maybe
12 making them a little bit simpler, so maybe the gaming
13 wouldn't be quite as prevalent.

14 For example, at the gold level, pure ZEVs say 50
15 mile range, greater than 55 top speed, single source
16 energy. I'd also like to see some significant ZEV vehicle
17 in the gold standard. Perhaps some kind of plug-in
18 hybrid, maybe some dual source. I just wonder if we maybe
19 should step back. It seems to become more and more
20 complicated with each review, and it's becoming very very
21 difficult to get a feel for where the regulations are.

22 I'm unfortunately not an expert and don't have
23 that much expertise here. But it just seems coming in
24 from the outside, wow, this is really complex. And it's
25 difficult to get a feeling for what's going on.

1 A couple of other suggestions. The MOA vehicles,
2 they work. They're great. Please do everything that we
3 could do deep those on the road. And if it means giving
4 folks credit for updating them and getting new credits.
5 Hey, that's okay. It gets ZEVs, keep ZEVs on the roads.
6 And I'd also like to recommend that cars when they're
7 available be available for purchase or lease no more of
8 these leases without the purchase option.

9 Thank you very much. I appreciate the time.

10 CHAIRPERSON LLOYD: Thank you very much. Robert
11 Gibney, Daniel McCarthy.

12 Seems to me, Chuck, given our budget shortage
13 maybe you can put this on tape and use for people who have
14 insomnia, so there would be --

15 (Laughter.)

16 CHAIRPERSON LLOYD: Robert Gibney, Daniel
17 McCarthy and Mike Thompson.

18 MR. GIBNEY: Good evening, Mr. Chairman, Board of
19 Directors. Thank you for taking the time to be today.
20 This is a terrific forum. And hopefully you'll hear
21 something today that shows that there is in fact a battery
22 technology that is revolutionary and is something that's a
23 breakthrough to the industry and it's called Lithium Metal
24 Polymer technology.

25 (Thereupon an overhead presentation was

1 Presented as follows.)

2 MR. GIBNEY: My name is Robert Gibney and I'm
3 with Avestor, Chief Marketing Officer.

4 --o0o--

5 MR. GIBNEY: Today I'd like to tell you a little
6 bit about the company. It's basically a joint venture
7 between Hydro Quebec and Kermigie Corporation in the
8 United States. Almost \$50 billion in assets behind these
9 two companies. They've joined together to develop this
10 new batter technology. And it's here. It's now. It is a
11 reality.

12 In fact, this battery that's shown on the screen
13 is now in production out of Quebec starting this month.

14 --o0o--

15 MR. GIBNEY: This is truly a revolutionary
16 battery design, in that it is a thin film lithium based
17 polymer technology that is absolutely the best battery on
18 the market today.

19 It has the highest energy density of any battery
20 on the market. It is now commercial. And we're now
21 taking it out to both the telecommunications industries
22 and others.

23 --o0o--

24 MR. GIBNEY: This production facility on the
25 screen here shows that we are actually in production. So

1 instead of coming up here and making promises that one day
2 we'll have a product for you, it is, in fact, here.

3 --o0o--

4 MR. GIBNEY: And our plans moving forward are to
5 produce battery packs for electric utilities, and the
6 automotive industry. In 2005, we intend to produce an EV
7 pack for a French consortium with Hydro-Quebec as a
8 partner.

9 --o0o--

10 MR. GIBNEY: In fact, we announced last month
11 that this battery pack will be available, will provide the
12 first prototype battery back of this SVE project in
13 November of this year.

14 --o0o--

15 MR. GIBNEY: We intend to continue to invest in
16 this part of the business. We think the EV market is
17 prime. And, in fact, the company is prepared to invest
18 well over \$100 million in the production of batteries for
19 the automotive Industry in the next few years.

20 --o0o--

21 MR. GIBNEY: In fact, we already have engineering
22 work under way to build a production facility in the
23 southwest western United States. As you can see here,
24 it's not a small facility. We have grand plans to produce
25 large quantities of batteries both EV, HEV as well as the

1 telecommunications and utility industries.

2 This is a reality. Both partners are fully
3 committed to this project.

4 --o0o--

5 MR. GIBNEY: The conclusion of my presentation,
6 I'm trying to keep this as short as possible, basically is
7 that this is a reality. This technology is here. The
8 other battery manufacturers as well as Avestor are
9 contemplating investing large amounts of dollars to meet
10 the requirements set out by CARB.

11 If you continue to weaken the regulations, we may
12 be hesitant to invest in advanced battery technologies in
13 the future. We respectfully request that CARB reject any
14 major modifications to its ZEV mandates.

15 CHAIRPERSON LLOYD: Thank you very much for
16 coming.

17 Daniel McCarthy. After that, if Mr. Serge Roy is
18 he here too. Are you going to -- okay, so after that
19 maybe you can comment on the same thing.

20 MR. McCARTHY: Good evening. I'm Dan McCarthy
21 I'm Chief Operating Officer of Evercel Incorporated from
22 Bingham Mass. And we are manufacturers of advanced nickel
23 zinc batteries. So I'll be following on the same line as
24 some previous battery manufacturers.

25 But I'm here to speak on one issue. And that's

1 the claim that ZEV vehicles are hindered by the lack of
2 advancement in battery technologies.

3 Evercel in the last two years spending \$50
4 million on development of the battery, has cut the cost
5 per kilowatt hour from \$900 down to \$300. And these
6 nickel zinc batteries are currently in production and
7 currently commercially available for sale at a price of
8 \$300 per kilowatt hour.

9 When Dr. Anderman gave his evaluation, of nickel
10 zinc battery technology -- of battery technologies, he set
11 as a goal in the future for nickel metal hydride a goal of
12 \$9,000 for a 30 kilowatt hour battery pack. We currently
13 sell a 32 kilowatt hour battery pack for \$9,000. It is
14 currently running in electric vehicles. It is currently
15 being evaluated at your CARB facility in El Monte,
16 California. And it is also being evaluated by Southern
17 California Edison.

18 This battery has been available since late 2002.
19 And previously our company has focused on the marine
20 market. But this battery is available and I found it
21 surprising that Dr. Anderman and this technology review
22 did not even address the subject of nickel zinc battery
23 technology.

24 Those are my only comments.

25 Thank you.

1 CHAIRPERSON LLOYD: Thank you very much.
2 Serge Roy and then Mike Thompson, Marilyn Bardet.
3 (Thereupon an overhead presentation was
4 Presented as follows.)

5 MR. ROY: Good evening, Mr. Chairman and Board
6 Members. I would like to thank you for your patience and
7 endurance in allowing me to share my concerns and some
8 facts about EVs.

9 --o0o--

10 MR. ROY: Hydro-Quebec is one of the largest
11 electric utility. But what's more important is we're
12 supplying about six percent of the renewable energy in the
13 world right now, because of our hydro facilities.

14 But Hydro-Quebec has gone farther than just
15 energy supply. We've been active in helping the
16 development of clean energy technologies. And with
17 Hydro-Quebec Capitech venture capitals subsidiary of
18 Hydro-Quebec, we have invested or are managing an
19 investment of more 270 million in clean energy
20 technologies, of which 174 million are enabling
21 technologies for all types of EV, battery, hybrid and fuel
22 cell EV.

23 Of course, the Avestor lithium metal polymer
24 battery and TM4 electric drive train are the most
25 important investment that we've made.

1 And as Robert Gibney just mentioned SV is a
2 group, a French group of large companies, who actually
3 manufacturer half of the battery EVs on the road today in
4 the world, 7,000 battery EVs for Citroen have chosen our
5 components Avestor lithium metal polymer battery as well
6 as CM4 electric drive train to power their battery EV in
7 the development stage.

8 I must mention that according to the
9 classification that you have, this is a Type 2 full
10 function battery EV, four door, four seats, more than 100
11 miles range, with a range extender that can have the car
12 go for 200 miles.

13 The plan is for commercialization of that vehicle
14 in late 2005, 2006 for Europe and North America.

15 --o0o--

16 MR. ROY: Hydro Quebec with its partner has been
17 committed for the last 20 years to deliver the key
18 technologies for battery EV, the battery. As seen on past
19 event and present events we still are maintaining our --
20 we are maintaining our course that we set in 1979.

21 We have to commit before the end of 2003 large
22 sums of money to produce battery EVs and also to get cars
23 on the market.

24 I must emphasize that a further deterioration of
25 the ZEV goal standard as proposed in the staff report,

1 will send a strong signal to the public to key battery EV
2 component manufacturer like Avestor and TM4 as well as key
3 investors in those companies that battery electric
4 vehicles are not viable.

5 We respectfully disagree and are ready to commit
6 the large resources that are needed to bring to market
7 battery EVs that meet customer's expectations. But to
8 maintain our course, we need CARB to maintain the minimum
9 course on BEV that it had set in 1999 and maintain in
10 2001.

11 Thank you.

12 CHAIRPERSON LLOYD: Thank you very much.

13 Thanks.

14 Mike Thompson, Marilyn Bardet Bev Sanders.

15 MR. THOMPSON: Okay. Let me start with a visual
16 aid.

17 This is a solar panel. I'm Mike Thompson. I
18 have two Toyota vehicles, since GM yanked my EV1 at 42,700
19 miles. My RAV4 now has 4,000 miles in its first four
20 months. The Prius has 4,000 miles in a year. So I rack
21 up 14,000 miles a year electric, solar powered by the roof
22 with the panels on my roof. That's only possible because
23 CARB made battery electric vehicles possible. I can't do
24 that without the actions of this board. So I've got
25 14,000 miles a year on the EV, 4,000 on the Prius.

1 Referencing Tim Hastrup's point about the
2 relative energy efficiency of fuel sells, versus EVs. I
3 could not afford to do this with a fuel cell. That's why
4 the battery EV path is so important.

5 Every RAV4 EV offered was taken. These are going
6 to come out as bullet items since we've got a short time.

7 Fleets did not significantly participate in 2002
8 demand. Their buying cycles are along in probably cycles
9 of a year or more to get grant money and line up and
10 approve all the fleet projects. So there is pent up
11 demand for thousands and fleets. So this five a month
12 figure for demand, I can't imagine how that can be a
13 realistic figure.

14 There's actually a Toyota salesman who was
15 unaware that a RAV4 EV even existed at the dealership. So
16 I question the effectiveness of the general marketing
17 campaign. The Toyota.com RAV4 EV site was, in fact,
18 misprinted the URL in their publication materials. I've
19 caught the site down on numerous occasions and Emailed
20 Toyota about it.

21 I also found numerous inaccuracies in charging
22 locations and other items, which I brought to the
23 attention of Toyota. They were very slow in correcting
24 those issues. The site currently has about a 12 question
25 fact which basically says we're not doing EVs anymore

1 because there is no demand. All the specifications for
2 the vehicles are gone. All the relevant information to
3 support current drivers is gone.

4 I wouldn't make a big deal of, but they brought
5 it up in testimony, I think we need the full picture on
6 that. When it was up actually it had some good stuff on
7 it, so I have to commend them for that.

8 In terms of public outreach and stimulating
9 demand among consumers, battery electric vehicles are in
10 consumer hands today except for those not allowed to
11 release by the manufacturer. These consumers are
12 providing some of the most wide spread and effective
13 public education outreach and marketing. EV consumers
14 driver sales.

15 Some of the things, I get -- I'm sorry, I
16 paraphrased. These are not exact quotes from people I've
17 taken for test drives or driven my EV.

18 I didn't know EVs were available. I didn't know
19 Toyota made a RAV4 EV version. This is so quiet. I don't
20 like the smell of maintenance of gas. I want an EV.

21 So we sell them. Some other drives have sold
22 electric vehicles at lunches. So we drive the demand. We
23 need the vehicles out with the public so we can create the
24 market and drive the demand. If we don't have the
25 vehicles, we can't do that.

1 Unique advantages of EVs. They're quiet. You
2 don't mess with gas. Things like 120 volt power sources
3 for construction tools and stuff like that. Those are
4 unique advantages that need to be pushed with these
5 advanced technologies, so that we actually stimulate a
6 market by the unique advantages.

7 We must mandate some BEV production to continue
8 this public Education. Two hundred and fifty fuel cell
9 demo vehicles in the later 2005 timeframe, whatever it
10 works out to, leaves an educational gap. Most will be in
11 fleets oh even in consumer hands. It's only in 250
12 people's hands.

13 So if they're not tied up in demo fleet someplace
14 and you put all 250 fuel cell vehicles out there, it's
15 only 250 in California to reach out to the rest of the
16 public later. If you want to stimulate a market, it's not
17 enough outreach to the public. That plan will not change
18 the mindset of the buying public for the ramp up. So we
19 need to ramp up the public, too.

20 CHAIRPERSON LLOYD: Can you bring this to a close
21 here.

22 MR. THOMPSON: Current fuel cell electric vehicle
23 leases in southern California, there's about 6,000 a
24 month, which is almost 20 times the lease rate for an
25 electric vehicle.

1 Near term ZEV is about public education, market
2 development, and technology development. Technology
3 notes, we've heard about battery improvements to nickel
4 metal hydride. The Type 3 EVs, battery electric vehicles,
5 I'm not sure about the total ramifications of Type 3, but
6 with fast charging electric vehicles can be a Type 3
7 vehicle from what I understand of it. I need to study up
8 on that.

9 But fast charging -- fast refueling does not
10 necessarily eliminate EVs when we have fast charging,
11 which is technically possible to develop and GM has
12 already produced the 50 kilowatt charger.

13 CHAIRPERSON LLOYD: I must ask you to finish,
14 please.

15 MR. THOMPSON: Okay. If I had a plug-in Prius,
16 would double my gas economy. We need diversity in
17 solutions. We need some full function BEVs produced. It
18 has to be mandated, because if it's not mandated, it's not
19 going to get produce. Maybe you can arrange credit
20 swapping between the manufacturers so some can pick one
21 path or the other, but there have to be full function
22 battery EVs available, or we cannot get to the public.

23 We cannot have a true zero emission vehicle path
24 like many of us have, probably five percent or more of the
25 RAV4 drivers are at true zero emissions, because we are

1 using renewable energy to power them. And that is none
2 trivial. Don't give it up.

3 CHAIRPERSON LLOYD: Thank you.

4 Marilyn Bardet, Bev Sanders, Clare Bell.

5 MR. THOMPSON: Dave Modisette's plan was cool
6 too.

7 CHAIRPERSON LLOYD: Thank you.

8 MS. BARDET: Good evening, board. I'm very glad
9 to be here. And I feel that it has been an endurance
10 record to sit through such a long meeting. But thank you
11 very much for this opportunity.

12 My name is Marilyn Bardet and I'm a resident of
13 Solano county along the Carquinez Straight from the City
14 of Benicia, the first American city in California.

15 All politics is local the former Speaker of the
16 House from Massachusetts Tip O'Neal used to say. What he
17 meant was listen to your voters.

18 The national energy policy or as I consider it,
19 the lack of one, is being played out in our area, and the
20 debate is heating up about whether our refinery owned by
21 Valero Energy Corporation of San Antonio, Texas a huge oil
22 industry conference was just held this week, will be
23 allowed to expand its production capacity and thus be
24 allowed to produce greater percentages of dirtier crude
25 oil as opposed to the more expensive sweet crudes from

1 Alaska, a source now dwindling.

2 The debate is whether we can ever achieve a
3 sustainable economy as our local general plan calls for.
4 Five years ago my good friends Bev and Chris Sanders
5 became the proud leasees and drivers of an electric car,
6 the sexy little EV1. If it hadn't been for my friends and
7 my chance to be a driver and passenger of this amazingly
8 quite, comfortable and zippy machine, I'd never have known
9 about the car's existence or its performance.

10 The EV1 continues to attract attention in our
11 town and on the road wherever Bev cruises. The site of a
12 car that doesn't make more than a high hum at rev up and
13 is virtually silent at cruising speeds, produces a kind of
14 shock and awe for bystanders we could all happily want to
15 sponsor.

16 They proudly tell friends and anyone who cares to
17 listen, the minimal cost of keeping the EV running. Over
18 five years no servicing required, averaging \$8 per month,
19 which shows up on their PG&E bill. No visits to gas
20 stations.

21 The EV 1 represents one of the best hopes for our
22 future to help reduce national energy consumption and
23 reliance on the petroleum industry. Why has Detroit or
24 Washington, the oil industry, decided not to promote
25 production of the EV1?

1 I learned a little bit more about where the
2 energy industry is headed. I helped successfully defeat
3 the proposal by Bechtel Corporation and Shell U.S.A. Power
4 and Gas to build a dangers liquefied natural gas tanker
5 terminal and 900 megawatt powerplant at Mare Island
6 Vallejo at the mouth of the Carquinez Straight, the portal
7 to the bay area, along one of the worlds most powerful
8 waterways.

9 So many citizens rose up to defeat the Bechtel
10 project that Shell and Bechtel had to withdraw their
11 proposal before a feasibility study would have locked in
12 their development rights.

13 I had to a ask why the project was vaunted as so
14 necessary to California's energy future. If the oil
15 industry intends to control the energy future for all of
16 us with hybrid fuel cell vehicles favored, then California
17 will inevitably prove their point building more
18 powerplants and LNG terminals to bring the natural gas
19 that would be the source of hydrogen. But producing
20 hydrogen will require loads more energy, electricity, as
21 has been pointed out here.

22 This means more gas-fired powerplants. If
23 Bechtel had its way and other energy czars, we were going
24 to get a 900 megawatt powerplant at Mare Island and a new
25 one in Antioch to complement the existing new CalPERS plan

1 at Pittsburgh. Thus in 10 years, just in time for the
2 beginning hydrogen future. We'd have a tic, tac, toe up
3 the Carquinez Straight, three powerplants in a row,
4 belching emissions and polluting our already polluted air.

5 This besides existing contributions from cogen
6 plants now installed at Valero refinery and C&H Sugar in
7 Crockett.

8 Our Solano county will pay dearly for such an
9 energy future. The fact is without a plan for energy
10 conservation and alternatives fuel such as solar, we will
11 be stuck with an expanding energy grid and increased
12 pollution from powerplants, cars and refineries.

13 The EV1 should be produced, improved and
14 promoted. The EV1 depends on -- I'm going to finish
15 because I feel that there are very few people from the
16 public who are not associated to a company and who are
17 women here to talk about what we do in our towns and the
18 trenches to protect ourselves and our families health.

19 CHAIRPERSON LLOYD: I just thought you might want
20 to come up for air.

21 That's okay.

22 (Laughter.)

23 MS. BARDET: Oh, Thank you very much. And I do
24 have bronchitis.

25 The EV1 depends on a battery that can be

1 recharged. The EV1 can be plugged into solar energy
2 panels owned by a homeowner. Batteries could be changed
3 out at solar charging service stations. Numbers of people
4 could be off the grid. Is this what the State of
5 California and the oil industry is afraid of.

6 If so, perhaps rather than killing the EV1
7 program, we could devise a strategy for deriving revenues
8 from decentralized and democratic Solar energy
9 distribution systems.

10 Hybrid cars, no matter how efficient, will still
11 depend on oil and natural gas imports. The EV1 could help
12 offset increased energy consumption by offering citizens
13 the opportunity to drive a completely sustainable vehicle.

14 The cost of the EV1 would go down if all of its
15 benefits were well advertised. The electric car would
16 finally get a charge from the public. Demand would grow.
17 But so far, the EV1 has been treated by the industry like
18 a stealth vehicle, a bomber.

19 The EV1s disappearance after a few years of
20 trials is a case of industry overkill, an instantly
21 manufactured obsolescence, as though it were an EV Edsel.
22 If you kill the program that encourages the production of
23 the EV 1 in California, you will only be handing an
24 economic bonanza to the Chinese, who are already leading a
25 lithium battery development in production program.

1 China knows, it cannot afford to have one billion
2 people driving gas guzzlers or even hydrogen hybrids. The
3 Chinese will be anxious just like the Japanese to take
4 advantage of your imagination. They could beat us to a
5 sustainable energy future for transfer. I say protect the
6 planet, go solar, go EV1 go gold.

7 Thank you.

8 CHAIRPERSON LLOYD: Thank you. Bev Sanders, is
9 Bev your real name?

10 MS. SANDERS: Bev Sanders.

11 CHAIRPERSON LLOYD: Okay. That's very
12 appropriate.

13 (Laughter.)

14 CHAIRPERSON LLOYD: Clare Bell, Elaine Lissner.

15 MS. SANDERS: Pardon me?

16 CHAIRPERSON LLOYD: I was calling the people
17 behind you, so they get ready.

18 MS. SANDERS: Yes. My name is Bev Sanders.
19 That's B-e-v Sanders.

20 And among -- besides being Marilyn Bardet's Vanna
21 White here. I've driven a GM EV1 for nearly five years.
22 It's been my only vehicle. As a matter of fact I drove it
23 here today from Benicia, a tiny refinery town on the
24 Carquinez Straights. I'm here today, tonight all day,
25 instead of at work, because I wanted to stress to the

1 members of CARB a simple, yet very crucial message, that
2 is that California can save the world.

3 Never underestimate the power of a single action
4 no matter how small it appears. History is loaded with
5 tiny actions that triggered ripples around the globe. And
6 I've seen this firsthand.

7 Twenty years ago I was part of the early
8 development of the snowboard industry which has many roots
9 in the state of California. The sport at once was
10 outlawed to ski resorts. But vision and innovation have
11 made it an essential part of winter sports. And now the
12 U.S. is proud of their Olympic Gold Medal snowboarders.

13 In another example, I continue in the development
14 of women specific products in California Image Sports of
15 snowboarding and surfing, both male dominated markets that
16 have been missing the boat, ignoring the women's needs.

17 Now, their female segments are the fastest
18 growing portions of their business. I've seen a little
19 spark. I've seen how fast things can change and how
20 quickly the changes become standard.

21 But these changes didn't happen on their own
22 Without strong resistance. Even the computer industry has
23 had resistance from people holding on to their
24 typewriters.

25 When the manufacturers say people don't want

1 electric cars, it reminds me of the sports business saying
2 kids don't want snowboards and women don't want to surf.

3 The people who don't want electric car myth has
4 been perpetuated by little advertising, boring advertising
5 against a barrage of prime time SUV adds. Drivers didn't
6 want electric cars because they never knew they had
7 electric cars.

8 In fact, when I would tell them, they couldn't
9 get them when they went to find them.

10 So how can California save the world? Over 10
11 years ago the California Air Resources Board took the
12 courageous action of demanding car makers produce cars
13 that did not continue to pollute California's air.

14 No other State could make such a demand.
15 Actually, very few countries could have any bargaining
16 power against a company like General Motors. Their goal
17 at the time was driven by their premonition that if they
18 would continue to depend on internal combustion engines to
19 drive their cars, we would all eventually suffocate.

20 California being one of the largest car markets
21 in the world told the largest car makers in the world that
22 if they wanted to sell their cars in this state, they
23 better get on the trail to zero emissions. California
24 would no longer suffer as the automakers continue grow
25 vast wealth and the expense of our health and environment.

1 It's hard to gauge whether the CARB board had a
2 vision of what the world would like today. Could they
3 known that just 13 years later, we'd be straining the
4 relationships with our international friends attacking oil
5 rich nations to keep the pumps pumping. Could they have
6 known that the petroleum age was going to have a prolonged
7 and bloody ending.

8 It doesn't matter now. What does matter is that
9 those rare visionaries at CARB knew that they had to get
10 off oil, and they knew, with moderate and reasonable
11 prodding of the engineers and suppliers they could meet
12 the challenge despite the short-sighted goals of auto
13 executives. And they were right. They were right as
14 anyone ever has been.

15 CHAIRPERSON LLOYD: Can you begin to wrap up,
16 please.

17 MS. SANDERS: Yes. A couple more lines. Thank
18 you.

19 Their were right at the right time. If our world
20 could ever use a massive shift from a precarious dirty
21 business to a clean and efficient future, it's now. The
22 electric car was an experiment. It's not anymore. It's
23 proof. It's testimony to our own resolve and innovation.
24 It's hope for our future. It's the little spark. I thank
25 the previous members of CARB who championed the mandate

1 that revolutionized the way I travel.

2 They offered me freedom from as far beyond
3 rhetoric of politicians. They had the dream and the dream
4 came true. The small action truly made a difference and
5 changed the world. Today's CARB members need only
6 maintain the momentum. Please the world, maintain the
7 mandate.

8 Thank you.

9 CHAIRPERSON LLOYD: Thank you very much.

10 Clare Bell, Elaine Lissner and Kimberly Rogers.

11 MS. BELL: Well, first I'd like to thank the CARB
12 board for making my profession possible. I am a traveling
13 electric vehicle repair person. I mostly do Sparrows. I
14 can do other electric vehicles.

15 I'd like to urge you to keep the policy -- to
16 include a requirement for BEVs in the alternative
17 compliance plan.

18 BOARD MEMBER HUGH FRIEDMAN: Excuse me, can I
19 interrupt. I wondered what EVET meant, that you're a
20 medic for electric vehicles.

21 MS. BELL: I am, yes. This is a profession I
22 kind of invented myself with some help from encouraging EV
23 owners.

24 I'd like to say I've been in the trenches with
25 the EV people. The people who drive them on a daily

1 basis. Mostly it's been Sparrows, but it's also been
2 other conversion vehicles. My experience has been that
3 the EV owners, despite problems with the EVs despite
4 limitations with the EV's, even despite bad publicity and
5 other things, they are very tenacious about wanting to
6 keep their cars on the road.

7 Not only that, other people are constantly
8 inquiring about various cars, including this -- well the
9 motorcycle type Sparrow.

10 I disagree entirely with the car companies when
11 they say there's no demand. I see demand every single
12 day, not only in the people who are interested who are
13 want-to-bes, but in the people who have the cars, have
14 problems, overcome them and keep them on the road.

15 I'd also like to point out one thing, and that is
16 your Board is very favorable toward station car programs
17 and transit based EV programs. Most of the city type cars
18 that would be in those programs are at the present battery
19 EVs made by third parties.

20 I would like to encourage the Board to keep the
21 BEV provision in the alternate path because that would
22 encourage makers of such EV's as the Think City, for
23 instance, which is now being handled by Cam Corp, not
24 Ford. So it's no longer an American automaker.

25 And, in fact, that particular manufacturer has no

1 incentive to bring the City to California, other than if
2 the larger automakers purchase credits from that company
3 or give them credits that allow them to bring the car in,
4 and make it economically viable for them to bring the car
5 back to California, because the Think City is already
6 here, but it may be pulled out as we know. That goes for
7 some other small third party manufacturers.

8 So I think we have look to look at near term BEVs
9 especially, the ones we already have. We have the Think
10 City. We have the EV1. We have the RAV4. Why should the
11 EV1 be taken away and crushed? Personally, I think that's
12 criminal.

13 I think the Think City, even the European one
14 would be modified so they can stay here. I think Cam Corp
15 should be encouraged to bring the new Think City's back
16 into California. We've already proved there's demand.
17 We've proved there's practicality. I wouldn't be doing
18 what I'm doing if there wasn't. I wouldn't have a job.
19 There are EVs out there. They need more services.

20 CHAIRPERSON LLOYD: Thank you.

21 Elaine Lissner, Kimberly Rogers and Patricia
22 Lakinsmith.

23 MS. LISSNER: My name is Elaine Lissner. I've
24 come from San Francisco. I drive a Think City, very
25 happily, but I won't go into that. I want to try to focus

1 on the numbers, head your call that you're looking for
2 some guidance here. I really didn't realize how
3 complicated the issue is.

4 I'm not sure whether I'm going to take three
5 minutes or four, but I hope you'll hear me out if I focus
6 on the numbers.

7 Let's see. I won't go into demand, how I'm not a
8 Hollywood actress, or a -- anyway.

9 I want to talk about the alternate compliance
10 option. I have some concerns about it. The things I
11 favor first of all, in the staff proposal, are the
12 clarification of language to avoid lawsuits. It seems
13 pretty logical. I favor the start date delay. It seems
14 like there's kind of no way around that.

15 My main concerns are the alternative compliance
16 path, the long-term changes, the credit calculations, both
17 gold and silver. Basically, I want to take off my
18 electric driver hat here and just speak as a Californian.
19 I'm concerned these are way too complicated.

20 And what I heard the Ford spokesman saying,
21 basically, is they're going to sue us left, right and
22 center if it's this complicated. And I want to make
23 proposals for simplifying it.

24 I'm just scared that the California Air Resources
25 Board is supposed to regulate air and emissions. And I

1 think as soon as it regulates technology, that it's liable
2 to a lawsuit. And all these percentages -- I mean not
3 percentages, but numbers and so forth. Everyone of those
4 can be picked at. And we, as a State, you know, my nephew
5 with asthma can be stalled for everything they can pick
6 at.

7 And, although, I have an electric vehicle and
8 want them to survive, I think if you regulate fuel cell,
9 you know, require 250 fuel cells or require battery
10 electric vehicles, you're leaving yourselves, us, the
11 State, open to lawsuits. And I'm not, you know, a lawyer
12 here. So maybe I'm wrong.

13 But my proposal is categories should be based on
14 emissions, and credits should be based on function not
15 technology used to get there.

16 A gold category should be zero emissions. And it
17 seems like there is no way to attack that in a law suit.
18 And, you know, I'm pretty negative on fuel cells after
19 reading the Wall Street Journal article on the 7th. It
20 was something like hydrogen maybe clean but getting it
21 here looks messy. Anyway.

22 I think if we give extra credits to fuel cells,
23 that's discriminating on a technology and again open to a
24 lawsuit. Just as it would with electric cars.

25 So here's my proposal. Let's say battery

1 technology is still improving, but it's about 75 percent
2 of where we'd like it to be. So I'm just going to be weak
3 and say let's go 1.5 percent requirement. This is an
4 alternative compliance path. And if we have to do what
5 the staff proposed right now, I'd rather just leave the
6 original 2001 stuff. But here's an idea for an
7 alternative compliance.

8 One 1.5 percent gold requirement starting in
9 2005. No regulating technology or fuel, only regulating
10 emissions. And credits based on function not cost. And
11 here's just what I came up with today from listening. I
12 came up with 1.5 credits for a freeway capable, 55-mile an
13 hour capable, 100-mile range vehicle that can charge or
14 fuel in 25 minutes or less.

15 One credit for a freeway capable car with a 50
16 mile range. And, okay, again this is just guessing on
17 what's going to not let automakers cheat with NEVs
18 basically, but not kill NEVs, .1 credits for any NEVs, so
19 that would be 10 NEVs to one City Car. And that, you
20 know, that could be modified. I'm just guessing what
21 would be a medium there. So that's one 1.5 percent gold
22 requirement.

23 Two, all current EVs -- all EVs that are on the
24 road, made available for sale to drivers who want, I'm
25 almost done here. So that's all current EVs made

1 available for sale to drivers who want.

2 Three, a return to firm 2001 numbers in the
3 long-term so that the battery companies, you know, don't
4 stand here and say we're going to stop investing.

5 And 4, no review or waffling before 2009.

6 Thank you.

7 CHAIRPERSON LLOYD: You came up with all that
8 sitting there. I don't know what staff has been doing all
9 this time.

10 (Laughter.)

11 BOARD MEMBER DeSAULNIER: Yes, but she didn't put
12 us to sleep.

13 (Laughter.)

14 BOARD MEMBER HUGH FRIEDMAN: Don't let her get
15 away. Hire her.

16 EXECUTIVE OFFICER WITHERSPOON: I was thinking we
17 should hire her.

18 BOARD MEMBER DeSAULNIER: What do you do for a
19 living? We have a question.

20 (Thereupon an overhead presentation was

21 Presented as follows.)

22 MS. ROGERS: Good morning, afternoon or evening.

23 I think it's still Thursday. And I'll try to keep it
24 short. Thank you for giving me an opportunity to speak.

25 My name is Kimberly Rogers. I'm from Santa Clara,

1 California. And I had prepared this lovely slide set that
2 I promised I won't use. And you can read the 8 by 10
3 color glossies later tonight. It's good bed time reading.

4 Basically, I wanted to echo a few comments from
5 before that other people, particularly the EV drivers have
6 said. And one of the things that I learned today is that
7 Toyota actually had a streamlined process for obtaining
8 the Toyota RAV4.

9 Thank you.

10 (Laughter.)

11 MS. ROGERS: For me, the streamlined process
12 meant a about three months from putting a deposit down to
13 getting keys to the vehicle. And so thank God it was
14 streamlined. And I also want to also echo some of the
15 comments about marketing, because I have to apologize I
16 missed all the marketing. And I live in silicon valley,
17 the home of disposal income and techno geeks.

18 And I heard that there was posters around the
19 valley. I found two posters advertising the RAV4 in bus
20 shelters, you know, bus stops for the VTA. So clearly,
21 the target audience for the RAV4 Are people who have 50
22 cents to ride the bus.

23 I actually found out about the car just by
24 searching the Internet and watching you for many, many
25 years begging, pleading and hoping that the car would

1 become available.

2 And finally, 12 years after the mandate, the car
3 became available. And I do have to thank Toyota for
4 letting me buy it. Nobody is going to rip this out of my
5 hands.

6 And I did see one newspaper add on earth day in
7 San Jose Mercury. And again, I kind of question the
8 marketing, because I, like many of my fellow EV drivers,
9 go out to many events and evangelize the technology. And
10 I've personally spoken to hundreds of people last spring
11 and summer. Not one had ever heard of an electric
12 vehicle. Not one new that you could actually purchase
13 them.

14 So I urge the Board to do everything in your
15 power to keep zero emission vehicles on the road and
16 return zero remission vehicles on the road and reject the
17 current amendments.

18 Thank you.

19 CHAIRPERSON LLOYD: Thank you for keeping it
20 short and providing this. Thank you.

21 BOARD MEMBER HUGH FRIEDMAN: Excuse me. I'm
22 reading through this as you spoke and it's well worth all
23 of our reading. So we'll read this in full.

24 MS. ROGERS: Test on Monday.

25 (Laughter.)

1 BOARD MEMBER HUGH FRIEDMAN: Or you can ask us
2 questions tomorrow morning.

3 CHAIRPERSON LLOYD: Patricia Lakinsmith, Edward
4 Thorpe and we have Steve Heckerath.

5 (Thereupon an overhead presentation was
6 presented as follows.)

7 MS. LAKINSMITH: Everybody hear me okay?

8 CHAIRPERSON LLOYD: Yes.

9 MS. LAKINSMITH: Mr. Chairman, members of the
10 Board and staff thank you for this opportunity. I don't
11 envy your jobs one bit. You have a very difficult job to
12 do.

13 I'm here as a private citizen who has no
14 financial stake or otherwise other stake in this.
15 However, thanks to CARB's good work, I am a participant in
16 the ZEV incentive program and am happily driving a Toyota
17 RAV EV every day of the week. I'm a regular person of
18 sorts, not an engineer or tinkerer, like many of the EV
19 drivers, whose familiarity with the stuff under my hood is
20 limited.

21 But whose appearance at work each day is
22 completely dependent on this wonderful technology. In my
23 opinion BEV technology has come to fruition fully for
24 everyone who has tried it. However, I'm also a research
25 scientist who evaluates new technologies in realistic

1 simulations, where they compete with currently technology.

2 So in that sense, I often have to make similar
3 decisions that you have to make. My comments will focus
4 on the types and costs of making errors in these kind of
5 decision regarding future technology development,
6 specifically to what degree we can be comfortable that
7 battery electric vehicle technology has been given a fair
8 and accurate test, and to what degree we can be
9 comfortable with an ambitious investment in immature
10 future technologies touch such as fuel cells.

11 There's two questions I'd like to focus on today
12 in my short time. First, what kinds of errors could be
13 made in deciding which kinds technologies are deployed as
14 to killed off, and how can one be confident than an
15 abandoned product in deed was not worthy of further
16 development? How do you really know when a test of a new
17 product is adequate? What happens if we're wrong?

18 Second, what do the available data that we have
19 so far tell us about the chances that battery electric
20 vehicle technology has been adequately tested.

21 --o0o--

22 MS. LAKINSMITH: As a research psychologist, I'm
23 often faced with difficult decisions in my own work to
24 develop advanced technologies. Always, you have to ask
25 yourself whether the new thing you've got is sufficiently

1 better than the old thing to cast the old thing aside and
2 develop the new thing.

3 Sorry if I'm simplifying this. There are two
4 kinds of errors you can make in this work, you can keep
5 something that doesn't work or you can throw something
6 away that does work. Do we have so many ZEV technologies
7 at our fingertips on the bring of mass deployment to our
8 roads that we can afford to turn our backs on one that has
9 already in small numbers proven to be so very highly
10 effective.

11 Given the comparatively greater risk in fuel cell
12 technology At this date, are we actually endangering
13 ourselves to make both of these kinds of errors at once.
14 First, by throwing away a technology that has not been
15 tested adequately, and next by putting to much faith in a
16 new immature technology that has not shown it's true
17 potential.

18 At the present time we don't know how fuel cells
19 will be refueled, who will pay for the infrastructure to
20 do it, and how much fuel will cost compare to other fuels,
21 how much the cars themselves will perform compared to
22 gasoline cars or battery electric vehicle cars, and what
23 they'll cost to the consumer to buy or lease.

24 The cost of rejecting BEVs as a failed technology
25 that few people want is that we will sacrifice potential

1 air quality benefits afforded by pure ZEVs in the near
2 term timeframe and that people who could benefit from this
3 technology will have to settle for something less.

4 This slide here is for the automakers.

5 CHAIRPERSON LLOYD: We have had about three
6 minutes, if you can --

7 MS. LAKINSMITH: Oh, okay. Well, that's in the
8 record, so I'll go on.

9 --o0o--

10 MS. LAKINSMITH: We know there's market potential
11 for this technology. This is the time line for my ZEV
12 acquisition process. I went through the normal hurdles.
13 I inquired at a dealer about the Honda EV Plus. I was
14 entertained for a half an hour by the entire sales staff
15 who insisted that I had imagined this car. They had never
16 heard of it.

17 (Laughter.)

18 MS. LAKINSMITH: Then I had a big accomplishment.
19 I managed to qualify for the car at the Toyota dealer when
20 I finally figured I wanted the RAV4 EV. Here's a point
21 for us to ponder. Do SUV owners have to answer a
22 questionnaire about their competency using four wheel
23 drive, their bolder hopping experience, their yearly
24 off-road miles? Do Hummer drivers have to swear that they
25 live in close proximity to gas station given the vehicles

1 inherently poor gas mileage.

2 This addresses the point of the accessibility.

3 These cars are not accessible. There are literally
4 barriers between the consumers who could drive them and
5 the cars themselves.

6 How can we say that EVs were available and
7 accessible if even many dealers lack awareness of these
8 cars. Dealers read car magazines where this car was
9 presumably advertised and I never saw any adds anywhere,
10 and they did not know about the car either. And often
11 times if they did figure out which of the very few dealers
12 that had the car, they would go there and be convinced
13 that what they really probably wanted was a Prius.

14 So the data that Toyota provided before is not
15 surprising, when all the dealers are in there diverting
16 traffic to the other cars. All of this underscores that
17 it's very difficult to get this kind of car.

18 CHAIRPERSON LLOYD: What would you recommend?

19 --o0o--

20 MS. LAKINSMITH: This is another streamline
21 process here. We did not see the ads. I would venture to
22 say that virtually none of the people in this room saw any
23 of this advertising.

24 So we can be confident that we have a good
25 product here. This is my final slide and my

1 recommendations.

2 --o0o--

3 MS. LAKINSMITH: I think we know the product is
4 good, but it appears that perhaps the methodology used to
5 get it into the market was possibly a little flawed. So
6 my recommendations, keep some level of ZEV requirement for
7 the near term in the revised mandate, as a fall back until
8 fuel cell technology comes around.

9 I really hate telling people that they can't have
10 a car like mine. Everyone I. -- you've heard it before,
11 everyone we talk to wants a car like we have because
12 they're wonderful cars.

13 So no new technology needs to be developed to
14 solve this problem this way. The cars are there. All
15 that we have to do is relook how they're put out into the
16 marketplace. The current situation with gas prices
17 provides a golden opportunity to capitalize on public
18 interests in this kind of thing.

19 So offer incentives, flashy ads, spend a little
20 money on some TV time. And the drivers as a group and the
21 Electric Auto Association are extremely interested and
22 already out there doing public education for the
23 automakers and we would love to do more because we believe
24 in this stuff.

25 Thank you.

1 CHAIRPERSON LLOYD: Thank you very much.
2 Edward Thorpe, Steve Heckerath, Raymond Cernota.

3 MR. THORPE: Hello Chairman and members of the
4 Board, and staff. My name is Ed Thorpe. I've been here
5 at these hearings before. I'm an EV owner, EV supporter,
6 also of a member of the Production EV Drivers Coalition.

7 I just want to be brief, because one of the
8 problems with the proposal also is, I agree with a lot of
9 what's been shared today, about things that still need to
10 be changed in the revised path, the alternative path.

11 Battery electrics still need to be considered.
12 They are extremely viable at meeting the requirements of
13 the ZEV mandate and they are obtainable and manufacturable
14 today.

15 Prices have come down on supplies. They really
16 do need to be encouraged. One of the difficulties with
17 the mandate is you're only focused on the seven major
18 automakers, both for requiring product and credits, as
19 well as the ability to trade credits.

20 There is no visibility on the small vehicle
21 manufacturers who have actually been producing and selling
22 more battery electrics to the general public than any of
23 the manufacturers.

24 Most of the manufacturers have not sold any
25 battery electrics, except maybe the neighborhood vehicles.

1 The neighborhood vehicles, though they have their niche,
2 they do not contribute to significant reduction in
3 pollution, because most pollution is caused by people's
4 daily commutes. And those commutes require greater than
5 25 mile per hour performance.

6 For four Years I commuted in a Honda EV Plus. IN
7 a little over four years we logged almost 90,000 miles in
8 the San Francisco bay area. We no longer have that,
9 because that was a lease program. So starting in January,
10 after some modifications, I am now commuting in Corbin
11 Sparrow, which has absolutely no visibility to CARB group
12 because it is manufactured by none of the Big 7, and it
13 also qualifies as -- it's registered as motorcycle, which
14 has no niche in your category, but it does freeway speed.

15 I commute at 70/75 miles an hour in the diamond
16 lane. It has a limited range, because of current battery
17 technology of only 25 miles. But I'm still able to make
18 my commute of 35 miles by stopping off and getting a fast
19 charge. It takes a fast charge. I can recharge the
20 complete pack in 20 minutes off of Level 2 public
21 charging.

22 So all of these things are possible with today's
23 technology, but you need to also involve these third party
24 or these small manufacturers. They're able to get credits
25 because they're producing the product.

1 hydrogen for vehicles is not really getting us where we
2 need to go. So I strongly disagree with the staff's new
3 proposal favoring hydrogen vehicles. Besides that,
4 battery electric is 3 -- or 2 to 5 mile times more
5 efficient than hydrogen vehicles.

6 --o0o--

7 MR. HECKEROTH: I purchased this book when I
8 first saw it. And this gets to my other point. And I
9 bought copies for each of you and I hope they were
10 distributed about a month ago. This book goes overall the
11 ways the auto industry was able to use the regulations
12 that were created to find the loopholes to promote
13 passenger trucks, High And Mighty is the book I'm talking
14 about. There are several other that I'd recommend
15 reading.

16 SUVs are really an unnecessary an obscene option
17 for transportation.

18 --o0o--

19 MR. HECKEROTH: They've been created by the
20 loopholes, one of which was developed by this Board
21 Unfortunately. It was a 3,575 pound weight limit that was
22 put into being as the top weight that would be counted on
23 the zero emission mandate. This is a result, you see here
24 in front of you. This is a typical parking lot
25 unfortunately now.

1 --o0o--

2 MR. HECKEROTH: And there was a saying going
3 around on the web what would Jesus drive. And I found
4 that was easy to answer. Of course, he'd walk. But I
5 wondered what Satan might drive, and I found it and took a
6 picture of it here.

7 --o0o--

8 MR. HECKEROTH: This was another interesting one
9 I found. This was by, I guess, somebody who was promoting
10 some diet plan. But I thought it way appropriate that
11 they drove this, and they were going to tell people how to
12 lose weight.

13 --o0o--

14 MR. HECKEROTH: I've been a driver and a
15 manufacturer of EVs for 10 years because of this board.
16 They were very inspirational in 1990 when they created
17 mandate. I've continued to try and promote EVs, even
18 after my company went bankrupt. And I've now purchased a
19 RAV4. And I'll attest to the testimony you've heard about
20 how difficult it is to actually go through process.

21 There was a couple other steps to get the charger
22 in, as well as what they already mentioned.

23 --o0o--

24 MR. HECKEROTH: My Prius, because I come from an
25 EV side, I get over 55 miles per gallon usually, up to 60

1 and even 65 miles per gallon in my Prius. And it has to
2 do with your driving habits a lot, and how good a mileage
3 you can get.

4 I charge my EV of a solar array. I have 7
5 kilowatts of photovoltaics that power my whole place. And
6 I actually need the EVs to use the excess power I produce.

7 --o0o--

8 MR. HECKEROTH: This is one of first cars I
9 built. This is at the planning commission hearings where
10 it was plugged in to give me a 140 mile round trip range.

11 --o0o--

12 MR. HECKEROTH: This was another car I built, 120
13 mile range in 1994 with lead acid batteries. Zero to
14 sixty in eight seconds with lead acid batteries. Imagine
15 what we could do with nickel metal hydride or some of the
16 other batteries that are coming on.

17 --o0o--

18 MR. HECKEROTH: This is a solar charging station
19 for neighborhood vehicles.

20 --o0o--

21 MR. HECKEROTH: This was a car that was really
22 just incredible to me. It went 120 miles in one hour in
23 1993. This is pure battery electric. That means it's
24 averaging 120 miles an hour for one hour. And that was,
25 what, 10 years ago now.

1 --o0o--

2 MR. HECKEROTH: So there's no lack of technology
3 and that got me thinking about other options.

4 --o0o--

5 MR. HECKEROTH: And lately, I've heard about this
6 vehicle, which I hope the Board will close the loopholes
7 in their mandate that allows the auto companies to produce
8 these obscene SUVs and allow cars like this that make
9 sense that are sane transportation alternatives to exist
10 on our roads. Right now it's very dangerous for these
11 vehicles.

12 Thank you very much four your attention.

13 CHAIRPERSON LLOYD: Thank you. Raymond Cernota,
14 Glynda Lee Hoffman and Thomas Bradley.

15 Raymond Cernota?

16 Glynda Lee Hoffman?

17 Thomas Bradley?

18 Are you Thomas Bradley?

19 MR. BRADLEY: Yes.

20 (Thereupon an overhead presentation was
21 Presented as follows.)

22 MR. BRADLEY: Thank you, Chairman Lloyd and
23 Members of the Board. My name is Tom Bradley and I'm here
24 to represent the Electric Power Research Institute.
25 Unfortunately, Mark Duval couldn't be here, so I'm going

1 to take his place.

2 So I'm just going to keep it real quick, because
3 a lot of this stuff has been talked about before.

4 In general, the general idea is that there's a
5 technological road map between EVs, hybrids plug-in
6 hybrids, towards fuel cell and full function battery EVs
7 in the future.

8 And we believe that plug-in hybrid electric
9 vehicles can provide the basis for those technological
10 advancements.

11 --o0o--

12 MR. BRADLEY: So all electric drive technologies
13 share a technological platform that is made up of the full
14 power electric drive train and electric battery systems,
15 energy battery systems. Hybrid electric technologies that
16 are emphasized right now and that the AT PZEVs emphasize
17 power battery hybrid electric vehicles in the order of 4
18 to 65 kilowatts of battery power or of motor controlled
19 power.

20 Plug-in hybrid electric vehicles and fuel cell
21 vehicles, on the other hand, demand energy battery systems
22 for cold start conditions and also in order to get plug-in
23 hybrid electric vehicle benefits out of plug-in fuel cell
24 vehicles.

25 --o0o--

1 MR. BRADLEY: So just touch on some of this
2 stuff. Lower cost, flexible performance, improved
3 reliability, et cetera.

4 So just kind of keep it quick. Obviously plug-in
5 hybrid vehicles offer a great advantage for reduction of
6 criterion emissions and an increase ZEV miles as well as
7 this slide shows.

8 --o0o--

9 MR. BRADLEY: On a Full fuel cycle analysis of
10 California mix a reduction in greenhouse gas emissions.
11 So what you see here is this is a conventional vehicle,
12 plug-in hybrid electric vehicles. And as you --
13 obviously, this is a fuel cell hydrogen powered natural
14 gas vehicle and electric battery electric vehicles.

15 So with each technological, sort of, advancement
16 you get lower greenhouse gas emissions full fuel cycle.

17 --o0o--

18 MR. BRADLEY: Conclusions, are plug-in hybrid
19 electric vehicles provide the most valuable ZEV product
20 today and for the foreseeable future.

21 Next best to a battery EV in terms of energy
22 security and greenhouse gas reductions and criteria
23 pollutant reductions.

24 And one of the most important -- an important
25 point is that it maintains Bill Warf with SMUD was talking

1 about earlier about the infrastructure costs that they had
2 put into battery EV infrastructure. And this plug-in
3 hybrid electric vehicle maintain and award the expansion
4 and maintenance of that infrastructure, et cetera, et
5 cetera.

6 And obviously one of the most important points is
7 that battery electric vehicle technology is a bridge,
8 obviously, between the EV and hydrogen fuel cell
9 technology. So that's kind of the idea.

10 Thank you very much.

11 CHAIRPERSON LLOYD: Thank you. At least EPRI has
12 got a consistent message.

13 MR. BRADLEY: That's exactly right. Obviously
14 the conclusion is improvements and/or whatever incentives
15 for battery dominant and plug-in hybrid electric vehicles,
16 I think, would encourage automakers to go along that
17 route. And right now EPRI is working with a couple of
18 automakers on demonstration fleets for both fleet and mass
19 transportation and consumer oriented vehicles.

20 Thank you very much.

21 CHAIRPERSON LLOYD: Thank you very much. Steven
22 Casner, Dr. Kerr, David Muerle.

23 MR. CASNER: Hi. I'm Steve Casner. I drive an
24 EV 1. I live Sunnyvale. I only have the EV1 for another
25 month and a half, and then I'll be without an electric

1 vehicle and I'll have too much solar power in my roof to
2 use.

3 The Toyota marketing might have been an
4 interesting program, but it just didn't last long enough
5 to reach the set of people who would really like to take
6 advantage of these vehicles.

7 The message that began this testimony, Mr.
8 Freeman, was really important not to give up on the
9 program as we're just about to get into it. He did say
10 that -- he did make a somewhat unfair comparison for
11 emissions from battery vehicles, because he compared
12 battery powered by coal to hydrogen generated from
13 renewable sources.

14 The benefit that I see from my electric vehicle
15 is I really can use solar power to produce the fuel for my
16 vehicle, so that I don't have any dependence and I don't
17 produce any emissions.

18 Thank you.

19 CHAIRPERSON LLOYD: Thank you. Dr. Kerr, David
20 Muerle and Hew Hesterman.

21 DR. KERR: I'm Dr. Douglas Kerr. Thank you for
22 the opportunity to talk with you today. You'll be pleased
23 to know that so many things have been said that pages upon
24 pages of what I was going to cover are eliminated.

25 CHAIRPERSON LLOYD: Thank you for listening.

1 DR. KERR: Isn't that wonderful. I have three or
2 four points I would like to make, however.

3 The first is to encourage you to ask, to require
4 that big car makers earn fresh credits during the second
5 half of this year and during 2004 by leasing, as used
6 cars, those battery electric vehicles that have been
7 repossessed by big car makers after canceling their leases
8 and so on.

9 As a related matter, I'm asking that previous
10 gold credits be rescinded if a big car maker cancels a
11 lease and takes the car back from a willing lessee or
12 would-be buyer.

13 I have in mind here addressing the near term.
14 People are going to be burdened -- going to be burdened by and
15 some will be killed by pulmonary disease tomorrow and next
16 week. I haven't heard today a lot about what's possible
17 in the near term. Conceivably, because people worry about
18 asking big car makers to respond when they haven't had
19 time to gear up.

20 I think the use of these cars that they're taking
21 back and requiring fresh credits is probably a good way to
22 do something constructive in the very immediate term.

23 Secondly, I would like to encourage the
24 development of plug-in hybrids. And I found it
25 interesting and exciting today that there seems to be a,

1 sort of, emerging consensus, didn't you think, among a
2 variety of speakers about plug-in hybrids and the role
3 that they ought to play.

4 The consensus and excitement there is exceeded
5 only by the dull thud I heard from major car
6 manufacturers. And so if there's something to be added
7 here, it is I think that I would encourage you to send a
8 very strong signal to them that you have significant
9 rewards in disincentives shaping their focus on that
10 technology. And what would be, in deed, a technology
11 where the gas engine just rarely comes on. This car is
12 really capable of doing most things it needs to do by
13 acting like an electric vehicle.

14 And thirdly, I thought the Modisette proposal
15 sounded excellent. I liked, even better, the numbers from
16 the Union of Concerned Scientists. But I thought that was
17 an excellent framework for addressing a variety of things
18 I think are faulty in the changes that were proposed.

19 Lastly, two related points. I'd like to review
20 briefly -- it took me six months to get delivery of my
21 RAV4 EV. I'd like to review briefly before going to my
22 final point four or five things that the major car makers,
23 the big car makers did to sabotage the market for BEVs.

24 They had at least a couple good reasons to want
25 BEVs to fail. But be that as it may, they cutoff the

1 orderly growth of this market As fast as they could after
2 they met your requirements. They stopped making the cars.
3 Then they told you the market was too small.

4 And do you believe that?

5 With regard to the advertising for each -- for
6 each of these three major BEVs that came out the
7 advertising lacked explanations of this new product's
8 features and benefits. As for the RAV4 for example, are
9 heavy on large doses of blue sky, the car is in the bottom
10 somewhere. You may remember the adds for the EV1, large
11 desert like landscape. EV1 is racing across. The EV1 is
12 not even in focus.

13 And the text is just too foo foo. This is a very
14 new, fundamentally new product that would have required
15 being sold on the merits of its features and benefits. I
16 think it was an disingenuous ad campaign entirely apart
17 from how many ads there were for each of these.

18 Taking delivery in each of these cases was
19 laborious. It was made laborious. Each car is 12 to 18
20 month availability was too short to develop a market,
21 particularly for a fundamentally new product such as this.

22 Each manufacturer's terms often, with the
23 exception of Toyota, violated the customer's general
24 preference to buy instead of lease.

25 And lastly, the manufacturer's executives made

1 repeated public statements that problems in the product
2 said to be range and charging time, would make the product
3 unsatisfactory. When was the last time that a big car
4 maker vice-president got up and said this is our new SUV.
5 You're not going to like it. It rolls over a lot, burns a
6 ton of gas. No one is going to buy this.

7 So I think they have at least a couple good
8 reasons not to want these cars to succeed. I am thinking
9 vastly forward beyond the pressurized decision you now
10 face on honestly believes that it would be worth your
11 working with the Public utilities Commission and the
12 Legislature to find and to promote, to explore the sale of
13 battery electric vehicles by electric generating companies
14 and electricity transmission companies. The deregulated
15 parts of the electricity who unlike big car makers may
16 find it consistent with the self interest to sell and
17 finance the manufacture of battery electric vehicles.

18 You have a fierce and sophisticated foe in these
19 companies. I'm wondering if we couldn't do business with
20 someone else.

21 Thank you.

22 CHAIRPERSON LLOYD: Thank you. David Muerle, Hew
23 Hesterman, Dr. Carter.

24 David Muerle?

25 Hew Hesterman?

1 Dr. Carter?

2 And then Mark Geller, Paulette Jaeger.

3 DR. CARTER: Thank you, Dr. Lloyd for this later
4 opportunity to address the Board and staff and remaining
5 members of the audience. I spent a lot of time thinking
6 about how I could make an impression on and what I could
7 say that you would actually listen to and take in that
8 might have an effect on the future of this mandate.

9 So I was given two pieces of advice, tell them
10 how hard it was to obtain your EV and try to offer
11 something which is unique of your own experience.

12 I'm trying to do that.

13 We first drove an EV, actually two production EVs
14 in '97 when we relocated to San Diego, Supervisor Roberts
15 constituency, from England. And I thought we were in on
16 the beginning of a clean transportation revolution, and I
17 was proud to move to California with that in prospect.

18 Unfortunately, we've been trying to buy an EV
19 ever since. First we were told our credit wasn't good
20 enough. I'd just moved into the country, so I didn't have
21 good credit. My wife had I lived here over 20, had
22 excellent credit, but she didn't count. I had the paying
23 job, so we didn't qualify.

24 Then we were in relocation housing, because I've
25 been moved as part of the relocation package. We didn't

1 own our own house. Again, we didn't qualify for an EV.
2 We waited till my credit was established. We bought our
3 own house. We got on a waiting list, which seemed kind
4 of strange, because when I went to one of the CARB
5 hearings in LA. We heard the manufacturer of that vehicle
6 say there was no demand. Strange.

7 Then we actually got into discussions about being
8 on the lease assumption program. And I thought maybe this
9 really will happen. Unfortunately, there was a recall
10 shortly before another CARB hearing and we never heard
11 from the salesperson ever again.

12 The next thing I hear that the Think City is
13 available. So I call the Ford rep. And I say we're in
14 San Diego. We're near to the dealer. How can I get one?
15 You can have it if you're within 35 miles of the dealer.
16 Okay, that's good but what happens when we relocate to
17 Santa Rosa in a month's time and we're 60 miles from the
18 nearest dealer in San Francisco?

19 Sorry, you can have it for a month but then we'll
20 take it back. Okay, so we relocate, forget having a car
21 for a month. What's the point.

22 We relocate to Santa Rosa and I happen to meet
23 Marc Geller outside S&C Ford in San Francisco and he says
24 forget the 60 mile limit. Okay, they won't lease it to
25 you. Go around the corner to Hertz and they'll rent you

1 one.

2 Bingo. I go around to Hertz and I rent the same
3 car 60 miles from the same dealer who won't lease it to me
4 and we've had one since December 2001. We've driven this
5 two seat 50-mile range 56 miles an hour City Car over
6 10,000 miles. And I've dealt with all the hassle of
7 having to go into maintenance dealing with Hertz, swapping
8 out cars. You name it I've dealt with it, but we've had
9 an EV, because that was the only way we could get one.

10 And we still haven't been able to buy an EV.

11 I drove it up here, but they can take it away any
12 time they choose. So that's the part of my brief speech
13 about how difficult it was to get an EV. That's just my
14 Joe Public impression.

15 The unique part that I wanted to add. I came up
16 with a few things that I figure are unique about me. I've
17 never owned a car in my life period. I still haven't even
18 with the EV because we can't buy it.

19 I'm not American as you can tell. I have a funny
20 accident, slightly different to yours. Okay, I'm not an
21 American. I run my own company, so I know something about
22 and being an entrepreneur. And also I have a Ph.D, so I
23 figure I have some level of education, which qualifies me
24 to speak here today.

25 I left the UK, as I said all primed to be part of

1 this clean air revolution. And it's unraveled, frankly.
2 I left the UK thinking I was leaving behind a class
3 system. I move here and I find you have your own version.
4 All the power is in the hands of the lawyers, the oil men
5 and the auto lobby. That's what I've learned in being
6 here for six years.

7 I've always been bugged by one of the
8 testimonials at a previous CARB hearing where somebody
9 stood up and said, we're all defined by the cars that we
10 drive. And I wanted to stick my hand up and say so I'm
11 undefined, you know. I don't drive a car, so don't exist.
12 I don't -- you know, I think therefore I am. Something
13 like that.

14 So where does that lead -- well --

15 CHAIRPERSON LLOYD: I hope you're wrapping up.

16 DR. CARTER: I'll just wrap up with this last
17 point. I was recently told while I was on vacation by
18 well educated, well traveled -- I won't say his
19 nationality, but a foreign engineer who works in the
20 automotive business. He said look, frankly, I consider
21 this as an underdeveloped country, those were his words
22 and I thought it was interesting that you opened up by
23 saying there's a small delta between current cars and
24 battery zero emission vehicles.

25 And I think the problem with that small delta is

1 it involves facts like war. And the only way that goes
2 away is if you take oil out of the equation. And that's
3 what we're trying to do, all these guys with solar panels
4 generating their own power and being true zero emissions.

5 So, you know, in my field of renewable energy, I
6 look at Japanese taking over photovoltaics Danish and
7 Germans take over wind turbines, Germans taking over grid
8 inverters and blowing away the established American
9 product.

10 There's any number of examples where California
11 has led the way and then you've dropped the ball. And I
12 pray that you're not going to do the same with this,
13 because we know these things work. I've logged 10,000
14 miles, every single charge and my mile. I know, you know,
15 that's a fact. It's worked for me.

16 So there are great people in this room that I
17 want to acknowledge, EV drivers that's it's been a
18 privilege for me to get to know. And I think they're an
19 extraordinary bunch of people. And why you don't listen
20 to them and you less to people who can lose \$5 billion in
21 one, you might as well just write a check for \$18 to every
22 man, woman and child in this country, and they would have
23 the same effect on their bottom line.

24 You know, listen to these -- I'm every -- I hated
25 cars before I got involved with this cause. Now, I'm

1 president of the North Bay Chapter of the Electric Auto
2 Association. You know, what's the reason for that.

3 And I'll shut up.

4 Thank you for listening.

5 CHAIRPERSON LLOYD: Thank you.

6 CHAIRPERSON LLOYD: Marc Geller, Paulette Jaeger,
7 Michael Mora.

8 MR. GELLER: Hi. I'm Marc Geller. I'm not an
9 early adopter of BEVs, disappointed by CARB's back
10 pedaling on BEVs. I got interested in 2000, despite the
11 industry and CARB staff's fueled impressions that there is
12 no demand for battery electric vehicles, repeated ad
13 nauseam in news reports. Every battery electric car
14 offers was successfully leased or sold. Although, they've
15 remained largely invisible to the general car buying
16 public.

17 Most automakers met their early ZEV obligations
18 through fleet leases, denying consumers even the chance to
19 test drive an electric car. Paid industry spokesman
20 filled newscopy with quotes about how few electric cars
21 they sold.

22 Well, dah, with the exception of Toyota which
23 quickly sold out of a few hundred RAV4 EVs that offered
24 only last year to the public, no electric cars were sold
25 in California by the automakers to meet the mandate.

1 I'm sick and tired of hearing how few cars they
2 sold. They never really offered cars for sale. The
3 battery electric cars produced however we all know have
4 performed well. The actual all drivers are enthusiastic
5 and waiting lists exist. I know, because I'm on them.

6 In 2000 I test drove an EV 1, but the saleswoman
7 made it clear GM had no intention of making any more
8 available. Honda didn't even have an EV Plus available
9 for a test. I emailed, telephoned and implored and I'm
10 still on their waiting lists. In May of 2001, word
11 reached me via the net that the Think City, a little elect
12 car made in Norway, would be available in a limited number
13 of Ford dealerships. And Ford made a big play about how
14 its new green leadership had bought Think Nordic and
15 announced it would cooperate with California meet the
16 mandate and become the first automaker to actually sell an
17 electric car.

18 As soon as the demo arrived, I test drove it, and
19 ordered one. And it seemed less car than I wanted, but
20 I'd come to realize it was not easy to obtain an electric
21 car. So I pay \$199 a month plus tax, plus insurance,
22 based on the none-the-less unpurchaseable sticker price of
23 \$26,000. I pay more for my little car than people who by
24 a gas car, because of the insurance.

25 The dealer was not as convinced as I was that

1 there was a market for this car. And he placed an order
2 for six of them. What he thought would be two weeks
3 became five months of waiting. During which time I rented
4 one from Hertz.

5 As with other cars, there was virtually no
6 advertising. People ring my door bell after seeing my car
7 charging in my driveway because they've never seen a BEV.
8 Most people in California still have not idea electric
9 cars exist and work. In fact by the time the six Thinks
10 arrived at the dealer they were long since leased. And
11 there were waiting lists. And there's a waiting list for
12 the new car, that Ford has decided not to bring in.

13 So instead of bringing in these cars, even while
14 producing the electric cars, championed here by their
15 drivers, if not their makers, the automakers have fought
16 the mandate with lobbyists and lawsuits, seeking
17 postponements and revisions to subvert the intent of the
18 mandate.

19 Auto industry representatives have resorted to
20 the big lie often repeated. Their mantra has been
21 incessant, no demand and the cars don't work. Last week a
22 National Public Radio report included a paid industry
23 spokesperson saying the car companies had to resort to
24 giving away EVs to meet the mandate. As if, in fact, as
25 we know as Mr. McKinnon mentioned, in a classic bate and

1 switch maneuver, the industry lobbied aggressively and
2 successfully for modifications to the mandate to include
3 unsafe, low-speed electric vehicles that resembled golf
4 carts.

5 And then in order to accumulate ZEV credits, so
6 as not to have to produce the electric cars with waiting
7 lists, they gave these cars away. The Hutzpah of this
8 industry never ceases. In pursuit of the profit seemingly
9 guaranteed by gas guzzling unsafe oversized SUVs,
10 insisting against all evidence that smaller cars are less
11 safe, they actually put people in these certifiably unsafe
12 gussied up golf carts with no doors and dump them on the
13 same SUV dominated city streets.

14 CARB's mission is to clean the air. A few dozen
15 fuel cell vehicles by 2008 of range no greater than
16 today's battery electrics offers little when compared to
17 the thousands of battery electric vehicles that could be
18 on the road if the mandate is enforced and strengthened.
19 The confiscated EV1s and EV Pluses should be put back into
20 service and leases extended or cars sold.

21 The Board should reassert the zero emissions
22 mandate, set ar reasonable percentage, fine those
23 automakers that don't meet it and use that money to ensure
24 the availability of battery electrics and cleaner air in
25 the years ahead.

1 Thank you.

2 CHAIRPERSON LLOYD: Paulette Jaeger, Michael
3 Mora, Shauna Wilson.

4 Bill Smith?

5 Steven Dibner?

6 MR. DIBNER: Hello. And thank you very much for
7 the opportunity to speak to you. I've actually been to
8 these hearings before. I am a musician with the San
9 Francisco Symphony. And the last time I appeared here, I
10 was a very proud and excited driver of an EV1. But it has
11 since been taken away from me. I promise I will keep my
12 comments very short.

13 I just want to add my voice of support to some of
14 the ideas that I thought were the most interesting and
15 effective in terms of changes to the proposals. I thought
16 Dave Modisette's ideas were very clearly stated and
17 represented a really good compromise.

18 I do not think the numbers were pulled out of the
19 air in any way. They seemed really well considered and
20 should be considered as the real numbers.

21 Then, by far, my most important thing to say is I
22 want to add my voice to those who say that there
23 definitely should be a maintaining of the battery electric
24 vehicle requirement in the alternative compliance path. I
25 think that is the most important thing.

1 I thought it was a very good idea to move the
2 date for review to a later time because it seems to me
3 that often the review process leads to stalling and
4 weakening of the original ideas.

5 I happen to be a big supporter of the idea of
6 plug-in hybrids. I think it is very good. I want to say
7 to CARB, in general, I think that there's been so much --
8 you have put in so much good hard work to implement this
9 very important vision. I do see your role as being a
10 historic one. And I hope you will not allow a ZEV
11 blackout in any way.

12 I think it's very, very important that these cars
13 of all kinds be available for sale so that Americans can
14 have true choice.

15 Thank you.

16 CHAIRPERSON LLOYD: Thank you.

17 Kurt Rasmussen?

18 Oh, yes. Somebody said Bill Smith was here. I
19 called you once. Were you sleeping?

20 MR. SMITH: No, I wasn't sleeping. You called me
21 after somebody else, about three people ago. One person
22 ago and you said three people later.

23 CHAIRPERSON LLOYD: Hold on, he's got to change
24 his paper.

25 MR. SMITH: That will give me a chance to change

1 my notes.

2 CHAIRPERSON LLOYD: And then we have Kurt
3 Rasmussen. I don't see Kurt around.

4 And then Bernadette Del Chiaro?

5 No. Tomorrow.

6 And then I know Charlie Peters is here.

7 I thought you -- that's fine. I was told that
8 you would be here tomorrow, but if you're here tonight,
9 that's great.

10 Jerry Pohorsky. We haven't got to you yet.

11 MR. SMITH: Ready?

12 CHAIRPERSON LLOYD: Ready. Please start.

13 MR. SMITH: Thank you very much. It's always
14 pleasure to public speak. I've publically spoken about
15 700 times in the last 12 years at the military base
16 conversion we have happening down in the bay area.

17 There's ten bases on the bay front. There's 30
18 bases in California converting. I'm trying to help us
19 make us smooth transition.

20 The Calstart had come to our military base as the
21 first business. The entire country is watching what's
22 happening in Alameda.

23 I've been able to follow all of this as a result
24 of my researching and researching and researching, working
25 18 hour days a lot of the time and down to two our days,

1 because what I do is basically recreational.

2 Now, I've been able to garner the top
3 technologists available. And in the fields of the
4 materials solutions for their products, you have systems
5 of design. The big three car companies have either like
6 the Hemi Motors, or they have the Ford Bodies, or they
7 have the GM interiors.

8 And I've had family and extended family in all
9 the different technologies and all the different angles of
10 different transportation vehicles.

11 Now, my objectives are to be able to help
12 everybody in every way I can. And I haven't been working
13 on the problems. I've been working with the solutions.
14 Now, your people have been working on the solutions, but
15 they're very limited by their breadth and depth of the
16 legislation that's allowed you to make the progress you've
17 made here in the last 12 years.

18 And it's amazing that people can make any kind of
19 progress at all. I've been in touch many, many times with
20 the staff. And the staff turns over a little bit, but
21 still you have quality people and this is California, and
22 I'm down in Alameda. You can't find the quality of people
23 that you can find in our region.

24 Now, what I'd like to see happen is a RealTime
25 independent expert review panel. Now, this is apparently

1 being instituted here. And in order for us to be able to
2 make the appropriate progress, we're in a position to
3 capitalize and have the technologies that -- of the
4 technologists that I've been able to meet, I've had people
5 approaching me from other countries telling me they want
6 me to Market these companies.

7 Now, I'm not table to give them these companies
8 to deal with because they don't now how to deal with them.
9 Now, I'm dealing with the companies and they want the
10 products that I have. And there's a lot of different
11 things you do when you do a new class of vehicle. I'm in
12 a position to do a new class of vehicle. It's for rescue,
13 instead of doing war.

14 You go up against Mother Nature and you have a
15 lot of solutions you can deal with. Now, if you can do
16 the neighborhood electric vehicle, there's a lot of people
17 against it, because it doesn't go 55 miles an hour down
18 the freeway. Although, the Neighborhood Electric Vehicle
19 in allowed in not at 25 miles an hour, but 21 miles per
20 hour.

21 And GM put them out to the dealers for free,
22 seven per dealer. And now they're taking them back. And
23 they're sending them off to the company that produced
24 them, they had a very short contract with. The people
25 have a million vehicles out there.

1 I'm in a position to revamp these vehicles.
2 There's a million vehicles. There are a lot of them in
3 California and Florida, because that's where the senior
4 facilities are. They control their own roads. The people
5 are not able to go to the market.

6 Now, what's so funny, Dr. Lloyd. The guy is
7 leaving on me.

8 Do we have a quorum.

9 Maybe Mrs. Riordan, can inform me as to why he
10 was losing it.

11 GENERAL COUNSEL WALSH: Since at this point in
12 time, we do not have a quorum of the Board we should
13 continue the hearing until tomorrow morning at 8:30.

14 MR. SMITH: I imagine I'll just pick up my time
15 then.

16 (Thereupon the California Air Resources Board
17 recessed at 9:15 p.m.)

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1 CERTIFICATE OF REPORTER

2 I, JAMES F. PETERS, a Certified Shorthand
3 Reporter of the State of California, and Registered
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5 That I am a disinterested person herein; that the
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10 I further certify that I am not of counsel or
11 attorney for any of the parties to said meeting nor in any
12 way interested in the outcome of said meeting.

13 IN WITNESS WHEREOF, I have hereunto set my hand
14 this 16th day of April, 2003.

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