

JOINT AGENCY WORKSHOP  
OF THE  
CALIFORNIA ENERGY COMMISSION  
CALIFORNIA AIR RESOURCES BOARD

In the Matter of: )  
 )  
Informational Proceeding and ) Docket No.  
Preparation of the State Plan to ) 06-AFP-1  
Increase the Use of Alternative )  
Transportation Fuels - AB-1007 )  

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CALIFORNIA ENERGY COMMISSION  
HEARING ROOM A  
1516 NINTH STREET  
SACRAMENTO, CALIFORNIA

MONDAY, OCTOBER 16, 2006

10:07 A.M.

Reported by:  
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CALIFORNIA ENERGY COMMISSION

James D. Boyd, Vice Chairman  
California Energy Commission

Jeffrey Byron, Commissioner  
California Energy Commission

Peter Ward, Advisor to Commissioner Boyd

Kevin Kennedy, Advisor to Commissioner Byron

Susan Brown, Advisor to Commissioner Boyd

Lorraine White

CALIFORNIA AIR RESOURCES BOARD

Robert Sawyer, Chairman

Michael H. Scheible, Deputy Executive Officer  
California Air Resources Board

Barbara Fry

Susan Fischer, Chairman Sawyer's Office

Dean Simeroth

ALSO PRESENT

Larry Waterland  
Stefan Unnasch  
TIAX, LLC

Luke Tonachel  
Natural Resources Defense Council

David L. Modisette  
California Electric Transportation Coalition

Mark P. Sweeney  
Energy and Utility Consulting

Dave Smith  
BP

ALSO PRESENT

Jim Larson  
Pacific Gas and Electric Company

Jane Turnbull  
League of Women Voters

Patricia Monahan  
Union of Concerned Scientists

Michael L. Eaves  
California Natural Gas Vehicle Coalition

Jon Van Bogart  
Clean Fuel USA

Julia Winter  
Boshert Engineering

Anna Halpern-Lande  
Tellurion Biodiesel, Inc.

Chelsea Sexton  
Marc Geller  
PlugIn America

Ronald E. Stoltz  
Sandia National Laboratories

Ronnie Colby  
Truckee Biofuels

Gary Whitten  
Smog Reyes

Ron Freund (via teleconference)  
Electric Auto Association

Jay Friedland (via teleconference)  
Central Coast Electric Auto Association  
PlugIn America

Dwight D. Stevenson  
Tesoro Refining and Marketing Company

Paul Wuebben  
South Coast Air Quality Management District

ALSO PRESENT

Greg Shipley (via teleconference)  
Waste 2 Energy

Todd Campbell, Mayor  
City of Burbank  
Clean Energy

Gina Grey  
Western States Petroleum Association

Henry Simpson (via teleconference)  
Crimson Resource Management

Bonnie Holmes Gen  
American Lung Association

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## P R O C E E D I N G S

10:07 a.m.

VICE CHAIRMAN BOYD: Welcome to this workshop that we're trying to truly conduct as a workshop, that is make it more informal. I'm Jim Boyd, Commissioner of the Energy Commission. With me is Commissioner Jeff Byron -- I've been gone a week and my mind went on vacation totally; excuse me, Jeff. We just finished chit-chat and I shouldn't be doing this at all. I didn't get my first cup of coffee, yet, either.

In any event, welcome to this workshop on alternative transportation fuels plan as required by AB-1007. This is a joint effort between the Air Resources Board and the Energy Commission. The Energy Commission is hosting the first of what I believe will be a series of workshops that I'm sure the responsibility for which will rotate back and forth between the Energy Commission and the Air Resources Board.

And as indicated, this is in furtherance of the requirements of AB-1007 that was passed in 2005, asking for a state alternative transportation fuels plan.

We've been working very closely with the

1 ARB for months now to identify the analyses that  
2 will be required to kind of set a workplan for  
3 ourselves, all to carry out the objectives of AB-  
4 1007.

5 The Energy Commission, which has  
6 sometimes slightly more formal processes than does  
7 the ARB, did a scoping order, an order that the  
8 Transportation Committee, namely Commissioner  
9 Byron and myself, would be authorized by the full  
10 Commission to carry out the Commission's  
11 responsibilities for this particular effort.

12 At that time we had somewhat of a pipe  
13 dream that we might be able to finish this by the  
14 end of this calendar year. And quite some time  
15 ago, particularly when the Governor released his  
16 biofuels plan, we pretty well acknowledged that  
17 this is such a huge and formidable task, that the  
18 two agencies are going to take all the time  
19 they've been allotted in the legislation to get  
20 the task done.

21 So, June of 2007 is the legislative  
22 deadline, and that's the deadline that will be met  
23 by the two agencies.

24 As most of you probably recall the  
25 legislation required that such a plan include

1 first, an evaluation of alternative fuels on a  
2 full fuel cycle assessment of emissions, criteria  
3 air pollutants, air toxics, greenhouse gases,  
4 water pollutants and other substances that the Air  
5 Board, as part of CalEPA, would so identify.

6 Secondly, goals for increased  
7 alternative fuel use in 2012, 2017 and 2022 are  
8 required, based on specific criteria to protect  
9 the public's health, environment, and to, of  
10 course, maximize California's economic benefits  
11 from alternative fuels.

12 And finally, thirdly, recommendations  
13 for strategies and policies to achieve these  
14 goals.

15 So, frankly, we're not debating the  
16 goals. The goals were set in the law. We are  
17 debating the plan to accomplish those goals.

18 Today, in this workshop, were going to  
19 be focused on two of the analyses that are being  
20 conducted as part of the 1007 effort, the market  
21 assessment and the full fuel cycle assessment.

22 As was identified in the scoping order  
23 issued this past May, a market assessment is  
24 needed to establish the baseline from which we  
25 will be able to develop strategies for increasing

1 the use of alternative fuels by the consumers of  
2 the State of California. And the market  
3 assessment I characterize as the market for each  
4 of the fuels. And what is likely to be the future  
5 of these markets, as well as doing that without  
6 intervention beyond the current programs of the  
7 state, and the two agencies, in particular.

8 This afternoon we'll be discussing the  
9 proposal for the full fuel cycle assessment. We  
10 want to get your input on this proposal before we  
11 begin the analyses in earnest. The analysis will  
12 be kind of the basis for determining that there's  
13 no net material increase in emissions of the plan  
14 that is produced by the two agencies.

15 We recognize that in order to produce a  
16 meaningful and implementable plan that addresses  
17 the state's transportation needs, it's got to  
18 include all reasonable and environmentally  
19 acceptable alternatives. As we like to say around  
20 here, and as we said in our IEPR, a total and  
21 complete portfolio of fuels will be reviewed and  
22 likely recommended for the state.

23 After we have this discussion, of  
24 course, it'll be open for public comment on any of  
25 the issues. And quite frankly, this is a

1 workshop; this should be relatively informal. We  
2 try to take any sense of intimidation out of this  
3 by getting us all down here on the ground floor  
4 rather than having us sit at that lofty height.

5 And I want to encourage the ability to  
6 ask questions at any point in time, not just when  
7 we have, quote, "the public comments" time on the  
8 agenda for this afternoon. So, I would encourage  
9 people, if in the course of a presentation  
10 questions come up, to rise to the podium there and  
11 ask your question.

12 We do ask you to come to the microphone  
13 because in order for us to figure out all that  
14 you've said to us, we are recording it so staffs  
15 will have something to refer back to. So we do  
16 need you to speak to the microphone.

17 In addition to these workshops, the  
18 Energy Commission has actually set up working  
19 groups long ago, after the AB-2076 and the 2003  
20 IEPR, which addressed alternative fuels. It's my  
21 understanding they've been somewhat dormant for  
22 awhile now, but it's certainly our intention that  
23 those working groups be alive and be utilized by  
24 both agencies and by the affected public at any  
25 and all points of time in the future. That we not

1 just wait for formal workshops like this.

2 So, with that, I'd like to see if  
3 Commissioner Byron would like to say anything.  
4 And then we'll ask Mike Scheible to speak for the  
5 ARB. I understand Chairman Sawyer will join us  
6 later, but it will probably be right after lunch.  
7 Commissioner, any comments?

8 COMMISSIONER BYRON: Thank you,  
9 Commissioner. I just would like to thank  
10 everybody for being here today. It's extremely  
11 helpful to see so many members of the public  
12 present. And I look to be educated and informed  
13 today.

14 VICE CHAIRMAN BOYD: Okay, I'm going to  
15 ask if Mike Scheible would like to say something,  
16 but first let me just mention everybody who's here  
17 at the table.

18 Peter Ward and Susan Brown to my left  
19 are my Advisors. Kevin Kennedy is one of  
20 Commissioner Byron's Advisors. And, Mike, you're  
21 up here all by your lonesome, so you can, if you'd  
22 like to bring somebody up, you're welcome to. In  
23 any event, Mike, --

24 DEPUTY EXECUTIVE OFFICER SCHEIBLE:  
25 Well, I may be outnumbered, but this is a

1 consensus joint project between the CEC and the  
2 ARB, so we each have equal vote.

3 VICE CHAIRMAN BOYD: Takes a lot of us  
4 to make a consensus over here.

5 DEPUTY EXECUTIVE OFFICER SCHEIBLE:  
6 Yeah. And on behalf of the Air Resources Board  
7 and Dr. Sawyer, we welcome you here today and look  
8 forward to hearing your comments and advice.

9 This is a project, one of many things we  
10 are doing, that involves alternative fuels. One  
11 of the more important ones because it sets out a  
12 plan for the future under legislative direction.

13 And we and the Energy Commission are  
14 together on this in terms of splitting up the work  
15 at the staff level, working out staff  
16 recommendations, and then to a process where we  
17 will be having both our Board and the Commission  
18 adopt a plan that we jointly agree upon. So it's  
19 going to be a fun and interesting process over the  
20 next nine months or so.

21 VICE CHAIRMAN BOYD: That's an  
22 understatement if I ever -- fun and interesting.  
23 In any event, thank you, Mike. And it's great to  
24 be working with you and the ARB crew.

25 Lorraine White, who has been responsible

1 to put all this together, I'm going to turn the  
2 microphone over to her and let her make whatever  
3 opening remarks. And then she and Barbara Fry of  
4 the ARB, are going to give us kind of an overview  
5 of the requirements and what-have-you. And we'll  
6 just turn to the agenda which everybody has. I  
7 don't have to read it.

8 Lorraine.

9 MS. WHITE: Good morning, Commissioners;  
10 good morning, Mike. And welcome, everyone, to the  
11 Energy Commission and ARB's joint workshop on the  
12 development of the alternative transportation fuel  
13 plan for California.

14 We have designed this workshop with the  
15 intent that we are able to get as much  
16 participation as possible, particularly on the two  
17 initial task efforts that we've undertaken to  
18 establish the baseline foundation for our work.

19 The way we've structured the  
20 participation is, of course, those of you that are  
21 here are welcome to ask questions, make comments,  
22 engage in the discussion. There is, just so we  
23 know that we get everyone, we have some blue cards  
24 towards the front in the lobby there. And just to  
25 help me out, if you guys could fill those out,

1 particularly if it's questions or comments on the  
2 market assessment or the full fuel cycle  
3 assessment proposal, then we can make sure that we  
4 get your comments at that time.

5 For those of you either watching on the  
6 WebEX or participating by phone, we do have a toll  
7 free number that we've established, and we're also  
8 webcasting the workshop. So, as to insure that  
9 anyone who couldn't be here in person can actually  
10 ask questions. Terry Piotrowski is our comlink  
11 operator, and she'll be handling the questions  
12 that we get on the telephone.

13 Just some background information.  
14 There, of course, is my contact information; I'm  
15 the current Project Manager. I also happen to be  
16 the Project Manager for the Integrated Energy  
17 Policy Report, and shortly after this workshop  
18 we'll be passing off the project management of the  
19 AB-1007 report to Tim Olson, whose contact  
20 information is there. And we wanted to make sure  
21 you were all aware of that.

22 Our Public Adviser is Margret Kim. And  
23 for those that would like to participate and make  
24 sure that your input is provided and docketed, she  
25 will be very helpful in helping you get that.

1           Of course, all of the information on the  
2 proceeding is contained in our website. And the  
3 web address is featured there. These  
4 presentations that we'll be providing today, as  
5 well as any of the speakers who want to come up  
6 and talk who might have slides or something,  
7 they'll be posted on our web, as well, so that  
8 people can have access to that information.

9           Just some logistical information for  
10 everybody. Several of you have been to the  
11 Commission before so some of this is just old  
12 news, but we do have a snack bar on the second  
13 floor for refreshments. We have information on  
14 the table for local restaurants when we have our  
15 lunch break in case anyone's interested. And then  
16 also the restrooms are here to the left outside  
17 the door for both the men's and women's rooms.

18           In the case of an emergency, we will all  
19 be asked to exit the building and head diagonally  
20 across the street, of course, doing so properly,  
21 to Roosevelt Park, where we will reconvene, get a  
22 head count; and then once all clear, we can come  
23 back to the hearing. Hopefully that won't happen  
24 today because we have a lot of material to cover,  
25 and I'm sure I would like to hear everybody's

1 comments, and with the Committee.

2 As Commissioner Boyd mentioned, our  
3 agenda is to provide an overview of what's  
4 required of the Commission and ARB in developing  
5 the state transportation fuels plan. And then  
6 also the existing policies in which this plan is  
7 being developed.

8 As many of you know, there are several  
9 existing policies that have been adopted by the  
10 state. There are several pieces of legislation  
11 that have been adopted and approved over the last  
12 several years, all of which have an effect on the  
13 fuels market in California, and our ability to  
14 achieve certain goals that we may specify.  
15 Barbara Fry and I will cover that material this  
16 morning.

17 Afterward, Larry Waterland with TIAX  
18 will present the information on the draft analysis  
19 associated with the market assessment of fuels in  
20 California. And there is, accommodated on the  
21 agenda, time for people to ask questions and  
22 comments. And as I said, just let me know with  
23 the blue card if you have comments on that.

24 Scheduled for this afternoon we have our  
25 proposal for the assessment of the full fuel

1 cycle, analysis that's specified in the  
2 legislation. Stefan Unnasch with TIAX will be  
3 presenting that information. And, of course, we  
4 have lots of opportunity for comments and  
5 discussion after that presentation.

6           Afterward we've invited people to  
7 provide comments, particularly on any of the  
8 questions that were featured in the workshop  
9 notice. You're welcome to provide comments or  
10 provide your input.

11           Of course, we know that in order to  
12 develop a rigorous and implementable plan we're  
13 going to need as much current and strong data  
14 analysis market information as we possibly can.  
15 So we will be asking parties to provide us what  
16 data and information is most relevant for the  
17 development of this plan.

18           We hope this afternoon is just the  
19 beginning. And, of course, we've asked in the  
20 notice that written comments be provided by  
21 October 20th. That is so we can take action as  
22 quickly as possible on the information you provide  
23 us and incorporate it into our work.

24           At this point I'd like to go just  
25 briefly over what requirements there are in the

1       legislation in developing this transportation  
2       fuels plan.

3               In particular, we're tasked with  
4       actually developing a plan, not so much just  
5       bringing fuels into the marketplace, but getting  
6       consumers to increase their use of those  
7       alternative fuels so that we can have a much more  
8       sustainable market.  It's one thing to have  
9       supply, but it's another thing if you have supply  
10      and no demand.  What we're hoping to achieve is a  
11      balance of both for alternative transportation  
12      fuels.

13              As part of this, whatever plan we  
14      develop has to meet certain criteria specified in  
15      the legislation.  One particular element, one  
16      criterion is that the plan result in no net  
17      material increase in emissions.  Essentially  
18      whatever we're developing is no worse  
19      environmentally public-health-wise than we have  
20      today.

21              Working with ARB and with the Committee  
22      we strive to actually develop something that is  
23      environmentally better than what we have today.  
24      So we'll be using the full fuel cycle assessment  
25      to help us actually achieve those goals.

1           The legislation specifies that we need  
2           to establish milestones of increasing the  
3           alternative fuels in the state and their use. And  
4           those milestones are based on five-year  
5           increments, 2012, 2017, 2022.

6           And within our partnership with the ARB  
7           we also found that it was very important, because  
8           of all of these other existing policies and  
9           statutes and programs, we need to look beyond  
10          2022. We need to have not just a near- and a mid-  
11          term view, but the plan should also be tied to  
12          long-term goals.

13          Of course, we're required to develop  
14          strategies to achieve these goals, and as I  
15          mentioned, in partnership with ARB. The  
16          Committee, the Energy Commission Transportation  
17          Committee that is, developed a scoping order and  
18          issued it the first of May in which we identified  
19          additional fuels that we want to consider.  
20          Because we think that we need to include all  
21          environmentally preferable, viable transportation  
22          fuels as options, particularly in the  
23          transitional periods.

24          The Committee felt it very important in  
25          order for us to establish a strong baseline from

1       which to project goals and strategies, that we  
2       develop a market assessment which gives us a good  
3       baseline and a projection of what these fuels will  
4       do in the marketplace if there's no further  
5       intervention. And then, of course, to keep  
6       consistent with the air quality objectives and  
7       environmental objectives of the state.

8                This slide just basically -- let me do  
9       something really quick here -- does that help? I  
10      hope so. Okay. Sorry.

11               This table just quickly summarizes the  
12      scope of the analysis that we're going to be  
13      covering in the months ahead as we develop this  
14      plan. It lists both the fuels specified in the  
15      legislation, blends; then a couple of additional  
16      fuels. It also identifies the vehicle types, both  
17      onroad and offroad. And then the milestone years  
18      that we feel are important in the near-, mid- and  
19      long-term.

20               This is just a reiteration of the key  
21      questions that we specified in the workshop  
22      notice. These are questions that we feel we have  
23      to answer in order to have a strong defensible and  
24      implementable plan.

25               To date, the Energy Commission and ARB

1 have worked very hard in identifying what the  
2 scope of the work needs to be; the type of parties  
3 we need to bring into the process; and the types  
4 of analysis, the fundamental research and analysis  
5 that would be needed for us to develop any kind of  
6 strategies and recommendations for goals that  
7 would have meaning.

8 The first two products we're working on  
9 right now of course is the market assessment and  
10 the full fuel cycle assessment, which is the focus  
11 of today's workshop. In the months ahead we will  
12 be working on analysis of various incentives and  
13 their effectiveness; what type of instate  
14 production we have and can have.

15 We'll be surveying different types of  
16 consumer groups to see how they react to different  
17 technologies in the market; how receptive they  
18 might be to fuels; what types of issues they have  
19 about adoption of fuels and technologies; and so  
20 on.

21 And then we'll be doing an economic  
22 analysis. Part of the criteria, of course, in the  
23 legislation is that we maximize instate economic  
24 benefit and minimize economic costs. So an  
25 economic analysis of whatever we're proposing is

1 very important.

2 In terms of existing policies and  
3 initiatives, and this is where I'm going to ask  
4 Barbara Fry to help me out in particular, on the  
5 things that ARB is doing. But, a few years ago,  
6 in partnership with ARB again, the Energy  
7 Commission adopted and submitted to the  
8 Legislature the AB-2076 report in which we  
9 identified an overall strategy. Not just  
10 alternative fuels, but conservation and efficiency  
11 measures that we think will be important.

12 We also looked to nonpetroleum resources  
13 to develop fuel resources that we need in the  
14 state.

15 In particular, the goals that we  
16 specified were to reduce demand by 15 percent  
17 below 2003 levels by 2020. And we sought to  
18 double the efficiency of cars and trucks. Well,  
19 the state does not have the authority to mandate  
20 such efficiency, but there are other methods in  
21 which we can do so. And we've been engaged in  
22 encouraging the federal government to increase  
23 efficiency standards, as well as implement various  
24 initiatives in the state.

25 In the 2005 IEPR we made recommendations

1 for various transportation-related activities and  
2 programs and policies. And in particular, those  
3 that relate to the alternative transportation  
4 fuels are the public goods charge for  
5 transportation. We felt that we needed a  
6 consistent revenue source in order to do needed  
7 research and development; and also help with the  
8 commercialization of viable fuel alternatives.

9 We also recommended that we establish a  
10 B-5 standard, and a renewable fuels standard in  
11 the state.

12 And then since that time the federal  
13 government took action on establishing the Energy  
14 Policy Act of 2005. This legislation also made  
15 several recommendations related to alternative  
16 transportation fuels providing funding and  
17 incentives for the development of those resources.

18 At this point I'm going to ask Barbara  
19 to come up before I get into the next steps  
20 discussion. And she can go over some of the  
21 additional policies and strategies that we have  
22 been working on.

23 MS. FRY: Thank you, Lorraine. As  
24 Lorraine indicated, I'll discuss policies and  
25 goals for promoting alternative transportation

1 fuels and highlight some specific ARB activities.

2 Some of the policies and goals I'll  
3 discuss today are the zero emissions vehicle  
4 regulations, the hydrogen highway blueprint plan,  
5 the Climate Action Team report, the bioenergy  
6 action plan, the alternative fuels incentives  
7 program, and the California Global Warming  
8 Solutions Act.

9 In the year 2000 the Board adopted the  
10 zero emissions bus regulation. This regulation  
11 requires large transit agencies to incorporate  
12 ZEVs into their fleets. The timeframe for  
13 complying with this regulation is dependent on the  
14 fuel type used by the transit fleets.

15 The current rule specifies for diesel  
16 fleets that 15 percent of new bus purchases need  
17 to be ZEVs starting in 2008. Transit agencies  
18 using alternative fuel fleets have until 2010 to  
19 meet this requirement.

20 Proposed amendments to the regulation  
21 will be presented to our Board on October 19th.  
22 If these amendments are approved, the timeframe  
23 for complying with the ZEV purchases would be  
24 delayed three years for diesel fleets and one to  
25 two years for alternative fuel fleets.

1           In the year 2004 the Governor issued an  
2           executive order to establish the hydrogen highway  
3           blueprint plan. Over 200 experts were involved in  
4           the development of this plan. Phase one targets  
5           the establishment of 50 to 100 hydrogen fuel  
6           stations to support 2000 hydrogen fuel vehicles by  
7           the year 2010.

8           Phases two and three of this plan would  
9           expand the hydrogen highway to include 250  
10          hydrogen fueling stations to support 20,000  
11          hydrogen vehicles.

12          The following year Senate Bill 76  
13          provided the ARB \$6.5 million in funding to  
14          implement recommendations of this plan. Under  
15          this legislation the state is to co-fund three  
16          public hydrogen fueling stations at least up to 12  
17          hydrogen fueled vehicles by January of 2007. It  
18          also establishes environmental goals which would  
19          be a 30 percent reduction of greenhouse gases and  
20          20 percent production of hydrogen from renewable  
21          sources.

22          This legislation also requires the  
23          adoption of standards for hydrogen fuels by  
24          January of 2008. These standards would remain in  
25          effect until a standards development organization

1       adopts a formal standard that would be used to  
2       facilitate the use of hydrogen as a transportation  
3       fuel.

4               In 2005 the Governor issued an executive  
5       order that established greenhouse gas reduction  
6       targets and directed CalEPA to form a multi-agency  
7       Climate Action Team. In March of this year that  
8       team issued a report which recommended that the  
9       ARB develop regulations to require the use of 2 to  
10      4 percent biodiesel in place of conventional  
11      diesel fuel.

12              These regulations would be designed to  
13      reduce greenhouse gas emissions by .4 million  
14      metric tons by the year 2010, and .8 million  
15      metric tons by the year 2020.

16              This report also recommended that the  
17      ARB adopt regulations to require the use of  
18      ethanol in fuels. These proposed regulations  
19      would be designed to reduce greenhouse gas  
20      emissions by 2.7 million metric tons by the year  
21      2020.

22              Yet another executive order in 2006, the  
23      Governor issued an executive order that  
24      establishes targets to maximize the instate  
25      production of the biofuels used in California.

1 The targets for instate production of biofuels  
2 used here are 20 percent by 2010, 40 percent by  
3 2020, and 75 percent by the year 2050.

4 In response to the Governor's executive  
5 order for biofuels, the bioenergy interagency  
6 working group developed the bioenergy action plan.  
7 This plan is designed to maximize the use of  
8 biofuels. To provide maximum flexibility for  
9 using biofuels we are updating ARB's fuel  
10 regulations currently. We are also evaluating the  
11 emissions and performance of biofuels to develop  
12 fuel specifications for them.

13 This year's budget provisions require  
14 the ARB and the California Energy Commission to  
15 develop a program that provides \$25 million of  
16 incentive funds for promoting the use and  
17 production of alternative fuels. The funds may be  
18 provided for public and private alternative fuel  
19 vehicles and fueling stations, including E-85  
20 stations. It may also be provided for alternative  
21 fuel production and grants for research and  
22 development.

23 Under this program no funds are  
24 available for fuels that are derived from  
25 petroleum coke or coal. And the funds are to be

1 used to reduce air pollution and greenhouse gases.

2 The joint ARB/CEC proposed concepts for  
3 the alternative fuels incentive program will be  
4 presented to our Board later this week on October  
5 19th. Under this proposed program, project  
6 solicitations would be issued in January of 2007,  
7 and the staff would report back to the Board in  
8 May of 2007. Funding commitments would be made by  
9 June 30th of 2007, and the funds would be expended  
10 by June 30th of 2009. And we would also be  
11 issuing quarterly reports to the Legislature, as  
12 required.

13 In 2005 the Governor issued an executive  
14 order for climate change that establishes targets  
15 for reducing greenhouse gas emissions. The  
16 targets are to reduce these emissions to the 2000  
17 emissions level by 2010; to the 1990 emissions  
18 level by 2020; and to 80 percent below the 1990  
19 level by 2050.

20 Finally, in 2006 the California Global  
21 Warming Solutions Act, or AB-32, was passed. This  
22 legislation requires ARB to adopt a list of early-  
23 action measures by July 1 of 2007; and adopt and  
24 implement those measures by 2010. Further, we are  
25 to establish a statewide greenhouse gas emissions

1 cap for 2020 that's based on the 1990 emissions  
2 level by January 1 of 2008.

3 We're also required to adopt mandatory  
4 reporting rules for significant greenhouse gas  
5 sources by January 1 of 2008.

6 Finally, we are to adopt a plan  
7 describing how we're going to achieve emission  
8 reductions by January 1 of 2009; and adopt  
9 regulations to achieve the maximum technologically  
10 feasible and cost effective emission reductions  
11 from greenhouse gas emissions by January 1 of  
12 2011.

13 And that concludes my presentation.

14 MS. WHITE: Thank you. Before we get  
15 into Larry's presentation and take questions on  
16 materials Barbara and I have presented, I wanted  
17 to just briefly go over the next steps.

18 As we mentioned, this is the first  
19 public workshop in what will likely be many  
20 between now and June 2007, where we will be going  
21 over the various analyses and planned development  
22 products.

23 In particular, we hope to complete the  
24 market assessment November 2006. Timely  
25 submission of your comments and input on that

1 would -- is very important for us to be able to  
2 achieve that goal.

3 We also would like to achieve a  
4 completion of the full fuel cycle assessment by  
5 January of 2007. The reason why we're interested  
6 in completing these as soon as possible is because  
7 they're foundational pieces really. And the bulk  
8 of the work is going to be on developing scenarios  
9 for goal setting and evaluation of strategies so  
10 that we can actually define the policy  
11 recommendations by April. And draft a plan that  
12 would be adopted and submitted to the Legislature  
13 and Governor by June 2007.

14 So, at this point, if there are any  
15 questions or comments on the materials Barbara and  
16 I presented, we'd be happy to answer them.  
17 Otherwise, I'd like to invite Larry to come  
18 forward and give his presentation.

19 VICE CHAIRMAN BOYD: Anybody have any  
20 questions or comments, clarifications? A couple  
21 of hands out there.

22 MR. TONACHEL: Good morning. I'm Luke  
23 Tonachel from the Natural Resources Defense  
24 Council. Just a quick question.

25 Lorraine, your last slide there laid out

1 a number of the sort of next steps. And I'm  
2 wondering, you know, we talked about at the  
3 beginning of this process, or the beginning of  
4 this meeting, how important this plan is to the  
5 overall setting of how we're going to go forward  
6 with alternative fuels in California.

7 And although the plan, itself, is not a  
8 regulatory activity, it eventually will lead to  
9 regulations that have to be set in the state. And  
10 there's a lot of stakeholders here obviously that  
11 have a lot of input into each of the different  
12 pieces.

13 So I guess my general question is if you  
14 could provide a little more sense of what the  
15 schedule will be in terms of workshops, in terms  
16 of getting input from people, responding to that  
17 input, and making sure that there's enough time  
18 for the stakeholders to respond to each of the  
19 various documents.

20 So I know that the market assessment, in  
21 itself, there's basically, you know, the end of  
22 this week to respond. And I think that's going to  
23 be a struggle for some people. But how that'll be  
24 as a process going forward.

25 And maybe a general recommendation would

1 be to look at some of the regulatory processes and  
2 to incorporate that into the process that's going  
3 on here.

4 MS. WHITE: Well, I certainly can  
5 address what we envision for the market assessment  
6 and the full fuel cycle assessment. Today's  
7 workshop on the full fuel cycle discussion is  
8 really the first of what we think is going to be  
9 several, three or more. Depending upon the nature  
10 and the depth of the comments and how technical  
11 they are, there are options for having targeted  
12 workgroup discussions, as well. But we are at  
13 least thinking of three workshops on the full fuel  
14 cycle assessment.

15 This is the first before we actually  
16 produce anything for people to comment on, in  
17 which we can get some initial feedback in  
18 formulating that product for people to work on.

19 In terms of the market assessment, it  
20 tends to be, you know, what we saw, fairly  
21 factual. So a workshop today, and then comments  
22 as people can, if the 20th is too soon, then it's  
23 really up to the Committee to see what kind of  
24 adjustment in that schedule they would like.

25 If there is such significant differences

1 of opinion in that factual information we may have  
2 to go with a second workshop. But we were hoping  
3 to get whatever kind of data and information  
4 people have available, so as to respond to it, and  
5 incorporate it in the documents.

6 And then produce a final by November.  
7 If need be, that could slip to December, but every  
8 time these sorts of early products slip, then that  
9 would jeopardize the additional work.

10 In terms of the scenario evaluation and  
11 policy recommendations, those actually, we think,  
12 will be the majority of the workshops and public  
13 events. We haven't really formulated exactly how  
14 we would do that. We'll probably have a public  
15 workshop to discuss people's ideas for how that  
16 should be shaped, and the types of issues that  
17 need to be addressed in detail.

18 But those particular tasks haven't been  
19 nearly as fleshed out as these two that we're  
20 talking about today.

21 MR. TONACHEL: Okay, thank you.

22 MS. WHITE: Dave?

23 MR. MODISETTE: Yes, thank you,  
24 Commissioners. Dave Modisette with the California  
25 Electric Transportation Coalition. I have a

1 couple of specific comments, and then maybe kind  
2 of a broader process comment.

3 The specific comments are that, you  
4 know, stakeholders really need some time to review  
5 the work products that are coming, that are going  
6 to be coming out in the future.

7 You know, the fuel cycle assessment came  
8 out on Friday, so I'm not going to have any  
9 comments on that today. I'm not going to have any  
10 comments on that by Friday, frankly. Because  
11 those of you that have done full fuel cycle work  
12 know that it's built on layers and layers of  
13 assumptions. And you really need to dig down  
14 through those things.

15 Plus, I've got a board of directors, you  
16 know, it's a big industry association. We need  
17 some back-and-forth on that, so I think that  
18 particularly for the more complicated pieces, such  
19 as full fuel cycle assessment you need to give  
20 people at least, I would say, 20 working days to  
21 review documents that are extremely detailed.

22 In terms of the market assessment we did  
23 have five working days to review that. Luckily I  
24 only had to review 12 pages; so I've got, you  
25 know, my comments on that today. But, you know,

1 for the environmental groups, nonprofit groups  
2 that are trying to look at the whole document, you  
3 know, I really don't think that there was adequate  
4 time for them to do that.

5 And then my more general comment is  
6 that, and I think I can speak for a lot of  
7 stakeholders in this, is that we would really like  
8 to see more transparency in understanding just how  
9 you're putting together the plan. We really don't  
10 understand what the steps are in this process. It  
11 kind of sounds like the Committee or staff may  
12 have a roadmap where they understand what the  
13 pieces are of the analysis and how these are going  
14 to be put together.

15 But I can tell you that the stakeholders  
16 really have no understanding of that. And in at  
17 least in some of the working groups that I've  
18 participated in, stakeholders have requested a  
19 written description of what that roadmap is, to  
20 the extent that you can put it together. So we  
21 can kind of understand, you know, what analysis is  
22 being done; how does it fit together; and what's  
23 the timing of that.

24 So, my recommendation would be, if at  
25 all possible in the future, to put together that

1 kind of a document just so we can kind of  
2 understand what the plan is to put together the  
3 alternative fuels plan.

4           Anyway, thank you very much.

5           MS. WHITE: Thank you.

6           VICE CHAIRMAN BOYD: Thanks, Dave.

7 Lorraine, I want to ask a question of the audience  
8 on the first point Dave made. The second point,  
9 Dave, I don't know. The moon's out there, we got  
10 to get there, I don't know. Anyway, it's hard to  
11 do a roadmap, but I'll leave that to the staff.

12           The first question you raised about not  
13 having adequate time, I just want to query the  
14 audience with a show of hands -- and this is a  
15 silly question, because I think I know the answer  
16 already, but a show of hands as to how many people  
17 do feel that the time provided is too short and  
18 would like a little more time?

19           Everybody. Okay.

20           MS. WHITE: So, we got consensus on  
21 that.

22           (Laughter.)

23           VICE CHAIRMAN BOYD: I expected  
24 consensus, but I felt a moral obligation to ask  
25 the question. In any event, thanks. Go ahead.

1 MS. WHITE: Sir.

2 MR. SWEENEY: Yes, my name is Mark  
3 Sweeney; I'm with the California Natural Gas  
4 Vehicle Coalition. And I have a question about  
5 where in the process are those interested going to  
6 have the opportunity to look at things like  
7 critical economic assumptions. And, in  
8 particular, the fuel price forecasts.

9 In the AB-276 effort there wasn't any  
10 transparency around the fuel price forecast. And  
11 in looking back on it it's obvious that the  
12 forecast for natural gas prices for NGVs vastly  
13 overstated the cost of NGVs. And as a result the  
14 cost/benefit analysis wrongly showed that there  
15 were negative net societal benefits associated  
16 with NGVs, as the result of a faulty fuel price  
17 forecast.

18 So, from our vantage point it's really  
19 important that people have the chance to look at  
20 critical assumptions before they're reflected in  
21 kind of final work products.

22 MS. WHITE: Agreed. And just as we're  
23 doing with the full fuel cycle assessment today,  
24 before we really commit to the in-depth analysis  
25 we're going to be bringing forward, staff's

1 assumptions, proposed assumptions, and the  
2 sensitivities of those assumptions at a later  
3 workshop. But we have identified that as a need  
4 to insure transparency, particularly on the  
5 economics analysis.

6 We're developing the workplan for that  
7 right now. We're also insuring that what we're  
8 proposing, as far as our economic analysis, is  
9 consistent with the Climate Action Team's economic  
10 analysis; that they're very similar in terms of  
11 cost effectiveness.

12 So that --

13 MR. SWEENEY: And my particular interest  
14 is in the fuel price forecast, because that's --

15 MS. WHITE: Right.

16 MR. SWEENEY: -- such a critical factor  
17 determining whether consumers have the prospect of  
18 any savings to offset the first-cost disadvantage  
19 of alternative fuels vehicles.

20 MS. WHITE: Yes, I know that. And in  
21 particular, you are coming forward, and will be  
22 later today, and providing some of that initial  
23 input. We have had other parties that have  
24 submitted data on their price forecasts. It  
25 essentially helps us do our analysis better, and

1 develop more reliable assumptions as part of our  
2 analysis.

3 MR. SWEENEY: Good.

4 MS. WHITE: So we look forward to your  
5 information later.

6 MR. SWEENEY: Thank you.

7 MS. WHITE: Thank you. Any further  
8 questions?

9 Well, I'd like to then invite Larry  
10 Waterland with TIAX to come forward.

11 MR. WATERLAND: Thank you, Lorraine. If  
12 I seem a little teetery up here, I'm not my normal  
13 self. I've got a slipped disc, or what they call  
14 a slipped disc; going to be subjected to surgery  
15 on Monday. And right now I'm pinned into a brace  
16 and -- I'm facing back surgery on Monday and so  
17 I'm sort of teetering around and tottering. So,  
18 if you see that, that's why it is.

19 Thank you, Lorraine, Commissioners. As  
20 has been mentioned, or as everyone knows,  
21 California transportation sector remains nearly  
22 100 percent reliant on petroleum fuels. In 2004  
23 that was about 18 billion gallons of diesel and  
24 gasoline combined.

25 This reliance, the 100 percent reliance

1 on petroleum fuels remains so despite two decades  
2 of efforts at introducing fuels into the  
3 marketplace. The only real success kind of is  
4 ethanol. Ethanol's now a component of  
5 reformulated gasoline; but that was sort of a  
6 different pathway to get that fuel into the  
7 marketplace.

8 Having had this history of trying to  
9 stimulate the, you know, the use of alternative  
10 fuels in the market, there's been a period update  
11 assessment of where the market sits at any given  
12 time.

13 The initial California alternative  
14 market assessment was done in 2001. There's a  
15 2003 update. And this one is the next one in  
16 line. Specifically this update has a different  
17 flavor than ones in the past. This focuses on  
18 establishing, as Commissioner Boyd said,  
19 establishing the baseline that leads into the  
20 alternative fuels plan that the Commission and the  
21 Air Resources Board are jointly developing.

22 Along these lines we were asked to take  
23 for each of the alternative fuels we'd look at, a  
24 treatment or discussion of the same list of  
25 things: quantities of use; availability of

1 vehicles; fueling infrastructure and where it  
2 stands and what special needs; barriers to  
3 introduction of the fuel; and opportunities for  
4 expansion. And then end up with an overall  
5 assessment of where this fuel stands.

6           Again, these are some of the fuels. Not  
7 the complete list that Lorraine had. We cut down  
8 on what we considered a couple of, right now,  
9 niche fuels, and sort of focused on what we  
10 considered to be the mainline alternative fuels  
11 here.

12           And so I'll just leap right into the  
13 results, or the documentation of the results of  
14 the market assessment. As I said, we needed to  
15 identify for each alternative fuel quantities of  
16 use indicators. So you'll find in the report,  
17 itself, tables for each of the fuels that look  
18 like this, where we document, or we, you know,  
19 write down how many vehicles were in the  
20 population in a base year, usually 2004.

21           How many vehicle models were offered,  
22 both light duty and heavy duty. What the fueling  
23 station infrastructure looked like in terms of  
24 stations dispensing fuel, and how many of those  
25 were public. And then how much was, indeed,

1 dispensed in a base year.

2 So you see these figures here; I won't  
3 go over them, but they're definitely in the  
4 report. You can look at them at your leisure.

5 Natural gas vehicles really took off in  
6 the late '90s, up until the early 2000 period.  
7 There was a lot of impetus and incentives toward  
8 doing this. And you can see the rapid growth of  
9 the vehicles. They dropped off a little bit, but  
10 it's start to grow again in 2005. And it's  
11 predicted to continue to grow.

12 You'll note at the bottom that the  
13 natural gas consumption in California has remained  
14 essentially constant at about 2 trillion standard  
15 cubic feet a year. And in the sectors that make  
16 up that, the residential, commercial, industrial  
17 and whatnot. Again, those consumers have had  
18 relatively flat consumption over these years.

19 The only sector of natural gas  
20 consumption that's showing any growth has been the  
21 transportation fuel sector. And although this  
22 represents well under 1 percent of the total  
23 natural gas used in California, it's the only one  
24 that's growing.

25 EIA forecasts that this kind of growth

1 will continue. This is the EIA forecast of  
2 consumption and fuel price for the United States.  
3 EIA doesn't break things down by state at this  
4 level, but they forecast a continued growth in  
5 natural gas uses of vehicle fuel.

6 And we forecast essentially the same in  
7 California. What we based our forecast on was we  
8 noticed that just about 20 percent of the U.S.  
9 consumption of natural gas fuels in any year was  
10 what was consumed in California. So we projected  
11 the U.S. growth in natural gas fuel, and then the  
12 California percentage of it. And that shows that  
13 by 2030 we're getting up to several hundred  
14 million gallons of gasoline equivalent a year.

15 Now, with respect to the availability of  
16 vehicles, the number of light duty OEM natural gas  
17 vehicles that are offered for sale has steadily  
18 decreased over the years to where in 2006 there  
19 are only three models you can choose from. Two  
20 General Motors models, one dedicated to natural  
21 gas and one a biofuel that can also burn gasoline.  
22 And then the Honda GX, a dedicated natural gas  
23 vehicle.

24 At one time many of the automobile OEMs  
25 had natural gas offerings and they still do, and

1       they still sell these things in Europe. But they  
2       have terminated all production of light duty  
3       natural gas vehicles in the United States and in  
4       Canada.

5               They still make, the industry OEMs are  
6       still making the heavy duty natural gas fueled  
7       engines. And this a number of engines that were  
8       certified for use by the ARB in 2006. Several  
9       Cummins models, a couple of Deere models, and this  
10      Mack's and Westport model engines.

11             These were certified in various  
12      standards; most of them just slightly over NOx  
13      standard in 2007 through 2010 standard.

14             So, the next thing we want to look at is  
15      what's the fueling infrastructure out there; how  
16      many stations are there. Depends on who you talk  
17      to to get a feel for how many stations are there.  
18      There's a low of 118 compressed natural gas  
19      stations in the infrastructure that the National  
20      Gas Vehicle Coalition documents; up to a high of  
21      365 CNG stations in the state, 40 percent of which  
22      are public use. This is the number that was used  
23      in the IEPR, and it's the number I've used.

24             It's a general observation that stations  
25      that survive and are successful are those that

1 have anchor fleets.

2 Moving on to liquid natural gas, there  
3 were 41 liquid natural gas stations in the  
4 California infrastructure presently. Each one of  
5 those has an anchored fleet. And it kind of does,  
6 because it has to because liquid natural gas is  
7 really a heavy duty vehicle fuel.

8 What are the opportunities for expansion  
9 and barriers to expansion. Should note that the  
10 California National Gas Vehicle Partnership  
11 forecasted some hefty numbers of light duty  
12 vehicles and heavy duty vehicles to be introduced  
13 into the marketplace right about now. And that  
14 really hasn't happened.

15 That's mostly because the vehicle cost  
16 premium for a natural gas vehicle and the  
17 inconvenience of getting it fueled has just not  
18 overcome the convenient or the economical fuel  
19 price you get by using a natural gas fuel.

20 And there are future relative cost  
21 uncertainties with respect to heavy duty diesels  
22 versus heavy duty natural gas vehicles. The  
23 diesel cost advantage shrinks by 2010, and so  
24 they're more or less competing at a same level  
25 playing field.

1           This second bullet is an older one. I  
2       won't even mention it. It came from an older  
3       slide.

4           But there are several incentives to  
5       incentivize natural gas vehicle use, fuel use in  
6       vehicles under EPAC in the 2005 highway bill.  
7       These have yet to come into play.

8           The business as usual, as I said, for  
9       all assessment sees about 170 million gallons of  
10      gasoline equivalent displaced in 2030. And it's  
11      going to be driven probably by growth in the heavy  
12      duty sector. In the heavy duty sector you can get  
13      some favorable economics for natural gas use.

14          The inconvenience of fueling is less of  
15      an issue because fleets generally has centralized  
16      fueling places. And continuing availability of  
17      engine offerings would greatly benefit the  
18      increase in gas use in this sector.

19          Currently, the greater than 400  
20      horsepower engines there's only a few offerings.  
21      And this is the ones that would be used in high  
22      fuel use; these occupations like long-haul trucks.

23           VICE CHAIRMAN BOYD: Larry.

24           MR. WATERLAND: Yes.

25           VICE CHAIRMAN BOYD: Before you go on, I

1 just want to put a question on the table. It's  
2 probably less for you and more for the natural gas  
3 vehicle folks when they do testify. You  
4 acknowledge or recognize the fact that we've  
5 watched the number of offerings decrease by the  
6 auto industry in the light duty area. And it's  
7 been a concern to us here at the Commission, and  
8 probably a concern to everyone interested in  
9 natural gas as a fuel.

10 And interestingly enough, last week I  
11 got kind of a panic email from our friends in  
12 Sweden with whom we just recently signed a  
13 memorandum of understanding on the development of  
14 biogas. And ultimately biomethane, which Sweden  
15 is big into, the Swedish government.

16 And has put a fairly substantial  
17 investment in a natural gas transportation fueling  
18 infrastructure. And the reason for the panic  
19 email was that Volvo, who is their lifeline with  
20 regard to offering vehicles, the natural gas  
21 vehicles, has announced they're going to cease  
22 making their bifuel cars that they make in Sweden,  
23 which some of us were hoping they might expand to  
24 the United States.

25 So, this appears to be another blow to

1 the use of light duty -- natural gas in light duty  
2 vehicles. I just put that on the table and the  
3 natural gas folks can comment later if they know  
4 more than I know.

5 But because we had an MOU with the  
6 government over there, they were frankly asking us  
7 to help put pressure on Saab's parent  
8 organization, which happens to be located in  
9 Detroit, known as Ford Motor Company, to see if  
10 they might change their mind.

11 But it's an interesting, if not  
12 suspicious, movement. But, in any event, I just  
13 leave that lie on the table for now.

14 MR. WATERLAND: And just to amplify  
15 that, Commissioner, I think even the natural gas  
16 industry will concur that the growth you're going  
17 to see is going to be in heavy duty vehicle  
18 sector. It's really hard to get consumers excited  
19 about a fuel that they have to look real hard for  
20 to find. And it's even especially hard when there  
21 are no models you can buy.

22 Moving on to propane or LPG, liquified  
23 petroleum gas is easier to write than propane.  
24 Again, the table shows that there were about  
25 20,000 vehicles in -- 22,000 vehicles in the state

1 that were propane vehicles. These were all  
2 essentially bifuel vehicles. Again, less than 1  
3 percent of the population of vehicles, about the  
4 same number of propane vehicles as there were  
5 natural gas vehicles.

6 But the OEMs have quit offering them.  
7 And in 2006 there were no light duty vehicles  
8 fueled with propane available. There were no  
9 light duty vehicle engines certified. And there  
10 were only four heavy duty vehicle engines  
11 certified for use in sort of medium heavy duty  
12 applications.

13 The decrease in the number of vehicles  
14 on the roads is shown in the table on the right;  
15 while the number of propane-fueled vehicles on the  
16 road has decreased both in the United States and  
17 in California. Surprisingly the national use of  
18 propane liquid fuel -- liquid propane fuel as a  
19 vehicle fuel has increased slightly, but it's  
20 decreased dramatically in the United States to  
21 where it's now just about 20 million gallons of  
22 gasoline equivalent.

23 The reason that the number of vehicles  
24 on the road has declined is the manufacturers just  
25 aren't offering them. They just quit making, from

1 1999, a peak of 6000 vehicles a year for  
2 nationwide use, down to 2000 vehicles in 2005.

3 The number of LPG offerings has also  
4 decreased in the sort of medium heavy duty vehicle  
5 fleet. Excuse me. The number of light duty  
6 vehicle engines that have been offered for sale  
7 has also sort of decreased. Only four medium  
8 heavy duty LPG engines have been certified in  
9 2006. There's Ford variant of the V-10 dedicated  
10 in a bifuel variant of the GM engine. And then a  
11 Cummins natural gas converted to a LPG dedicated  
12 engine.

13 Again, same question that we asked with  
14 respect to natural gas vehicles, how many propane  
15 fueling stations are there out there. And again,  
16 you get conflicting citations. From a low of 172,  
17 which you can pick right off the Caltrans website  
18 that Caltrans operates 1300 bifuel propane pickup  
19 trucks. A mid estimate of 235 refueling stations  
20 that the alternative fuel data center documents,  
21 to a higher of 1500 stations in California; 900 of  
22 which are, quote, "motor vehicle friendly" which  
23 is what's quoted in the 2005 IEPR. The AFDC data  
24 were used in the table previously.

25 It's not that it isn't the availability

1 of propane. A lot of propane is sold in  
2 California. It's a mainstream fuel for lots of  
3 applications. But just not for vehicle use. It's  
4 got a self-sustaining infrastructure with respect  
5 to offering propane to the public; it's just it's  
6 not as a vehicle fuel. There are very few pump  
7 island user friendly gasoline like stations.

8 So, again, like natural gas, the capital  
9 cost premium of the vehicle cost and the  
10 inconvenience of finding a fueling station has  
11 overcome periodic decreased fuel prices. Right  
12 now propane prices are quite attractive when  
13 compared to diesel fuel or gasoline fuel. LPG/  
14 gasoline ratio has averaged about 56 percent over  
15 the past several years. And anytime it's less  
16 than 71 percent, which is the heating value  
17 equivalent, the LPG is cheaper.

18 But you can have seasonal price  
19 differences, and in fact, you know, as everyone  
20 expects, in the wintertime propane gets more  
21 expensive. And so this is something that's not  
22 assured.

23 There are no light duty vehicle  
24 platforms. There are fewer heavy duty vehicle  
25 engines. The reason they have such a few number

1 of engines out there is the manufacturers, the OEM  
2 manufacturers claim it's the ARB cost of  
3 certifying these engines that has sort of led them  
4 to not really develop them for sale and certify  
5 them.

6 There's an in-place infrastructure that  
7 could service a lot, a bigger population of  
8 propane vehicles in the state, but it needs the  
9 vehicles to be able to service them.

10 So in an overall, we see business-as-  
11 usual case sees very little vehicle market growth  
12 for propane fueled vehicles. There are currently  
13 no or very few vehicle platforms. The price  
14 drivers are not compelling.

15 Vehicle use, fuel use is a very small  
16 fraction of the propane market, and so it's not  
17 really in a lot of propane stakeholders on top of  
18 their list of things they want to promote, because  
19 it makes such a small fraction of their market.  
20 And there's no remaining strong emissions drivers.  
21 Gasoline and diesel fuel vehicles have gotten  
22 cleaner and cleaner, that the emissions benefit  
23 for propane has essentially gone away.

24 I expect to see propane vehicles still  
25 used, but they would be confined more to a niche

1 fuel use in government fleets where there's a  
2 mandate of a certain percentage of a government  
3 fleet purchases have to be an alternative fuel  
4 vehicle.

5 So, as long as there's ones available,  
6 or ones that you can put together there will still  
7 be a marketplace, but not a growing marketplace.

8 Moving on to electricity. What we  
9 define as an electric vehicle, with respect to the  
10 market assessment, is a vehicle that has at least  
11 some significant electric-only operating range.  
12 And that would include battery electric vehicles,  
13 neighborhood electric vehicles and eventually  
14 plug-in hybrid electric vehicles.

15 The table shows the EVU summary. This  
16 was focused on onroad. I'll have to apologize to  
17 Dave Modisette for really not thinking very  
18 carefully through the offer a contribution in this  
19 field makes to the alternative fuels marketplace.

20 But there were no onroad vehicle EV  
21 offerings in 2006. There have been none since  
22 2004, perhaps 2002. They are still marketing  
23 neighborhood electric vehicles, but there's a few  
24 number of offerings. There's still charging  
25 stations out there, but there's essentially no one

1 to use them.

2 I won't go through the whole bloody  
3 history of battery electric vehicles in the state,  
4 other than to note that it was the ZEV regulations  
5 that got us to what we know now about how to make  
6 a battery electric vehicle. And stimulated some  
7 battery development work to it, where it's better  
8 now. It's still not cost competitive, and its  
9 range is still not something that is convenient to  
10 the public.

11 But the regulation did, by allowing the  
12 OEM manufacturers an alternative compliance path,  
13 lead to the development of very very clean light  
14 duty vehicles, the PZEV and the AT-PZEV -- it  
15 should be a PZEV there instead of PEV -- are very  
16 very low vehicle offerings. And they essentially  
17 allow the OEMs to meet some very aggressive  
18 emission target levels without having to actually  
19 sell a zero emission vehicle.

20 So currently what you find for battery  
21 electric vehicle offerings is they're limited to  
22 offer of vehicles and equipment. And neighborhood  
23 electric vehicles, although there's not very many  
24 of those out, but there are some.

25 Light duty vehicle conversion kits, few

1 in number. Will probably never get a whole lot of  
2 vehicles in the marketplace that have been  
3 conversion by these conversion kits.

4 And, again, specialty battery electric  
5 vehicles that are made for little niche market,  
6 for people like Tesla, who has a sort of high-end  
7 battery electric vehicle, for people who would  
8 look for that.

9 Surprisingly there is still a  
10 substantial battery electric vehicle charging  
11 station network out there, sort of put in to  
12 support the once-anticipated fleet. In 2001 sort  
13 of a peak of, or near the peak of PEV use, there  
14 were about 3000 EV chargers in the state offering,  
15 more or less offering free electricity to people.

16 Four hundred of these still exist, 340  
17 of them are public access; a decent infrastructure  
18 out there. They're all, as you would expect,  
19 confined to the Los Angeles Basin, San Francisco  
20 Bay Area and Sacramento. But charging stations  
21 exist; they're just probably never rarely used.

22 So, we see very little growth of  
23 traditional onroad battery electric vehicles. The  
24 barriers continue to be the incremental cost of  
25 the vehicle and the cost of the batteries. The

1 range of the vehicles is limited by the weight of  
2 the batteries and the battery lifetime. Even  
3 though battery electric vehicles offer very very  
4 attractive fuel economy, they still don't overcome  
5 the initial costs to buy one.

6 If the state wants to look to having  
7 significant use of grid electricity as an  
8 alternative fuel, that's going -- onroad vehicles  
9 on plug-in hybrid vehicle development and  
10 commercialization.

11 As I said, there is still the  
12 neighborhood electric vehicle marketplace and a  
13 very substantial marketplace that exists and will  
14 grow. And it can offer significant petroleum  
15 displacements.

16 And, again, this more or less states the  
17 same thing. Use of grid supply electricity in the  
18 near term for onroad vehicles is not likely, but  
19 there is substantial amount of grid electricity  
20 supply to offroad vehicles and equipment. And  
21 that growth is projected to be so much significant  
22 and result in substantial petroleum fuel  
23 displacements on the order of in fact even more  
24 than projected growth in natural gas fuel.

25 Now, ethanol -- I'm going to do

1 something else first -- moving on to ethanol,  
2 ethanol finds use in the transportation sector in  
3 California, both its low-level blends and high-  
4 level blends. Low-level blends are the current  
5 reformulated gasoline which contains 5.7 percent  
6 ethanol. Blends up to 10 percent ethanol can be  
7 used in virtually any vehicle in the LDV fleet.  
8 So these tend to be easily marketed in California;  
9 it's just that there are air quality issues  
10 associated with increasing the ethanol content of  
11 gasoline.

12           Currently even the 5.7 percent, E-5.7  
13 ethanol uses 900 million gallons of gasoline;  
14 million gallons of ethanol a year, which is a  
15 quite substantial amount of petroleum  
16 displacement, if you give it that way. But in  
17 low-level blends, ethanol is looked at more as an  
18 additive instead of an alternative fuel.

19           Then there are high-level blends, most  
20 importantly E-85 which is a true alternative fuel.  
21 This is 85 percent ethanol, 15 percent regular  
22 unleaded gasoline. Unfortunately you can only  
23 fuel a vehicle that is specifically designed to  
24 accept that fuel. And this is what's called a  
25 flexible fuel vehicle. Virtually no ethanol is

1 sold in California in high-level blends to FFVs in  
2 2005. There was only one station in the state  
3 that's publicly accessible, which is probably part  
4 of the reason.

5 The manufacturers have been making FFVs  
6 for some period of time. They make them because  
7 they get CAFE credit for an alternative fuel  
8 vehicle, which assumes in the CAFE calculations  
9 that E-85 is used some fraction of the time, even  
10 if they don't eventually use any E-85. There were  
11 21 OEM light duty vehicle FFV offerings in 2006.  
12 You know, the Big Three in the United States offer  
13 them; and then Mercedes-Benz had plans to offer  
14 them; have offered some previously; they're still  
15 on the road. And then one of the Nissan pickup  
16 trucks.

17 I didn't do this one. And this shows  
18 the same table. The figure in 2005 there were  
19 250,000 E-85 capable vehicles on the road. This  
20 is about a percent of the onroad vehicle  
21 population in California. As I said, 21 models  
22 offered; ten different engines. But there were  
23 only four E-85 stations in the state, and only one  
24 of those were public access. The other ones were  
25 government controlled, like Lawrence Livermore.

1 But on the other hand, the ethanol blend in  
2 gasoline has been quite substantial.

3 With respect to fueling infrastructure,  
4 the first question you might ask is, is there  
5 enough production to be able to have ethanol be a  
6 significant alternative fuel to displace  
7 petroleum.

8 In 2005 3.5 billion gallons were  
9 produced in the United States. And most of this  
10 was consumed by transportation fuel. There's 40  
11 million gallons of ethanol production capability  
12 in California. But as you recall, we're using 900  
13 million gallons per year of ethanol. So most of  
14 it has been imported.

15 The bioenergy plan, though, sees the  
16 potential for having 3 billion gallons a year of  
17 production capability in California from  
18 cellulosic sources. This doesn't say the state  
19 has it, it should say potentially has the  
20 capacity.

21 If you looked at how much ethanol you  
22 could consume by E-85 in the marketplace we know  
23 that we're currently consuming 900 million gallons  
24 of ethanol in E-5.7. If you had 250,000 FFVs in  
25 the state fueled on E-85 half the time, it would

1 consume another 200 million gallons of ethanol.

2 If the gasoline concentration of ethanol  
3 were allowed to increase to 10 percent, you'd find  
4 the ability to sell 700 more gallons of ethanol.  
5 So this is starting to be a significant dent in  
6 the petroleum demand. Net bottomline here is the  
7 production capacity exists to service the  
8 marketplace, and can meet the demand, they just  
9 don't have an infrastructure to distribute it,  
10 which is something I show in this next slide.

11 The current ethanol blend stock  
12 infrastructure is certainly adequate to disburse  
13 enough ethanol to make E-85 and E-10 in the state.  
14 It's largely tanker truck distribution and railcar  
15 and whatnot. Currently the pipelines are not used  
16 for ethanol transportation. They never will be,  
17 but the current tanker truck and railcar  
18 transportation distribution system seems to work  
19 quite well.

20 With respect to fueling stations, the  
21 equipment that's required for an E-85 station very  
22 similar to that of a gasoline station. But you  
23 would need to have ethanol or E-85 compatible  
24 vapor recovery system installed and tested. ARB  
25 currently doesn't certify a complete vapor

1 recovery system. They have suggested several  
2 components that would be ethanol -- E-85  
3 compatible. But they have certified no system.

4 We figured out that if you fueled the  
5 250,000 vehicles capable of using E-85 with E-85  
6 at 50 percent of the time, to handle that volume  
7 you'd need 275 stations. You know, you find this  
8 number, 275 to 300 floating around a lot of  
9 places. It's sort of the number of stations that  
10 you have for compressed natural gas. It's about  
11 the number of stations that exist for propane.  
12 It's what's projected to exist at level two or  
13 phase two of the hydrogen high program.

14 So this suggests that you could support  
15 250,000 vehicles in the state with about 275  
16 stations. Although these stations will be not  
17 utilized fully, and it's still not a drive right  
18 down and find one kind of infrastructure. A rule  
19 of thumb for new alternative fuel stations is you  
20 need at least 5 to 10 percent of the retail  
21 stations out there to be the alternative fuel  
22 station you're pushing.

23 Minnesota, where E-85's been a great  
24 success, has 6 percent of their stations offering  
25 E-85. Although even at this level the stations

1 are largely under utilized, more or less for price  
2 reasons, pricing reasons.

3 The business case for expanding an E-85  
4 dispenser population is not compelling. In the  
5 midwest you could probably make a business case  
6 for introducing E-85 into your fuel offerings of  
7 your station, because some of the ethanol  
8 producers view E-85 as sort of an outlet for their  
9 excess capacity. There will never be an excess  
10 capacity in California. There's only 40 million  
11 gallons a year capacity. It's not going to grow  
12 to 900 to over a million gallons of capacity in  
13 the near future.

14 And California, right now California  
15 produces ethanol at a gasoline price equivalent  
16 instead of the lower energy price equivalent that  
17 ethanol would command. So there's really no real  
18 incentive to expand capacity for the E-85 market.

19 The FFVs were produced for CAFE reasons,  
20 and so that's why they exist in the population.  
21 But OEMs may choose different CAFE compliance  
22 strategies in the future. Another would be to  
23 increase the petroleum displacement by allowing E-  
24 10 to be in the marketplace. But, again, I say  
25 this has emissions issues, largely due to

1 permeation of gasoline hydrocarbons.

2 Overall assessment is E-85 vehicles  
3 could see substantial growth, but they need to  
4 have a fueling station infrastructure established  
5 which requires someone to develop a good business  
6 model for having a station owner, you know, invest  
7 in an E-85 pump.

8 On the other plus side, OEMs are  
9 interested in marketing now E-85. You know, the  
10 GM go-green/go-yellow advertisement shows that GM  
11 is trying to increase people's awareness of E-85  
12 and increase the sales of E-85.

13 Also there are federal tax credit and  
14 renewable fuels requirements from EPAC that their  
15 effect has not been felt yet in the marketplace.  
16 And there will undoubtedly be other stimulants to  
17 E-85 use.

18 You could use more ethanol in higher  
19 level blends but those have air pollution related  
20 issues associated with them.

21 Next fuel we talked about, a grouping  
22 I've called alternative diesel fuels. Those that  
23 have some significant nonpetroleum component that  
24 could be used in an unmodified diesel engine. The  
25 ones that we're considering in this market

1 assessment are biodiesel and Fischer Tropsch  
2 diesel, which goes by several names; gas-to-  
3 liquids, coal-to-liquids, biomass-to-liquids. Any  
4 solid that you can turn into syngas you can also  
5 turn into a liquid fuel by the Fischer Tropsch  
6 process. Many ways to get Fischer Tropsch diesel;  
7 the most common one today is to liquify natural  
8 gas.

9 The global production capacity of diesel  
10 is well over a billion, almost 2 billion gallons a  
11 year. U.S. is slightly less than that.  
12 California has about 12 million gallons a year if  
13 capacity. Most of that capacity is not used very  
14 much, and so there's still room for producing much  
15 more biodiesel than is actually produced.

16 All the Fischer Tropsch diesels this  
17 shows is produced overseas for good reasons. They  
18 need a cheap supply of natural gas.

19 Biodiesel fuels can be used virtually in  
20 any conventional diesel engine. If you use B-5 in  
21 any engine vehicle; B-20 in almost any vehicle.  
22 Most manufacturers will honor their warranty is B-  
23 20 is used. ARB has a policy that allows  
24 biodiesel use as long as the biodiesel portion  
25 meets the ASTM requirement for biodiesel to be

1 blended in a gasoline, and the diesel fuel portion  
2 meets the carbon diesel specifications.

3 You can also operate on B-100 in newer  
4 engines, but if you do your warranty is probably  
5 voided. It turns out B-100 is not currently  
6 regulated by ARB, but may have specifications  
7 drafted for it, which eventually will have all  
8 blends of biodiesel up to B-100 regulated.

9 For all biodiesel fuels you get  
10 decreased particulate matter, CO and hydrocarbon  
11 emissions. And perhaps some increase in NOx  
12 emissions, although that's being studied a little  
13 bit more in depth.

14 Fischer Tropsch diesels can be used in  
15 any kind of conventional diesel fueled engine.  
16 It's considered a blend stock. And so there's  
17 Fischer Tropsch diesel use in California today,  
18 refiners just buy distillate Fischer Tropsch  
19 diesel from overseas markets and, you know, blend  
20 it into their diesel fuel within the state to  
21 allow perhaps lower quality diesels to bring them  
22 up to the quality that meets ARB specifications.

23 In fact, Fischer Tropsch diesel blends  
24 in Europe are considered a premium fuel. It's  
25 kind of like, you know, ethyl. Fischer Tropsch

1 diesel fuels also allows significant emission  
2 reduction potential, most notably in the  
3 particulate matter. The thing about Fischer  
4 Tropsch diesel fuels is they both compete for the  
5 same stranded natural gas resources, gas-to-liquid  
6 fuels. And so it's going to be a decision as to  
7 give a stranded gas resource -- how to best  
8 exploit it to liquify it or to turn it into GTL  
9 fuel.

10 With respect to fueling structure,  
11 diesel fuels have no infrastructure requirements.  
12 In California there are 30 stations that sell  
13 biodiesel and biodiesel blends, 25 of which are  
14 public access stations. And the price parity with  
15 respect to number 2 diesel depends on the relative  
16 commodity prices with respect to crude petroleum  
17 prices. And this little figure at the bottom here  
18 shows that soybean oil, which is one of the more  
19 common feedstocks for making biodiesel fuel, has  
20 recently dropped in price as petroleum has  
21 increased in price, which makes biodiesel blend  
22 into gasoline a better economic proposition.

23 Again, Fischer Tropsch diesels fit  
24 directly into the existing diesel fuel  
25 infrastructure. All of the FT diesel fuel

1 manufacturing plants, the gas-to-liquid plants,  
2 are overseas because these require very large  
3 volume of low cost natural gas. And that's  
4 something you don't find domestically, but you  
5 find in stranded fields overseas.

6 Barriers and opportunities. Both the  
7 biodiesel and Fischer Tropsch fuels are currently  
8 in the marketplace, so they don't face any  
9 barriers to entry. The expansion to displacing  
10 more petroleum is limited by the amount produced.  
11 And it's determined by market forces.

12 Several technical issues need to be  
13 addressed with respect to biodiesel fuel; but most  
14 of these are not show-stoppers.

15 The fuels are in the marketplace.  
16 Production capacity is expected to grow for  
17 Fischer Tropsch diesel to almost 4 billion gallons  
18 a year worldwide. The extent of the use in  
19 California's diesel fuel amount will be determined  
20 by relative worldwide petroleum versus Fischer  
21 Tropsch gas-to-liquid fuel.

22 Market prices. Biodiesel fuels are also  
23 already in the worldwide market. Production  
24 capacity will determine how much can be used to  
25 displace petroleum fuels.

1 California currently has a 12 million  
2 gallons a year production capacity. The United  
3 States 395(sic) gallons of biodiesel production  
4 capacity. This capacity will be grow. But the  
5 question is how much of that can be absorbed into  
6 the marketplace. And even if all of California's  
7 current production were absorbed in the  
8 marketplace, it would not represent that  
9 significant a fraction of current diesel fuel use  
10 in the state.

11 And lastly hydrogen. We were asked to  
12 take a look at a market assessment for hydrogen.  
13 Why? Hydrogen offers zero emissions and it offers  
14 minimum fuel cycle emissions. You have the  
15 opportunity to capture CO2 in the hydrogen fuel  
16 cycle, and from a concentrated CO2 stream, and  
17 thereby sequester it. And you can have the  
18 opportunity to produce hydrogen from renewable  
19 resources.

20 There were one OEM -- yeah, right -- 33  
21 stations. Right now hydrogen has displaced almost  
22 no gasoline gallons equivalent. It's the vehicle  
23 of the future.

24 Offerings of hydrogen vehicles have been  
25 limited to demonstration vehicles for government

1 programs. The Fuel Cell Partnership has placed  
2 136 fuel cell vehicles in various places in  
3 government fleets statewide. They've accumulated  
4 almost half a million vehicle miles. Although  
5 commercial vehicles are many years away. DOE  
6 doesn't seem to be able to do demonstration  
7 commercially available vehicles until 2015, even  
8 though the Honda fuel cell vehicle is currently  
9 certified in California.

10 Hydrogen -- IC, internal combustion  
11 engine vehicles are also sold. There's 30  
12 hydrogen hybrid Prius conversions being operated  
13 in the South Coast. With respect to heavy duty  
14 vehicles, again the Z-bus rule that was mentioned  
15 by Barbara earlier, to comply with the Z-bus rule  
16 is currently nine deployed fuel cell buses in the  
17 state at Sunline Transit, AC Transit and Santa  
18 Clara County Transit Authority yard in their  
19 fleet.

20 As of June 2006 there were 22 stations  
21 in California that were designed to dispense  
22 hydrogen as a motor vehicle fuel. Lots more are  
23 planned. The sort of hydrogen production to  
24 distribution to marketplace process used for each  
25 of these hydrogen fueling stations to provide them

1 with the fuel, is sort of a mish-mash of a number  
2 of different ways to get it there. None of them  
3 seems to be the clear winner.

4 It says 34 stations on the left. Those  
5 include the 22 existing, and an additional 12 that  
6 are planned or are in construction. Of these  
7 stations they're located where you expect them, in  
8 population centers in the South Coast, in the Bay  
9 Area and in Sacramento.

10 The hydrogen vehicle long-term success  
11 is going to require meeting many many technical  
12 challenges both in respect to vehicles and the  
13 fuel infrastructure. One of these sort of listed  
14 here, storing and delivering hydrogen is very  
15 costly currently. And these costs need to be  
16 substantially reduced.

17 Right now it's quite expensive to build  
18 a hydrogen fueling station. It's a high capital  
19 cost investment that ends up being under-utilized  
20 during the early deployment stages of the  
21 vehicles. And so you're got, you run the risk of  
22 having a fairly significant fueling station  
23 infrastructure established, but hardly any  
24 vehicles using it.

25 Vehicles still need to achieve

1 performance, durability and cost comparability to  
2 conventional vehicles before the public will be  
3 entertaining buying some. In order to do this  
4 there needs to be some break-through in hydrogen  
5 storage methods that will allow storing 5  
6 kilograms of hydrogen onboard which gives the  
7 vehicle a decent range that is more in line with  
8 what the public expects for their vehicle.

9 And a lot of codes, standards and  
10 permitting issues required with putting hydrogen  
11 in an urban area at a fuel dispensing station that  
12 need to be sort of thought through and worked out.

13 So, hydrogen clearly has been looked  
14 by -- the hydrogen highway was clearly looked at  
15 by a number of agencies, as the fuel that's going  
16 to provide most of the transportation fuel needs  
17 in the future, with no vehicle emissions and low  
18 fuel cycle emissions.

19 The direct hydrogen fuel cell will  
20 likely replace the gasoline and diesel internal  
21 combustion engine, but the timeframe's uncertain.  
22 Certainly long term, and I think beyond 2030.

23 That's all I had prepared.

24 VICE CHAIRMAN BOYD: Larry, let me ask  
25 you one question. In your biodiesel fuels area,

1 on B-20 you said most manufacturers honor  
2 warranties. This is the first time I've heard  
3 that statement. And I want to make sure I'm  
4 correct, because I go around the country, if not  
5 the world lately, saying manufacturers will only  
6 warrant at the B-5 level. And that's what our  
7 IEPR says. The only B-20 exception I'm aware of  
8 is the military use and the use of military spec  
9 B-20.

10 But it would be great if some  
11 manufacturers in the audience would say they are  
12 warranting up to B-20, because I can change my  
13 speeches everywhere.

14 MR. WATERLAND: I definitely need to  
15 check the reference for that. That's what I was  
16 told by some reference source. I need to check  
17 that.

18 VICE CHAIRMAN BOYD: Mike Scheible, does  
19 ARB have any different view?

20 DEPUTY EXECUTIVE OFFICER SCHEIBLE: I  
21 don't have any specifics. Dean, do you know?

22 VICE CHAIRMAN BOYD: We know Dean knows;  
23 just got to get him up here.

24 MR. SIMEROTH: There's only been OEM  
25 that's indicated they would warranty up to B-20.

1 The others have very nebulous statements about  
2 what happens between B-5 and B-20.

3 VICE CHAIRMAN BOYD: But the warranties  
4 they put in the glove compartment of most people's  
5 vehicles says B-5, does it not?

6 MR. SIMEROTH: B-5 is what's universally  
7 there.

8 VICE CHAIRMAN BOYD: It's only Daimler  
9 Chrysler and those military trucks that I'm aware  
10 of.

11 MR. SIMEROTH: Military tends to self  
12 warranty, so --

13 (Laughter.)

14 VICE CHAIRMAN BOYD: With varying  
15 success.

16 MR. SIMEROTH: That's correct. But  
17 there's, I believe, one that's indicated that they  
18 will warranty up to B-20, and I'd have to check to  
19 make sure I say the correct one. But even there I  
20 don't think they've actually put it in writing.  
21 It's been more of a statement.

22 VICE CHAIRMAN BOYD: Thanks.

23 MR. WATERLAND: I stand corrected.  
24 Again, I'll find out why I had that statement  
25 there. There's some reason it was there.

1                   VICE CHAIRMAN BOYD: Optimistic thinking  
2           like us, perhaps. Any questions for Larry? And,  
3           Larry, I want to make one observation maybe ahead  
4           of questions you're liable to get, and that is I  
5           read this as kind of a market analysis predicated  
6           on more or less business as usual, which is  
7           probably reasonably, if not perfectly, accurate  
8           about a business-as-usual approach.

9                   The dilemma that the ARB and we have is  
10          we have lots of policy guidance to us and a  
11          command to come up with a -- a) we have a command  
12          to come up with a plan; b) we have lots of other  
13          policy guidance which was summarized by both  
14          Lorraine and Barbara that we have to deal with in  
15          this state, which says we're going to move off of  
16          business as usual, here are your deadlines.

17                  And so the thing we're going to have to  
18          wrestle with, I guess, is what's the future market  
19          potential. I mean if you make the assumption that  
20          we have to move away from business as usual, where  
21          are the golden opportunities, or where are the  
22          best opportunities technologically and otherwise.

23                  And I see us having to struggle with  
24          that as we put this report together. And we kind  
25          of need, therefore we're going to have to figure

1 out how to get, the best crystal ball view of what  
2 the future potential might be, given certain  
3 actions taken by the public and private sectors.

4 So, again, this is just kind of an  
5 observation; it's not necessarily a question to  
6 you unless you have your crystal ball in your  
7 pocket there and put it out --

8 MR. WATERLAND: No, I do not. Your  
9 assessment is correct. We were only asked to  
10 think about business-as-usual things in this  
11 market assessment.

12 But to also document, you know, how much  
13 capacity did exist for growth. How much ethanol  
14 capacity is there out there? How much can you get  
15 into the marketplace? How much natural gas, and  
16 could you move into the marketplace? How much  
17 biodiesel, you know. Sort of give the handle on  
18 what's the production capacity of the feedstocks  
19 we know that you could use and accelerate to get  
20 into the marketplace.

21 The other thing I want to emphasize is  
22 this is a working document. I think it was  
23 brought up earlier, this is not the be-all and  
24 end-all. It can be taken apart by any number of  
25 industry stakeholder representatives on what I've

1 said here.

2 What we would like to get is your  
3 comments back on it so that we can make this  
4 document a better document and a better reflection  
5 of what the marketplace really is.

6 VICE CHAIRMAN BOYD: Okay, questions  
7 from members of the audience? And I know there's  
8 two people on the phone who have questions, but  
9 I'll defer to those in the room first.

10 MS. WHITE: Commissioner, I do have a  
11 blue card from Dave Modisette. Did you want to  
12 talk now? Okay. He does have some information he  
13 wants to convey. But any just general questions?

14 If you could come up to the mike, sir,  
15 and introduce yourself for the record.

16 MR. SMITH: Hi, I'm Dave Smith from BP.  
17 Some observations. When you were making the  
18 projections of different things one of the things  
19 I noticed was that the issues of fuel quality and  
20 performance wasn't necessarily focused on.

21 I think from a fuels manufacturer, we'd  
22 be particularly interested in moving forward with  
23 alternative fuels. Although we're supportive of  
24 diversification, we'd like to make sure that the  
25 fuels have clear standards for them to meet.

1       There are test methods that we can measure and  
2       make sure we're making the right fuel.  ASTM  
3       standards are set up.

4               We want to make sure the infrastructures  
5       are certified for use by the appropriate agencies,  
6       the UL standards.

7               I mean there's lots of things like this  
8       from a fuel producer that didn't get particularly  
9       too much attention in the report.  But I'm sure  
10      we'll get to it as we get into the smaller work  
11      groups and can talk about these individual  
12      specific things.

13              You know, like information of like  
14      having natural gas refueling at home.  Who's going  
15      to make sure that the gas that is being put into  
16      the vehicle meets the fuel quality standards that  
17      ARB has for natural gas?  Are you going to enforce  
18      that at the home?  Who's going to get the citation  
19      if it turns out that the natural gas doesn't meet  
20      it?

21              The testing methodology.  Some proposed  
22      standards for hydrogen are at levels that are  
23      below the detectability of the current test  
24      methods that we have right now.  How is somebody  
25      who's supposed to try to produce hydrogen fuel

1 going to make sure that the fuel is meeting the  
2 standards if the test methods aren't available?

3 So, I mean there's all these kinds of  
4 issues that have to be addressed for each and  
5 every one of these fuels. Not to say that we're  
6 against any of these, but if you want companies  
7 like mine, I think, to be involved in this in a  
8 big way, those are issues that we can't afford not  
9 to address. We have too much liability. We have  
10 too much resources to enter into some of these  
11 markets without those things being very well  
12 established. Thanks.

13 VICE CHAIRMAN BOYD: Thank you. There  
14 were other hands. Whoever beats to the podium  
15 is --

16 MR. LARSON: I'm Jim Larson with PG&E.  
17 And perhaps Mr. Smith can answer my question, but  
18 I see an inconsistency in the scoping summary of  
19 fuels, ethanol-based fuels. I see E-diesel listed  
20 on the introductory comments, but I didn't see it  
21 discussed.

22 And I'm not a chemist, but I have had  
23 this conversation with the petroleum chemists, and  
24 was told that E-diesel is basically a nonstarter.  
25 Adding ethanol to diesel fuel decreases its

1 flammability -- increases its normally stable  
2 flammability and evaporative emissions.

3 So I'm just trying to check and see if  
4 E-diesel is going to be part of the discussion or  
5 not. Or maybe one of the oil company folks can  
6 comment on that.

7 MR. WATERLAND: I'd like to address that  
8 a little bit. E-diesel was somewhat put into the  
9 scope of things to consider, I guess, by  
10 acknowledgement it was there. You're correct, and  
11 in fact that's why I didn't discuss E-diesel. It  
12 will never be anything more than a niche fleet  
13 fuel.

14 It's not so much a nonstarter, it's just  
15 you have to do some many safety-related things to  
16 be able to handle it, that it, you know, needs  
17 very special specifications and codes and  
18 standards.

19 It's not all that different than the  
20 things that had to be done when methanol fuel, you  
21 know, when methanol fuels like heavy diesel --  
22 heavy duty diesel fuel replacement were being  
23 discussed in the '80s and early '90s. There were  
24 a lot of precautions you have to take to get  
25 methanol, M-100 into a vehicle and use it. There

1 are a lot of precautions you have to take to get  
2 E-diesel into there. And for those very reasons  
3 it will never be more than a niche fuel for select  
4 vehicle fleets, think they can save a little bit  
5 of money by buying ethanol instead of diesel fuel.

6 So I wouldn't say it's a nonstarter, but  
7 it's a very slow starter and that's why I didn't  
8 talk about it. It's sort of a niche fuel.

9 VICE CHAIRMAN BOYD: Jane; and while  
10 Jane's coming to the podium, let me mention that  
11 Susan Fischer of Dr. Sawyer's Office has joined us  
12 at the table here. Welcome, Susan.

13 MS. TURNBULL: I'm Jane Turnbull from  
14 the League of Women Voters. To a large extent  
15 we've heard that the hydrogen highway has been  
16 propounded more by zealots than by skeptics. And  
17 we generally feel that it's preferable to take the  
18 position of the skeptic rather than the zealot.

19 And I feel that the concluding statement  
20 in terms of this overall assessment that hydrogen  
21 vehicles can provide most of all vehicle  
22 transportation needs with no vehicle emissions and  
23 minimized fuel cycle emissions as a statement by  
24 the zealots. And I would really like to have it  
25 addressed by the skeptics.

1                   VICE CHAIRMAN BOYD: Good point. I must  
2 confess in lots of talks I give these days I  
3 reference hydrogen as being on the other side of a  
4 very wide chasm that we're right now bridging with  
5 all these other technologies and fuels we're  
6 talking about here.

7                   And in my case, at least, those who  
8 follow me, when they get to the other side of that  
9 bridge, can look around and see if hydrogen's  
10 there or not.

11                   But I also serve on the Governor's  
12 Hydrogen Highway Team, and so I'm pledged to the  
13 subject. But it is a real future stretch goal,  
14 and I think we have to be balanced in what we say.  
15 Now I may be damned from going into the Cal-EPA  
16 building ever again for saying that, but I think  
17 not.

18                   Yes.

19                   MS. MONAHAN: Good morning; my name is  
20 Patricia Monahan; I'm with the Union of Concerned  
21 Scientists. And my timing, I guess, is impeccable  
22 because I'm going to be saying some of the  
23 opposite.

24                   In that I did find it somewhat  
25 distressing that this was a business-as-usual

1 case, instead of being more proactive. And  
2 specifically, I mean TIAX did a wonderful study  
3 that evaluated the 20 ton cost for natural gas  
4 versus diesel and found that in a fully mature  
5 market that the cost difference could be  
6 inconsequential.

7 And while it was referenced in the  
8 report, it was sort of hidden. And instead I  
9 think the focus was really on barriers to  
10 implementation; why we're going to have a limited  
11 amount of alternative fuels versus a more  
12 visionary approach of how we could actually get  
13 these fuels in the market and what we need to do  
14 to overcome these barriers and what the actual  
15 potential is in the long term for these mature  
16 technologies to compete economically as well as to  
17 provide air quality benefits.

18 And a second comment was just on the air  
19 quality implications of low blend ethanol, which  
20 Dean has heard our concerns expressed repeatedly.  
21 But with low blend ethanol use I think we all tend  
22 to focus on highway vehicles and figuring out  
23 through fuels formulation how we can mitigate  
24 those air quality impacts.

25 What we don't know are the air quality

1 impacts on nonroad vehicles. And the air quality  
2 impacts from ARB's at least very preliminary  
3 analysis indicate that it could be greater from  
4 these nonroad vehicles.

5 So I would just urge there be a little  
6 more attention to the issue for nonroad vehicles  
7 in the air quality discussion around low blend  
8 ethanol. Thank you.

9 MS. WHITE: Commissioner, if I could  
10 address the first of her comments. Staff felt it  
11 really important to identify the existing market  
12 conditions and what we're likely to see in terms  
13 of business as usual if no actions are taken.

14 Partly because the transportation market  
15 is dominated by petroleum. And there have been  
16 past attempts to bring in alternative fuels into  
17 the marketplace with not much success.

18 So understanding what those barriers  
19 really are, and essentially whether it's  
20 government in terms of government actions, or  
21 markets in terms of any private actions. What  
22 we're really up against, to address any increased  
23 use by consumers, we felt we had to get a baseline  
24 understanding. And then bring in parties to say,  
25 okay, if we were to address barrier X or barrier

1 Y, what then could be the real potential.

2 So, once everybody agrees this is the  
3 baseline, this is where we're starting from, then  
4 we could come together and more meaningfully say  
5 this is a vision we really have to embrace. And  
6 these are the barriers that we will be most likely  
7 to succeed in overcoming to reach these  
8 potentials.

9 So this is just the very first step, and  
10 what we think is a very important step, so that we  
11 understand where we have to go from here. And get  
12 everybody on the same page.

13 MS. MONAHAN: I guess I'm not -- when I  
14 look through the list of activities that you have  
15 planned, I don't see that next -- that visionary  
16 how do we get from here to there. And perhaps  
17 recharacterizing this from a market assessment,  
18 which usually does have sort of a forward-looking  
19 market plan, to saying, well, this is where we are  
20 today.

21 MS. WHITE: Yeah, that's what we  
22 characterized as scenario work. And that's  
23 actually the four-month project, part of the plan.

24 MS. MONAHAN: Thank you.

25 MS. WHITE: Thank you, Patricia.

1           MR. EAVES: Good morning; I'm Mike Eaves  
2           from the California NGV Coalition. I realize that  
3           the assessment was a business-as-usual assessment.  
4           But there are a lot of things in the economics and  
5           the forecasts that were used all the way back to  
6           the 2076 report that don't add up to a business-  
7           as-usual case.

8           If you take a look at the AB-2076  
9           report, it listed some goals for natural gas  
10          vehicles in the 2025 timeframe. I just want to  
11          let you know that those goals were a little over  
12          110 million gallons of fuel displacement by 2025.

13          The end of 2005, looking at the utility  
14          records for through-put and the LNG through-put in  
15          the state, we achieved 100 million gallons  
16          displaced. So, if I look at the calendar 2006 we  
17          should be at achieving our 2025 year goals 19  
18          years early. And the question is that doesn't  
19          reflect a very good forecast of the market and  
20          benchmarking the current usage and where we might  
21          go as an alternative fuel.

22          Thank you.

23          MR. WATERLAND: Mike, if I could respond  
24          to that. We looked for data from the California  
25          Natural Gas Vehicle Coalition on use and we got

1 none. So we based our current usage numbers on  
2 what we could dig out of EIA.

3 MR. EAVES: I can appreciate that, but I  
4 was also contacted by another Energy Commission  
5 consultant at one of those numbers. I gave him  
6 the numbers; I also gave him the contacts from the  
7 gas utilities that also have those numbers; and  
8 gave him reference to the CPUC annual reports that  
9 have been done since 1996 that contain all that  
10 information.

11 So, that's the frustration is that we  
12 continue to move forward and not use the best  
13 available information. I started a process in  
14 late spring working with the Energy Commission to  
15 start a dialogue on some of these issues. And  
16 these are not market assessment issues; these go  
17 back to the fundamental basics of the economics  
18 and the forecasts that have been developed in  
19 2003, and essentially perpetuated forward without  
20 challenge.

21 And I think it's very interesting that  
22 after my first meeting in late May with the Energy  
23 Commission the feedback was that we really weren't  
24 going to subject the prior economic analysis,  
25 cost/benefit analysis, and forecasts to scrutiny.

1 That we were going to go forward with a market  
2 assessment and not challenge some of those basic  
3 fundamental issues in the previous analysis.

4 So, our industry is still there willing  
5 to partner with the Energy Commission to flesh out  
6 the details. But, I think that a projection for  
7 the Energy Commission that shows 110 million  
8 gallons displaced in 2025, when we achieved 100  
9 million gallons last year, I think that shows some  
10 errors in the process.

11 MR. WATERLAND: I need to have a  
12 reference for that 100 million gallons last year  
13 because EIA doesn't know about it. EIA says 53  
14 million gallons of gasoline equivalent.

15 MR. EAVES: We do have those numbers and  
16 it should be telling that EIA transportation group  
17 really has absolutely no idea what natural gas use  
18 in the United States is. They have commissioned  
19 the NGV America, the Clean Vehicle Education  
20 Foundation to do a scoping study to bring them up  
21 to speed on that. And I am on the task force for  
22 California to make sure that our numbers are  
23 documented.

24 But I have some slides later on that I  
25 can show you on the numbers. Thanks.

1                   MR. WATERLAND: Yes, I'd be more than  
2 happy to include numbers that I can reference.  
3 That's my only consideration was the only numbers  
4 I had that had a reference to the ones that are in  
5 there.

6                   MR. VAN BOGART: I had a few comments on  
7 a couple of the fuels you addressed. My name is  
8 Jon Van Bogart; I'm with Clean Fuel USA.

9                   Two of the fuel products that we have a  
10 vested interest in would be propane and also E-85.  
11 On the propane side, some of the developments that  
12 the industry has -- let me back up a little.

13                   A few years ago the Energy Commission  
14 and the Air Resources Board challenged the propane  
15 industry to come up with more vehicle platforms.  
16 And so we went to work as an industry, working  
17 with PERC, Propane Education and Research Council,  
18 and a lot of industry partners, and GM and Ford.

19                   And now we have what we call a tier 2  
20 OEM platform. And we work directly with the OEMs,  
21 and all the vehicles go through the same process  
22 that they would through gasoline or diesel, from  
23 the development stage all the way through to the  
24 assembly line. And these vehicles come delivered  
25 to the dealership running on propane. So that's a

1 significant step for our industry. We've got two  
2 platforms and two more in the pipeline on the  
3 propane side.

4 Here in the United States we have a  
5 significant amount of propane in this country.  
6 Propane, when it's produced around the world,  
7 comes to the United States because of our large  
8 storage capacity in the mid-continent. Ninety  
9 percent of what we produce in this country we use;  
10 so we have a great opportunity with a clean fuel  
11 here in the United States.

12 On the E-85 side, some of the numbers,  
13 and I think our industry would probably need to  
14 get you better numbers on the propane side and the  
15 E-85 side. There's more than 300,000 vehicles  
16 here in California with one million in production  
17 next year from all the OEM manufacturers.  
18 California will probably get about 10 percent of  
19 those vehicles. As fuel comes online, those  
20 numbers could increase.

21 On the equipment side for E-85 we've  
22 been working with ARB over the last year; and I  
23 have to compliment ARB, they are highly motivated  
24 and have jumped through a lot of hurdles to bring  
25 some of the market challenges for equipment on the

1 E-85 side to the marketplace.

2 And there is phase two vapor recovery  
3 systems available through OPW. We have found one  
4 component for an underground storage tank that is  
5 not compatible. The rest of the systems are  
6 compatible. And we're working with Veeder Root as  
7 we speak to get that single -- that's a little  
8 valve for leak detection.

9 And so those are some of the things that  
10 we're working on on the vehicle side and the  
11 equipment side for E-85.

12 Some of the challenges, fuel production.  
13 We've been -- Pacific Ethanol has been a leader  
14 with E-85. We've been talking with some of the  
15 other fuel producers here in California and they  
16 are committing gallons to E-85 for the California  
17 marketplace. So these are some encouraging  
18 things, as well. Thank you.

19 MR. WATERLAND: I appreciate any  
20 information you have to correct me. We want to  
21 get it right the first time.

22 MR. TONACHEL: Luke Tonachel with the  
23 Natural Resources Defense Council. Two quick  
24 comments. One, I agree with Patricia Monahan's  
25 comments with regard to we were also sort of not

1 clear on what the overall role of the market  
2 assessment was. And how we're going to, as  
3 Commissioner Boyd said, look into our crystal ball  
4 and get to the next step.

5 Because the market assessment does seem  
6 to have some, in certain areas, general statements  
7 that point to the future, one comment was already  
8 made about hydrogen. In ethanol scenarios they  
9 use a price, they've built a price scenario based  
10 on the spot price where E-85 stations and fueling  
11 them was not likely to be done on the spot price.

12 And then there's a general statement  
13 with regard to the significance of oil, potential  
14 oil displacement from electricity that are, you  
15 know, these things tend to make some of these  
16 fuels look like they don't have a potential. But,  
17 of course, there's no silver bullet, and we need  
18 to look at all these opportunities. So I look  
19 forward to that scenario analysis.

20 The other comment I had was with regard  
21 to some of the high carbon fuels that were being  
22 considered. So, both in one of Lorraine's slides  
23 where she mentioned as XTL, and also in the market  
24 assessment with regard to alternative diesel,  
25 coal-to-liquid and petcoke-to-liquid to produce,

1 through a Fischer Tropsch process, diesel fuel  
2 would cause us to essentially increase our carbon  
3 footprint.

4 And in the opening statements where we  
5 talk about what are the goals with AB-1007, well,  
6 there's a greenhouse gas emissions reduction goal  
7 and a petroleum use reduction goal. Both of those  
8 goals have really the same value.

9 And also in the policies that are  
10 driving alternative fuels. We talked about one,  
11 the alternative fuels incentive plan, which  
12 specifically left out those high carbon fuels; as  
13 well as the Governor's climate change executive  
14 order; and then finally, the passage of the Global  
15 Warming Solutions Act.

16 So, all of those would point to making  
17 sure that we consider fuels that are actually  
18 going to push us in the right direction from a  
19 climate change perspective. Thank you.

20 VICE CHAIRMAN BOYD: Thanks, Luke. I  
21 see in the back of the room, and my earlier note  
22 said you were on the phone, so --

23 (Laughter.)

24 VICE CHAIRMAN BOYD: So, do you still  
25 want to comment shortly? I'll let this lady --

1 you come next.

2 MS. WINTER: Julia Winter with Boshert  
3 Engineering and Phoenix Motor Cars. I just wanted  
4 to -- what a dismal assessment of the battery  
5 electric vehicles, especially full speed.

6 A few weeks ago at the ZEV symposium  
7 both Boshert Engineering and Phoenix Motor Cars  
8 unveiled a full-speed electric vehicle that will  
9 have the mileage range of over 115 miles per  
10 charge, a rapid charge of ten minutes. And will  
11 be comparable to the price of a gasoline SUV at  
12 \$45,000. It's going into production before the  
13 end of the year.

14 So, there will be comments with more  
15 viable numbers to let you know about the charging  
16 and where we're going with this. The first  
17 offering of 500 vehicles will be to fleets.

18 VICE CHAIRMAN BOYD: Thank you. Anna.  
19 Still writing your notes --

20 MS. HALPERN-LANDE: Well, I've been  
21 listening to all the great comments, so, of  
22 course, when you're driving it's not very safe to  
23 be writing notes at the same time. So, I didn't.

24 First I want to thank -- obviously  
25 there's been a fantastic turnout for this, and

1 many of the comments that have been taken onboard  
2 have been comments that I have agreed with and  
3 appreciated, and so I'd like to thank --

4 VICE CHAIRMAN BOYD: Would you tell  
5 everybody who you are for the record?

6 MS. HALPERN-LANDE: Sure. My name is  
7 Anna Halpern-Lande and I'm here today to represent  
8 environmental entrepreneurs. We were one of the  
9 groups that was one of the sponsors behind the  
10 Pavley Bill, AB-1007.

11 We spent a considerable amount of time  
12 and thought into crafting legislation. And I  
13 thought I would share a little bit of that  
14 perspective.

15 The other thing I just wanted to mention  
16 in the interests of full disclosure is that over  
17 the last three years I spent a considerable amount  
18 of time as a consultant working on next-generation  
19 biofuels and technologies. And also in the last  
20 year and a half I've founded, with another member  
21 of environmental entrepreneurs, a company that is  
22 doing biodiesel marketing and distribution, and  
23 will shortly have production facilities in  
24 California.

25 So, I'm wearing several different hats,

1 but I wanted first of all to let you know that.  
2 And second of all, to be able to comment based on  
3 that.

4 So, from the environmental  
5 entrepreneur's perspective, when we, you know,  
6 spent a lot of time working with legislators and  
7 trying to get the bill passed. And we were very  
8 delighted to be successful.

9 And I think one of the key things that  
10 we wanted to emphasize in all this is that we look  
11 at this as businesspeople, and wanted to bring the  
12 best of private and public -- private industry and  
13 public policy together.

14 And as part of that, Jim, you've heard  
15 this from me before, but I think our goal was to  
16 create a mechanism -- to use public policy to  
17 create a mechanism to create a market that does  
18 the right sorts of things.

19 So there's been lots of people here  
20 speaking from various groups, you know, the  
21 propane folks, the natural gas folks, the ethanol  
22 folks, and that's fantastic. And that's exactly  
23 what we had hoped for.

24 And I would urge you to work on a  
25 mechanism that enables all of those fuels to be

1       successful if they meet the right criteria. And  
2       from our perspective, the biggest issue is to meet  
3       the right criteria. And that we had suggested --  
4       we'd actually done some preliminary modeling based  
5       on the GREET model that came from Argon National  
6       Labs, of a market index that would look at the  
7       amount of petroleum that had been displaced, and  
8       the amount of greenhouse gases that were coming  
9       out of each fuel, and enable this, you know,  
10      enable the CEC and ARB, bringing the best of both  
11      agencies together, to then say here's a rating for  
12      each fuel.

13                So I know there's been some talk about  
14      hydrogen and its viability. Well, hydrogen that  
15      came from fossil fuels would score very low. But  
16      hydrogen that came from renewable sources would  
17      score very high.

18                And then it would be up to the market to  
19      say is it worth it to the market to bring forward  
20      this fuel based on the fact that it scores very  
21      high. So that you begin to have a market  
22      mechanism that enables fuels to compete on what  
23      becomes a much more level playing field.

24                And then it would be the mandate of this  
25      group to be able to say let's look across the

1 entire portfolio and see how the portfolio scores.  
2 And you would then be able to say, well, the  
3 portfolio, for example, is a 7 and we're going to  
4 move it up to a 9, or we're going to move it up to  
5 a 10. And based on how much you were able to move  
6 it up, that would then create a market incentive  
7 to change the fuel mix and get all of private  
8 industry geared to do that.

9 Now, there's lots of other incentives  
10 and stuff; and I know that you'll be looking at  
11 that, and I'm delighted to hear that.

12 I also wanted to just address a couple  
13 of other points. First of all, on the -- and  
14 these are both from reading the report and  
15 listening to the discussion thus far -- on the  
16 ethanol market I think the folks from PEI who  
17 spoke did a very good job of describing sort of  
18 their perspective on the market.

19 But I just want to add that although  
20 supplying all of California's needs from  
21 California agriculture today is not something we  
22 can do. We can certainly supply a significant  
23 portion of it, particularly from sugar cane, sweet  
24 sorghum and sugar beets. And I think that should  
25 be one of the things that we look at very closely

1 and how we can encourage that kind of industry in  
2 the Imperial Valley.

3 One of the groups that I've continuously  
4 seen missing at the table in these kinds of  
5 discussions are the agriculture folks and the  
6 farmers. And I think there's tremendous benefit  
7 that can be had to that industry, and from that  
8 industry, for the rest of us. And I think it's an  
9 opportunity to bring economic revitalization to  
10 rural areas, as well as cleaner air to those  
11 areas.

12 And so I would just urge the consultants  
13 who have done the market assessment thus far to  
14 look at that. And I would also reiterate the  
15 comments of the folks from the Union of Concerned  
16 Scientists who emphasized that this is a baseline.  
17 But I think there is missing from it the visionary  
18 aspects of first of all, what's missing in the  
19 industry. And I think part of that is the energy  
20 crops that has been a key driver in other states  
21 and other countries for the success of the  
22 renewable fuels industry.

23 And so when I read the report I got very  
24 much the sense that it's about challenges. And it  
25 didn't come across as challenges that we can

1 surmount, but more challenges as to why specific  
2 fuels just were very much handicapped.

3 And so I would urge them to change that  
4 to a gaps-sort of perspective, so that we can then  
5 look at it as how can we fill those gaps, or work  
6 on incentives that help the industries.

7 Then from the biodiesel perspective, --  
8 oh, one last comment on ethanol. There was a  
9 mention of the business case for E-85  
10 infrastructure, not necessarily being there. And  
11 I just would like to say that I've worked with,  
12 both as a E-2 person concerned about policy and  
13 getting the right kinds of infrastructure out  
14 there, and as a consultant with independent fuel  
15 retailers, who, because of the pricing structure  
16 of gasoline, they buy their fuel from the  
17 petroleum refineries, and they get the last  
18 choice. They sometimes buy it at higher prices  
19 than people who are franchisees.

20 The result is they can find themselves  
21 actually paying more than what they can sell it  
22 at. And they are very interested in selling E-85.  
23 They very much see -- we sat down and we did the  
24 business case. And I can tell you what the  
25 biggest barrier was. And I'm delighted to hear

1 the ARB is working on it, but the biggest barrier  
2 was they couldn't get the infrastructure.

3 So, and there was no certified  
4 equipment. And I still get phone calls going, you  
5 know, what's the status. Is the equipment ready.  
6 And I get phone calls from fleets saying, you  
7 know, on the one hand I have folks who have the  
8 distribution network, and I have folks who have  
9 the fleets, and they both want to put the fuels in  
10 the car, but they can't do it.

11 So I would just say that I think that  
12 there is a significant amount of appetite out  
13 there from the industry to do this kind of thing.  
14 And that, you know, the ARB should continue to do  
15 the good work and accelerate, if it can, around  
16 the infrastructure.

17 The other thing I just wanted to mention  
18 that hasn't been discussed at all is when we look  
19 at the low blends of ethanol and talk about  
20 evaporative emissions, the one thing that hasn't  
21 been mentioned is RFG-4. And the fact that one of  
22 the things being -- I would love to see studied  
23 and that E-3 would love to see studied, is whether  
24 or not it makes sense to change that formulation  
25 of the gasoline so that there could be a higher

1 low-blend. And whether or not evaporative  
2 emissions can be dealt with or looked at that way.

3 I think in talking about this I often --  
4 I rarely hear people think about the formulation  
5 of the gasoline. And I often talk about it as if  
6 that was just a set standard. And I'd love to  
7 have that looked at.

8 On the biodiesel side, you know, in the  
9 report there was a lot of discussions of pricing  
10 and incentives, the potential production and  
11 distribution, and what some of the technical  
12 issues were there.

13 And I just -- I mean I'm happy to submit  
14 these comments as written comments into the  
15 report, but from an industry perspective, first of  
16 all, there are, again, not that much in terms of  
17 energy crops. But we do have a lot of animal fat.  
18 We have a very vibrant dairy industry, cattle  
19 industry. And consequently lots of animal fats  
20 that we could be turning into biodiesel.

21 There's also, because we have lots of  
22 cities, lots of used restaurant grease and yellow  
23 grease. And I think that gives us a significant  
24 potential for production.

25 On the pricing, over the summer the

1 prices of biodiesel were cheaper than prices of --  
2 than diesel at the rack. Now, distribution was  
3 also mentioned. Because we don't have instate  
4 production, biodiesel tended to go through several  
5 brokers' hands as it came from other places, like  
6 from Texas or from Colorado or from the midwest to  
7 us.

8                   And consequently when it retailed, it  
9 retailed, especially like a B-99 would retail  
10 higher than a diesel would. There was still  
11 within the B-99 community significant appetite for  
12 that. But, I think it shows that as soon as we  
13 have instate production that situation will  
14 change. And I'm working to change that.

15                   Finally, I just want to say a word about  
16 the distribution, and I'm sure that there are  
17 people here who are closer to this than I am who  
18 can comment on it. But my understanding is that  
19 as we look at the distribution that continues to  
20 improve on a daily basis. And that Chevron and  
21 Kinder Morgan have been testing biodiesel in the  
22 pipeline. Those tests have been very positive.  
23 And we hope that we will see biodiesel in the  
24 pipeline and solve a lot of those distribution  
25 problems.

1                   In conversations I've had I've heard  
2                   there will shortly be biodiesel at the rack down  
3                   in L.A. I just recently had a conversation last  
4                   week with two people who own distribution in the  
5                   Bay Area. They're very eager to get it into a  
6                   card-lock system where there'll be public access.  
7                   And, you know, as soon as they can find a way to  
8                   justify the cost, the blenders, there will be not  
9                   just a B-20, but a B-5, a B-20 and a B-99 blend  
10                  available at those sites.

11                  So, I think there is considerable  
12                  appetite, especially among the retailers, for this  
13                  kind of a thing.

14                  One last thing, as Mr. Tonachel said,  
15                  I'd like to reiterate his comments that we really  
16                  want to see these fuels, coming back to my first  
17                  comment about some kind of index that looked at,  
18                  and I know the lifecycle assessment is still the  
19                  common, maybe these comments are a little  
20                  premature. But some kind of index, some kind of  
21                  market mechanism that enables fuels to be weighted  
22                  and fuels that do better get more credit.

23                  And maybe that then ties to incentives  
24                  like excise tax scaling or something like that.  
25                  So that more excise tax would go to fuels that

1 performed poorly on the index. And excise tax for  
2 fuels that performed well would be less. And  
3 consequently, there would be no net revenue change  
4 in taxes, but there would be a mechanism to show  
5 consumers at the pump that there's a value to  
6 this.

7 This concludes my comments. I'd just  
8 like to thank, again, everyone who's participated  
9 in this process. We're delighted to see so much  
10 engagement. And I thank you all.

11 VICE CHAIRMAN BOYD: Thank you, Anna. Is  
12 Coleman Jones on the phone? Would Coleman Jones  
13 like to -- we have other people here who want to  
14 testify, but I'm finally beginning to feel some  
15 sympathy --

16 UNIDENTIFIED SPEAKER: Go ahead and let  
17 them go.

18 VICE CHAIRMAN BOYD: You're sure? Okay.

19 MS. SEXTON: I'm good at crashing  
20 parties. My name's Chelsea Sexton; I'm here from  
21 PlugIn America. We're an advocacy group for  
22 electric drive, plug-in hybrids electric vehicles,  
23 and to a certain extent porta-electrification and  
24 all the other sort of electric drive technologies.

25 I also personally come from the

1 perspective of having worked on one of the major  
2 OEM electric car programs; in my case, GM.

3 So, from the perspective of marketing  
4 electric drive to the masses, I have, indeed, been  
5 there and done that.

6 I think --

7 VICE CHAIRMAN BOYD: You're a movie  
8 star, Chelsea --

9 MS. SEXTON: As are you, my dear.

10 (Laughter.)

11 MS. SEXTON: But, yes, I'm fully aware  
12 that you know more about me than I do about all of  
13 you put together.

14 I think we've established, I guess, that  
15 this is not the future market assessment that many  
16 of us thought it was. I think that's probably  
17 encouraging for electric vehicles.

18 At the same time, the fact that this is  
19 premised on the past is a little bit concerning to  
20 me, particularly given the bloody history of  
21 electric vehicles in this state.

22 I don't think in our case it can even be  
23 quantified as a business-as-usual perspective  
24 because we've never had a business-as-usual case  
25 for electric cars. Through the sort of life of

1 the mandate there are about 5600 electric vehicles  
2 produced by the six OEMs. About 4400 of them came  
3 to market in California. And yet at no time did  
4 we have enough to meet demand. So we really never  
5 met a scenario where we have seen the true market  
6 potential of electric vehicles then or now.

7 I notice that the assessment is premised  
8 mostly on the 500 to 1000, closer to 1000 electric  
9 vehicles that are left. I guess we should be  
10 happy, given that most of those are around because  
11 we did so much protesting last year and such  
12 rebellious behavior. But I don't think it's a  
13 fair indication of what the potential was or is  
14 going forward.

15 A side note on the charging systems,  
16 most of them are left absolutely. They are being  
17 used by the cars that are out there. But more  
18 importantly, they've being maintained, retrofitted  
19 and even expanded completely on a voluntary basis  
20 by the Electric Auto Association. Which shows a  
21 commitment and passion toward this technology is  
22 unique. And while hard to quantify, can't be  
23 overlooked.

24 The market limitations, as I see them,  
25 are a little bit falsely premised. It kind of

1 looks like my former employer wrote that section  
2 of the assessment. But that --

3 (Laughter.)

4 MS. SEXTON: -- battery life and  
5 declining range was noted as the biggest barriers  
6 to the market in this area. I'd probably argue  
7 that a lack of vehicles was the biggest barrier.  
8 But, as we presented to CARB a couple weeks ago,  
9 and I know was submitted, as well, we did a study  
10 of 137 current Rav4 EVs that are out there. That  
11 is the primary car that's left by consumers. And  
12 we have seen virtually no degradation of the  
13 batteries; even in cars that have well over  
14 100,000 miles.

15 And really what's clear is we never knew  
16 just how much that would or would not be a  
17 limitation because most of the cars weren't  
18 allowed to be on the road. And were, indeed, not  
19 only take back, but crushed. So we know that the  
20 cars that are left are performing better than  
21 everybody, including Toyota and the manufacturers  
22 expected them to be. But what's clear is that  
23 these limitations haven't served to be such  
24 limitations for the fleets and the individuals  
25 that are driving them.

1           It also states that batteries are not  
2           able to provide range people want. We've debated,  
3           you know, how much range does someone really need.  
4           But even if you're looking comparable to a gas car  
5           of 200 to 300 miles, Tesla unveiled a car in July  
6           that will do 250 miles on a charge. I think it's  
7           clear that batteries are capable of providing the  
8           range that people want.

9           I also noted that the assessment says  
10          that there is -- no battery technology will  
11          achieve the range people want in the foreseeable  
12          future. I think we're already there.

13          But as the technologies that were  
14          presented at CARB will note, it's getting better  
15          and better.

16          The assessment does ignore, other than  
17          the gratuitous mention, small OEMs, you know, the  
18          Teslas, the Phoenixes, those companies, several of  
19          which are California-based. And while they are  
20          niche markets, to be sure, I think that there's  
21          something to be drawn from them toward the future.

22          One being that if a company like Tesla,  
23          for example, can launch a car that it's \$100,000;  
24          it has a razor-thin slice of market; two-seat  
25          convertible sportscar; all money upfront, you

1 won't see it till next year. And they can sell  
2 out in three weeks, really what could the OEMs do  
3 with their resources and their economies of scale.  
4 I mean I don't think it's fair to draw the  
5 conclusion there's no market, when there's clearly  
6 a market for these companies, even on a smaller  
7 scale.

8 In terms of plug-in hybrids, I think  
9 that it does correctly note that the majority of  
10 electric drive future resides with plug-in  
11 hybrids. However, it completely ignores the OEMs  
12 that have announced product. There are three that  
13 have already announced they will be showing, in  
14 GM's case, will be showing a car at the next  
15 autoshow and will have -- can have it in  
16 production within a year. I think that's more our  
17 decision than theirs. Nissan has announced for  
18 2010. And Toyota has announced a plug-in Prius  
19 for 2009.

20 In terms of looking forward, I think  
21 that has as much credibility as anyone who is or  
22 is not making a car today.

23 At the same time, the fact that people  
24 want these things so badly they are converting  
25 them in their garages, is also an indication of

1 demand.

2           So rather than just see it as a very  
3 tiny amount of market, see it as people that want  
4 these so badly they're not willing to wait.  
5 Indeed, electricity drive is the only technology  
6 we're discussing today that has a very real pent-  
7 up demand. Waiting lists all over the place for  
8 these cars that no one is making. And we should  
9 probably ask ourselves why.

10           And finally, I think we need to remember  
11 that electric drive isn't mutually exclusive. And  
12 it's been evaluated as a singular fuel, but it's  
13 the only one that can and probably will be  
14 integrated with many of the other ones we've  
15 discussed today. Not only we'll see plug-in  
16 hybrids, we'll see plug-in flex fueled hybrids.  
17 It can be integrated even with hydrogen, natural  
18 gas and other fuels.

19           So, plug-in hybrids, in general, have  
20 such a political and technological common ground  
21 in that they can use any of the fuels we're  
22 discussing today, that they kind of almost deserve  
23 some special consideration, or at least assessment  
24 based on that fact.

25           At the same time they're not contingent

1 on the other fuels. We could market plug-in  
2 hybrids with petroleum as the liquid fuel today,  
3 and integrate the other ones as they become more  
4 viable. So, it's both not mutually exclusive, but  
5 also not contingent on anything else.

6 And then lastly, I think that we've seen  
7 a little bit of a philosophical policy shift the  
8 last ten years; and being part of that bloody  
9 history, I do understand why. But I'm hearing  
10 things from the agencies sort of like, well, we're  
11 asking the automakers what they can build, and  
12 then we're basing policy upon that.

13 And I find that concerning, given that  
14 none of the industry is going to embrace the  
15 regulatory agencies. They're going to low-ball  
16 you a little bit, and that's okay. But I think we  
17 have to take their feedback with a grain of salt.  
18 And note what we have seen in the past, and all  
19 the indications that are driving toward what  
20 technologies will truly be viable in the future.

21 Thanks.

22 VICE CHAIRMAN BOYD: Anyone else in the  
23 room? Well, Mr. Jones, I think it's you.

24 MR. JONES: I would prefer not to  
25 testify; I'm just listening.

1                   VICE CHAIRMAN BOYD: Oh, well, we were  
2 given a note that indicated you wanted to testify.

3                   MR. JONES: No, that's incorrect. I'm  
4 just listening.

5                   VICE CHAIRMAN BOYD: Fine.

6                   MR. GELLER: If I could quickly; my name  
7 is Marc Geller; I'm with PlugIn America. And I  
8 just want to, after listening to all of the  
9 daunting problems that are facing us as we attempt  
10 to roll out various alternative fuels, I just want  
11 to put this in the context of sort of the real  
12 world of where we've been.

13                   I drove here today from San Francisco,  
14 88 miles, in a Rav4 EV. I didn't stop. I used  
15 electricity. It's charging now two blocks from  
16 here. When this hearing is over I will take it  
17 and I will drive home.

18                   It is where we want to be in terms of  
19 zero emission driving, and the potential for  
20 renewable fuels doing that. And I think we really  
21 should not ignore the fact that the infrastructure  
22 here exists, and that that serves to move us along  
23 rapidly or quicker.

24                   Thank you.

25                   VICE CHAIRMAN BOYD: Thank you.

1 MS. WHITE: Commissioners.

2 VICE CHAIRMAN BOYD: Yes.

3 MS. WHITE: Dave Modisette has some  
4 prepared materials that might be useful at this  
5 time to present about electric vehicles, plug-ins,  
6 if you wanted to --

7 VICE CHAIRMAN BOYD: Okay, --

8 MS. WHITE: -- take the opportunity to  
9 share that information with you before lunch. And  
10 he's promised me he'll keep it under ten minutes.

11 VICE CHAIRMAN BOYD: Dave's got his  
12 batteries charged now and --

13 MS. WHITE: He's got his battery  
14 charged.

15 (Laughter.)

16 MS. WHITE: And just along that note,  
17 that are several who have contacted us last week  
18 for later in the day indicating they wanted to  
19 present some information. So, we'll have that  
20 later this afternoon. But, here's Dave.

21 MR. MODISETTE: Thank you,  
22 Commissioners, Dave Modisette with the California  
23 Electric Transportation Coalition. And I guess I  
24 need to apologize to the Commissioners and staff  
25 for even making a presentation today. I think

1       that, you know, if there had been a peer-review  
2       process for some of these documents, or even more,  
3       you know, time to evaluate them, we could have  
4       worked out some of these things with the staff,  
5       and wouldn't have to be appearing today.

6                So I'm going to comment on the market  
7       assessment by TIAX; just kind of summarizing what  
8       I think are the major flaws in the document.

9                First of all, it ignores or virtually  
10      ignores major major electric transportation  
11      markets, both existing and future markets. It's  
12      almost exclusively focused on the present. And a  
13      true market assessment, as several people have  
14      said, has to evaluate the future market drivers,  
15      trends and opportunities.

16               What you really have here today, at  
17      least in the electricity section, is a tally of  
18      existing vehicles and the fuels that they use.  
19      And you certainly need that as a basis for your  
20      work, but that, by itself, does not constitute a  
21      market assessment.

22               It jumps to a conclusion which is  
23      factually inaccurate and not supported. I'm going  
24      to talk about that in just a minute. And I think,  
25      you know, maybe more significantly, the conclusion

1 really points to what I think might be a major  
2 policy flaw in the direction of the AB-1007  
3 analysis for all fuels.

4 So let me just read the conclusion out  
5 of the staff report; it appears in the end of the  
6 electricity section, the last sentence on page  
7 412. It says: In summary, grid-supplied  
8 electricity does not currently, and is not  
9 forecast, for significant petroleum transportation  
10 fuel use in California."

11 I've actually given you my conclusion  
12 side here just so you can kind of know, you know,  
13 where I'm heading. I actually think the correct  
14 conclusion would be that electric drive  
15 technologies are a viable component of a portfolio  
16 to reduce emissions and petroleum use. Today's  
17 electric technologies compete very well in markets  
18 such as lift-trucks, where they have a marketshare  
19 of 60 percent. Burden and personnel carriers, tow  
20 tractors and turf trucks with a market share of 40  
21 percent. Sweepers, scrubbers and burnishers with  
22 a marketshare of well over 80 percent. And lawn  
23 and garden equipment with a marketshare of 38  
24 percent.

25 Maybe more importantly, electric

1 transportation growth markets can have a  
2 significant impact on reducing emissions and  
3 petroleum use. And those are truckstop  
4 electrification; port electrification; electric  
5 standby and shipping container truck refrigeration  
6 units; and light duty plug-in hybrids.

7 The data source for the data that I'm  
8 going to present today is another TIAX report, one  
9 that was done last year called, electric  
10 transportation and goods movement technologies in  
11 California. It's actually a pretty good market  
12 assessment. We've been, you know, working on this  
13 with TIAX for more than three years.

14 The report contains an assessment both  
15 of the expected, or so-called business-as-usual  
16 forecast. And the achievable market penetration  
17 for 17 separate electric technologies. Uses a  
18 2002 baseline year, and then provides forecasted  
19 levels for 2010, 2015 and 2020.

20 And then based on that it calculates  
21 emissions impacts, petroleum impacts, et cetera,  
22 et cetera.

23 This has been docketed; it's been  
24 provided to staff. It was actually presented to  
25 the Energy Commission as part of the 2005 IEPR.

1 It's been presented to the ARB and also to the  
2 Climate Action Team.

3 So this first category is nonroad  
4 electric vehicles. There's about 300,000 of these  
5 in California today. Let me just kind of stop  
6 here and say that I just can't understand why the  
7 focus of the current assessment you have in front  
8 of you looks at a category of electric  
9 transportation that has between 500 and 1000  
10 vehicles, but yet it almost completely ignores a  
11 category that has 300,000 vehicles today. It just  
12 doesn't make any sense.

13 We've already talked about what these  
14 are. Maybe more importantly, in terms of future  
15 markets, electrics are a compliance option, in  
16 adopted ARB fleet rules which are going to take  
17 effect beginning in 2009; there's also financial  
18 incentives which covers the full incremental cost  
19 of the electrics through the Moyer program and  
20 Moyer's funded for the next ten years. So the  
21 trend is definitely for increasing marketshare in  
22 this area.

23 Truck idling reduction. I won't go into  
24 the technology very much here. But there's  
25 significant opportunity here for idling reduction.

1 There's actually between 2000 and 3000 electrified  
2 spaces in California today. And, again, this is a  
3 compliance option, ARB regulations, there's  
4 financial incentives for these things. So, again,  
5 there's a trend here for very significant  
6 marketshare.

7 Port electrification. Obviously this is  
8 a big problem in our ports complex. Just one ship  
9 produces four tons of pollutants at the dock.  
10 Sixteen ships produces pollution of more than a  
11 million cars. So this is a very serious area that  
12 ARB is looking at closely.

13 In fact, the ARB-adopted goal of this  
14 area, which is in their goods movement plan, is  
15 for 80 percent of future ship visits to be  
16 electrified. And yet for some reason that doesn't  
17 appear in the market analysis you have here.

18 And ARB is well on their way to actually  
19 achieving this, either through regulations of  
20 their own regulatory authority, or the ports,  
21 themselves, implementing this kind of a strategy.

22 Electric standby truck and container  
23 refrigeration units, again it's between 4000 and  
24 7000 of these in California today. Although  
25 there's infrastructure at only about half of the

1 locations that there should be. Potential for  
2 about 31,000 diesel TRUs to be switched over to  
3 electrics. Electric is, again, a compliance  
4 option in ARB fleet rules in this area. Financial  
5 incentives are also available in this area through  
6 Moyer.

7 So, you know, given all this activity, I  
8 took a look at the conclusion again, you know,  
9 that electricity's not forecast to reduce  
10 significant petroleum transportation use in  
11 California. And I thought, well, gosh, maybe the  
12 conclusion hinges on this definition of  
13 significant. Maybe they're saying that, you know,  
14 that yeah, there are these things out there, but  
15 it's just not significant in terms of petroleum  
16 reduction.

17 So, I wanted to take a look at this,  
18 maybe quantify this a little for you. So what I  
19 did here was I took figures out of the TIAX report  
20 that was done for us over the last three years.  
21 And I'm showing here the expected displacement of  
22 gasoline in these nonroad areas.

23 And I specifically left out the onroad  
24 areas because staff says these are uncertain, you  
25 know; we don't know what's going to happen in this

1 area.

2 So I said, well, let's just look at the  
3 nonroad areas. So this is the year 2020; it's the  
4 expected or business-in-usual case. It's not the  
5 achievable case. This is what is forecasted to  
6 occur whether we do nothing more with government  
7 regulation or not.

8 And you can see the gallon displacement  
9 is between 140 million gallons a year and 234  
10 million gallons a year. So the question then is,  
11 is that significant, 140 to 234 million gallons a  
12 year. And it's actually a laughable question. Of  
13 course it's significant.

14 I just kind of, you know, scanned  
15 through the rest of the document looking at the  
16 other fuels, trying to find out what kind of  
17 gallonage displacement was forecasted for them.  
18 You can see CNG 120 million gallons a year; LPG 19  
19 million; E-85 200 million and 50 percent of all  
20 the flexible fuel vehicles that are on the road  
21 today were to be using that fuel. B-100, I just  
22 have the production capacity here, 11.6 million  
23 gallons.

24 And then just over the weekend, you  
25 know, I saw a newsletter from the Bay Area Rapid

1 Transit District, which by the way, electric rail  
2 is not included in your study whatsoever, and they  
3 were trumpeting the fact that they had displaced  
4 73 million gallons a year. I guess we're going to  
5 have to call them up and tell them, you know, that  
6 that is not significant.

7 And so the policy question that I want  
8 to put to you today is if those levels are not  
9 significant, then where are we in this analysis.  
10 And I guess my fear is that we're headed into  
11 again another silver bullet approach, looking for  
12 two or three major things that we can do in order  
13 to reach our petroleum displacement targets.

14 But I think we've been down that road  
15 before. And that's a mistake. That's a major  
16 mistake. I think we should learn from our  
17 experience in other areas, particularly in air  
18 quality reduction, where we're getting small  
19 reductions from many many sources.

20 In air quality we're getting reductions  
21 from literally thousands of sources in the state  
22 implementation plan. And it's actually working  
23 very well.

24 So I think we need a portfolio approach  
25 in this area, just as we've adopted in other

1 areas, greenhouse gas, air pollutant reductions,  
2 where we're getting reductions from many many  
3 sources, after evaluation of benefits including  
4 reduction in air pollution and greenhouse gas  
5 emissions.

6 Just one small note of plug-in hybrids.  
7 There really is no market assessment here. It's  
8 entirely focused on the number of vehicles and  
9 demonstrations today. No discussion of recent  
10 advances in technology and cost reduction; no  
11 discussion of work that's ongoing; no discussion  
12 of performance results or benefits.

13 I guess my request of the Committee  
14 would be that you take official notice of the  
15 presentations of the ARB's ZEV technology  
16 symposium that was held a couple of weeks ago.  
17 And that all presentations be docketed. There's  
18 some very very good information there, both from  
19 the industry and other groups.

20 Maybe just to look at the crystal ball a  
21 little, as Commissioner Boyd said, these are the  
22 achievable displacement numbers from the TIAX  
23 report in all categories in the year 2020. And  
24 you can see the achievable numbers are very very  
25 large.

1           These achievable numbers represent what  
2           they think is possible under admittedly aggressive  
3           government, either incentives or regulation. But  
4           you can see the numbers in terms of gallonage  
5           reduction are very very large, 1.6 billion gallons  
6           to 2.2 billion gallons.

7           And, of course, there's emission  
8           reductions, as well. Again, just to kind of  
9           tantalize you with the achievable emission  
10          reductions, greenhouse gas reductions of about 20  
11          million tons per year under the achievable  
12          scenario of criteria pollutants of 194 tons per  
13          day of criteria pollutants, which is a huge  
14          number. And could be very very important,  
15          particular as we move into the new federal eight-  
16          hour ozone SIP, which is under development in the  
17          next year or so.

18          So, we're back to the conclusion.  
19          Electric drive technologies are a viable component  
20          today to reduce emissions and petroleum use. And  
21          they'll be even more important in the future.

22          And I thank you for your attention. I'd  
23          be happy to answer any questions.

24          VICE CHAIRMAN BOYD: Thank you, Dave.  
25          Any questions of Dave, since he's volunteered

1 himself?

2 COMMISSIONER BYRON: Well, Commissioner,  
3 I'm not sure we want to give Dave an additional 20  
4 days to comment. This is --

5 (Laughter.)

6 COMMISSIONER BYRON: No, actually all  
7 the comments received here today thus far have  
8 been excellent. Thank you very much, Dave.

9 MR. MODISETTE: Thank you.

10 VICE CHAIRMAN BOYD: Anyone else want to  
11 testify -- or make comments? This is not  
12 testimony. This is a workshop; I'm trying to make  
13 it informal. Have comments, questions before we  
14 break for lunch?

15 Okay, let me just -- I'm compelled to  
16 make one remark again. Circling back to what I  
17 said at the end of the discussion about the market  
18 assessment. And particularly being reminded by  
19 testimony of many, certainly Dave's, Ms. Sexton's  
20 and Anna Halpern-Lande's comments, I said that we,  
21 as a group, we, the staff, we, whoever the  
22 collective we is, between the ARB and the CEC, you  
23 know, need to take into account all the policy  
24 guidance and directions and documents that have  
25 been produced heretofore as background information

1 for the effort we have to carry out.

2 This report, the dialogue today and the  
3 results of that are part of this background  
4 information. But there's a lot of policy guidance  
5 and a lot of forecasts already available to us.  
6 And I am reminded constantly of one that's near  
7 and dear to my heart, and that's the  
8 transportation chapter of the 2005 Integrated  
9 Energy Policy Report, which should give some --  
10 make some folks in the room feel a little bit  
11 better about a recognition of the role of plug-in  
12 hybrids, electric drive, biofuels. And we have  
13 lots of intersecting circles of work going on  
14 right now.

15 The bioenergy, biofuels component  
16 thereof, effort that's underway is, you know,  
17 we've kind of said internally is a giant chapter  
18 one, two, three or whatever. A giant chapter of  
19 this 1007 report.

20 So there is an awful lot of activity  
21 that has to be taken into consideration. A lot of  
22 policy pronouncements and recommendations, and a  
23 lot of background material that back up all those  
24 that we are going to have to deal with in making  
25 this be-all to end-all analysis of alternative

1 fuels in California's future.

2 So I think it's important to recognize  
3 that all of those are in the public arena, and all  
4 that's behind them is in the public arena that we  
5 have to distill and take into account.

6 So, in any event, but we have to utilize  
7 workshops like this to get the focus going. So I  
8 thank you all for your testimony. We'll return in  
9 one hour to continue the discussion. Thanks.

10 (Whereupon, at 12:34 p.m., the workshop  
11 was adjourned, to reconvene at 1:34  
12 p.m., this same day.)

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## 1 AFTERNOON SESSION

2 1:44 p.m.

3 MR. UNNASCH: We're also looking at  
4 water impacts, so spills and discharges. And  
5 finally, emissions occurring outside of  
6 California.

7 This chart gives an example of how that  
8 might be put together. In the case of NOx  
9 emissions from gasoline vehicles, the stack bar  
10 chart there shows the emissions from the vehicle,  
11 the marginal sources in California and what might  
12 have been offset from a refinery and marine  
13 terminal.

14 And note the scale for outside of  
15 California; it's ten times as big. So the outside  
16 California emissions include tanker ships and oil  
17 exploration activities outside of the state.

18 Now, in the fuel cycle analysis you're  
19 looking at a combination of the fuel and the  
20 vehicle. And in the case of NOx emissions, the  
21 fuel cycle emissions are proportional to the fuel  
22 use, so in the case of the hybrid vehicle, those  
23 would be reduced as you use less fuel. However,  
24 the thinking on vehicle emissions is that they're  
25 certified to a consistent standard, so in the case

1 of NOx you could argue that they should be the  
2 same; whereas in the case of CO2, it would also be  
3 affected by fuel use.

4 A lot of other fuel cycle studies have  
5 already been done supporting activities in  
6 California. And here's a list of some good  
7 references which you might read and maybe even  
8 provide comments in the context of some of these  
9 references.

10 The 1996 study went through a great deal  
11 of effort to speciate hydrocarbons from fugitive  
12 losses like gasoline or ethanol. It also had a  
13 lot of input from the industry on looking at  
14 marginal versus average emissions.

15 In 2001 the study was revised with a  
16 great deal of modeling looking at the analysis of  
17 emissions from power plants. And there was also a  
18 survey done on the fuel economy of IC engine  
19 vehicles, as well as electric vehicles.

20 These values were used in the AB-2076  
21 petroleum displacement assessment. And in the  
22 hydrogen highway, the whole thing got looked at  
23 again from a California perspective. And a few of  
24 the assumptions were modified. And also a great  
25 deal of work went into assessing the impact of

1 renewables on power production.

2 Of course, Argon National Lab, with  
3 General Motors, has put together a series of fuel  
4 cycle studies where they've developed the GREET  
5 model, which we're also using in this. And  
6 General Motors has done a great deal of modeling  
7 determining the drive cycle emissions of  
8 comparable vehicles.

9 Mark DeLuccia at UC Davis also has an  
10 extensive fuel cycle analysis program; and there  
11 are several others in the world, and the U-car  
12 study is quite extensive and has excellent  
13 information on a variety of fuels.

14 So, for this assessment we're looking at  
15 petroleum and other fossil fuels, as well as  
16 biomass. And the list of fuels is here. The  
17 middle column is just the primary feedstock, but  
18 we're looking at other -- or the baseline  
19 feedstock, and we'll be looking at other  
20 feedstocks, also.

21 Just to illustrate what some of these  
22 fuels are, the baseline fuel for gasolines is the  
23 current reformulated gasoline we have blended with  
24 ethanol. We're also looking at blends, maybe to  
25 the extent that emission constraints allow making

1 E-10, or maybe at some point in the future moving  
2 the ethanol into E-85 and doing -- some of the  
3 gasoline, diesel, LPG, CNG, I don't need to read  
4 them.

5 Various synthetic fuels clumped together  
6 in the middle; various feedstocks for ethanol;  
7 biodiesel configurations and electricity and  
8 numerous hydrogen options.

9 This will be configured for different vehicle  
10 applications, also, everywhere from cars to truck  
11 to buses for onroad vehicles. Then we also need  
12 to take into account when the vehicle's  
13 introduced. So if you're talking about a strategy  
14 to put in a new kind of alternative fuel, let's  
15 just call it CNG, where there aren't a whole lot  
16 of vehicles today, and you're building new  
17 vehicles, you're talking about -- let's look at  
18 this example for 2017 that's bold.

19 Let's say we start building a lot of CNG  
20 vehicles in 2010 and they take off at some pace.  
21 Well, you're really comparing those to gasoline  
22 vehicles that would have been put in place in  
23 2010. So if you're analyzing this in the year  
24 2017, you need to look at the emissions starting  
25 with vehicles that were put in in 2010.

1           Now, you might have some blended fuel  
2 options where you could switch them back and  
3 forth. E-10 for example, or E-85 if you believe  
4 the population of FFVs is significantly high, it  
5 would be in 2017. Or swapping the formulations of  
6 diesel, different forms of FT diesel and that one,  
7 you know, FT diesel and biodiesel can all be  
8 blended into the diesel pool. And immediately  
9 impact the entire emissions and vehicle inventory.

10           So you really need to analyze the  
11 results two different ways. And I'll show an  
12 example of how that's done.

13           So, our approach for -- one other topic  
14 I have to cover. We're also looking at offroad  
15 vehicles, there we go. And AB-1007 talks about  
16 looking at reducing petroleum from transportation.  
17 But what is transportation. What is a vehicle.  
18 Or, as Bill Clinton says, it depends on the  
19 definition of is. So that still needs to be  
20 looked at to determine exactly which of these  
21 offroad applications would be incorporated in the  
22 analysis.

23           So the approach for fuel cycle analysis  
24 from the fuel side of things is to count the  
25 emissions associated in the fuel production and

1 delivery process. In the case of CNG coming from  
2 natural gas, it's produced from a natural gas  
3 well, the pipeline gas is compressed with the help  
4 of electricity and you have CNG.

5 I don't need to go through all of these  
6 fuel options; there's a lot of variants to these,  
7 which you'll see shortly. With synthetic fuels,  
8 comes from natural gas or other synthesis gas,  
9 perhaps biomass or coal, converted in a catalyst  
10 to a variety of synfuel options. Ethanol can be  
11 made from corn or other sugar-based crops, as well  
12 as biomass.

13 Hydrogen, there's numerous pathways.  
14 The natural gas pathway always settles in as sort  
15 of baseline because it can be done today. And in  
16 the case of battery electric vehicles, you really  
17 have to look at where the incremental power is  
18 coming from for the battery vehicle. And a lot of  
19 the fuel cycle studies to date have looked at that  
20 coming from natural gas-based power plants.

21 So here's the list of all of the 11  
22 fuels we're looking at for AB-1007. And it's a  
23 little overwhelming, so let's just examine what we  
24 have here.

25 The fuels that are in green aren't in

1 the GREET model, and the other ones are, so a  
2 baseline answer can be arrived at with an existing  
3 model. But to simplify things further you can  
4 strip out a lot of the complexities of the fuel  
5 cycle analysis and just look at the primary energy  
6 inputs. And then we're going to build up the fuel  
7 cycle analysis result based on these primary  
8 fuels.

9 Diesel to haul the fuel; electricity to  
10 run plants; natural gas as an input to production  
11 facilities; maybe LNG as a source of natural gas;  
12 and ethanol as a blending component. And, of  
13 course, the other, the primary feedstock going  
14 into each fuel production facility.

15 The basic modeling approach follows  
16 what's done in GREET. You need to take into  
17 account where the plant is, what the emissions  
18 factors are, how much of each technology there is,  
19 the efficiency of the fuel production facility,  
20 and how much of each energy input is used to make  
21 a fuel.

22 What's complicated here with this  
23 analysis is if you want to do it right you really  
24 need to look at the California-specific  
25 constraints. So, if you're making Fischer Tropsch

1 diesel overseas, you might have a set of power  
2 plant assumptions that are relevant for Malaysia,  
3 but they don't affect the U.S. mix.

4 So our analysis for the well-to-tanker  
5 fuel cycle side of things is to develop a  
6 patchwork of different GREET models, and then  
7 combine them in a database to come up with a  
8 composite well-to-tank factor for each of the  
9 fuels.

10 In California it gets more complicated  
11 by different emission standards and BACT  
12 requirements that differ from the rest of the U.S.

13 And vehicle emissions, these are based  
14 on the California MFAC model. As I pointed out  
15 earlier, we need to take into account when they  
16 occur, because that's important in the MFAC model.  
17 And we also need to take into account when it's  
18 introduced. And this bar chart shows how you  
19 might sum up the annual mileage for vehicles that  
20 are introduced in the year 2010 versus vehicles  
21 that are already on the road.

22 We're also looking at toxics. So, by  
23 the way, the MFAC model, of course, gives you NOx,  
24 criteria -- CO, PM, hydrocarbons. Toxic emissions  
25 occur in the fuel, the exhaust from vehicles, as

1 well as the fuel production facilities. And it's  
2 a bit tricky relating toxics to the entire fuel  
3 cycle.

4           Fortunately the ARB's speciation  
5 database has values for toxic emissions for a  
6 variety of different sources. And for a variety  
7 of different hydrocarbons versus both from vehicle  
8 exhaust to facility emissions like power plants  
9 and oil refineries. There's a toxic factor that  
10 represents the fraction of the reactive organic  
11 gases that are toxic emissions.

12           So the places to look for toxics in the  
13 fuel would be spilled fuel or vapor from handling  
14 the fuels. In the case of engines, it's the  
15 exhaust emissions. So you can add formaldehyde  
16 and acetaldehyde to things that might be produced  
17 in the exhaust.

18           And then vehicles might also have a  
19 little bit of lead in the engine oil, or diesel  
20 particulate matter. And then finally, fuel  
21 production facilities could be sources for all of  
22 these toxic contaminants.

23           And what is a toxic? It's -- we're  
24 going by the State of California listed toxics.  
25 So that's sort of the definition. And we're going

1 through the list, and we might add, I think  
2 naphthalene is another one that's on there. And  
3 we need to look at the emission sources and  
4 identify what can be counted as toxics. But the  
5 ones shown here are certainly the top four, or  
6 five, appear more prominently in the fuel cycle.

7 Water impacts are also going to be  
8 counted. And sources here include, again, spills  
9 of fuel, as well as engine oil fuel and exhaust,  
10 engine exhaust as well as spills from fueling  
11 vehicles; as well as metals entering the water  
12 from the engine oils. And from facilities you  
13 could have all sorts of discharges into the water,  
14 although these are very heavily regulated in  
15 California.

16 And right now we're talking tot he  
17 California Department of Water Resources, actually  
18 the Water Resources Control Board. They're in  
19 charge of regulating what goes into the water.  
20 And the Department of Water Resources is in charge  
21 of how much water is used.

22 And, in general, fuel production doesn't  
23 rank high on the scheme of things in terms of  
24 water usage, but we're still going to count that  
25 for all of the different fuels that we're looking

1 at.

2 Other things to consider are  
3 agricultural runoff. And based on discussions  
4 I've had so far, that's a very tricky subject.  
5 Historically agricultural runoff has not been  
6 regulated and that falls into an area that's going  
7 to be difficult to quantify from this perspective.

8 So, finally, to summarize what we're  
9 doing on the fuel cycle analysis, we're putting  
10 all of the results into a relational database. If  
11 you look at it, there's 25-odd fuel combinations;  
12 over 10 vehicles. All this adds up to 400,000-  
13 plus numbers. If you figure 400 numbers per page,  
14 you know, that's 1000 pages.

15 So, we have a relational database that's  
16 fairly easy to use, that can give you the well-to-  
17 tank emissions, the well-to-wheel emissions and  
18 the combined full fuel cycle emissions. And those  
19 can be exercised any way you like to develop  
20 different scenarios. And, of course, we're also  
21 going to publish the interesting comparisons in  
22 the report.

23 So, some of the key assumptions that  
24 affect the fuel cycle analysis. First, the  
25 location of the facility is very important,

1       whether even count that it occurs in California.  
2       Over 60 percent of the crude oil used in  
3       California comes from outside the state, and  
4       arguably on the margin, all of it comes from  
5       outside the state.

6                 California facilities need to comply  
7       with BACT. And they also need to offset many of  
8       the air emissions. Where in the case of  
9       greenhouse gas emissions, all of the emissions  
10      throughout the world would be counted, but the  
11      energy inputs would vary by region.

12                Fuel transportation, a number that got a  
13      lot of attention and will maybe continue. Truck  
14      transportation is an important source in the fuel  
15      cycle, and how far you count the truck. Fifty  
16      miles is the average in California. And how far  
17      does a tanker ship haul fuel. This number is  
18      varied from different fuel cycle analyses. The  
19      current value in the IEPR bases emission  
20      calculations on 200 miles of tanker ship traffic  
21      in ports in California.

22                And hydrocarbon losses. We're assuming  
23      BACT values for bulk storage tanks. And fuel  
24      transfers are based on the vapor pressure and  
25      control efficiency that are relevant for specific

1 fuels.

2           Important figure that comes into play is  
3 the defect rate from fueling stations. I'll talk  
4 about that in a moment.

5           Electric power. Marginal generation  
6 from natural gas plus renewable portfolio  
7 standard; I'll go into that later. And I'll cover  
8 fuel economy momentarily.

9           So, fugitive emissions. A very  
10 important number in the fuel cycle. When you look  
11 at delivering fuel to vehicles, you have a tanker  
12 ship driving to the fuel station. Can spill a  
13 little bit of fuel out of the hose. As the fuel  
14 vapors are pushed out of the tank into the truck,  
15 those are called working losses. And then when  
16 you push fuel into the vehicle, that's called the  
17 vehicle working loss. And then you can spill the  
18 fuel from the vehicle.

19           Key factor here is both the emission  
20 control efficiency; that's estimated by ARB to be  
21 95 percent. And then the defect rate, which is  
22 how many stations aren't going to be working  
23 right. So if you look at the row there for  
24 vehicle fueling vapor losses, the number jumps  
25 from .4 to 1.2 grams per gallon if you assume the

1 10 percent defect rate that's in the inventory.  
2 And this number has one of the biggest impacts on  
3 the NMOQ in the fuel cycle that would apply to all  
4 the liquid fuels.

5 Toxic emissions. This shows what the  
6 toxic profiles would be for diesel and gasoline  
7 vehicles. In the case of diesel vehicles, the  
8 hydrocarbons are relatively low, but the fraction  
9 of the hydrocarbons that are aldehydes are fairly  
10 high percentage. Benzene and 1,3 butadiene show  
11 up significantly in gasoline exhaust. And to a  
12 lesser extent, acetaldehyde and formaldehyde.

13 For power generation, dispatch models  
14 have been used to determine the marginal emissions  
15 associated with electric power generation. And  
16 this is different than what's done for like the  
17 California Climate Action Registry and a lot of  
18 other greenhouse gas-counting exercises. They  
19 just look at the average mix.

20 But if you want to look at what the  
21 impact is to the breathers, you know, it's really  
22 what's happening from growing the load. What  
23 power plant is being turned on if you were to  
24 charge your electric vehicle at night.

25 So, we're talking to the Energy

1 Commission about using their dispatch model to  
2 look at the impact of load growth from new fuel  
3 production facilities like, let's say, new ethanol  
4 plants. So that would be like the scenario one.  
5 What would happen if you made 200 million gallons  
6 of ethanol in the state, and you used, on average,  
7 2 kilowatt hours per gallon. So you would have a  
8 load growth associated with that that would be 24  
9 hours a day.

10 Or what would happen if you had electric  
11 vehicles charging according to either a nighttime  
12 profile where they might start charging at 11:00  
13 at night; or if they're charging during the day.

14 So we're going to be looking at both  
15 types of profiles to determine the impact on  
16 energy consumption and what power plants turn on.

17 An important issue here is also how the  
18 out-of-state resource mix is addressed. And I  
19 know the Energy Commission is looking at how those  
20 calculations are done.

21 So, just to illustrate this point on  
22 marginal emissions again. Electric transportation  
23 has little impact or no impact on the use of  
24 nuclear power or many renewables or hydropower in  
25 California. Those are essentially base-loaded.

1 And the impact from electric transportation and  
2 presumably load growth, also, would be to look at  
3 the top part of this curve here and figure out  
4 what's going on when you're using the electricity.

5 An important result from the California  
6 hydrogen highway societal benefits report and the  
7 blueprint plan was to consider the RPS in this  
8 calculations, the renewable portfolio standard.  
9 So, what was done in that report was to assume 80  
10 percent of the power was generated from fossil  
11 fuels on the margin; then 20 percent was from new  
12 renewables.

13 So you don't count hydro or nuclear, but  
14 you assume the appropriate RPS figure for the year  
15 that you're calculating the emissions. And I  
16 guess we're going out into, far into the future,  
17 so we might need to think about what the RPS would  
18 be in those years.

19 And finally, there's a lot of interest  
20 in dedicated renewables. And I have some  
21 questions on do the owners of PV systems own their  
22 own renewable energy credits; or are those counted  
23 towards the renewable portfolio standard. It  
24 would be very important in looking at both from an  
25 equity point of view of the homeowner, as well as

1 the emissions impact of the electric vehicle. And  
2 also the option to buy renewable energy credits,  
3 or to install renewables as part of your  
4 transportation option which was looked at as part  
5 of the hydrogen highway fueling station effort.

6 So finally, fuel economy comes into play  
7 with the tank-to-wheels. The fuel cycle emissions  
8 are proportional to fuel usage. And this here  
9 shows a range of estimates for comparable mid-  
10 sized passenger cars. And this is for one mid-  
11 sized car that's pretty much the same for a  
12 variety of internal combustion engines.

13 And these ranges are based on inputs we  
14 got from carmakers about five years ago, as well  
15 as looking at the EPA fuel economy guide when the  
16 vehicles were built.

17 So, it's looking at a comparable CNG  
18 vehicle to gasoline vehicle. And, in general,  
19 it's acknowledged that even the ratio between  
20 these fuel options might remain fixed, even as  
21 vehicles change, say, with improved engine  
22 technology or with slipperier vehicle designs.

23 It's a little trickier looking at  
24 hydrogen vehicles because they're, in effect,  
25 hybrid vehicles with an electric drivetrain, a

1 much broader range in actual vehicle performance,  
2 as well as model predicted vehicle fuel economy  
3 from hydrogen vehicles is magnificent. So that's  
4 some of the interest in hydrogen fuel cell  
5 vehicles.

6 And also with electric transportation  
7 you have a considerably more efficient vehicle.  
8 Now, the values, all of the values save the plug-  
9 in hybrid values, are based on interactions with  
10 the carmakers and analyzing data from the fuel  
11 economy guide.

12 The plug-in hybrid values are based on  
13 the EPRI plug-in hybrid report. In principle,  
14 they represent comparable vehicles. You might  
15 argue that the plug-in hybrid could do a little  
16 bit better than a battery electric vehicle because  
17 it doesn't have as much battery capacity and less  
18 weight.

19 But this whole question begs to be re-  
20 examined at least based on the interest I've  
21 gotten from stakeholders.

22 So, finally, these numbers are combined  
23 into what I call the energy/economy ratio, just  
24 the fuel economy improvement, and that's applied  
25 in general to any mix of vehicle fuel economy that

1 would be relevant.

2           And the idea here is that no one will  
3 agree on these numbers, ever. So, one set of  
4 people will think, well, this technology's better;  
5 and others will say, no, no. And I think the best  
6 you can hope for is that they're sort of a good  
7 baseline number. That maybe an electric car gives  
8 you 3X fuel economy improvement.

9           And the actual policy should reflect the  
10 vehicle performance. So, if your vehicle that's  
11 built and sold gets 200 watt hours per mile, well,  
12 great, it gets that kind of a score. And if it  
13 gets 500 watt hours per mile it gets a different  
14 score. But you can never get people to agree on  
15 what this number should be.

16           But there is a lot of data that's been  
17 analyzed to arrive at these numbers. They're not  
18 just willy-nilly.

19           Finally, vehicle emissions are based on  
20 the MFAC model. We got recent model results from  
21 ARB, which we have grouped and categorized by all  
22 the different vehicle platforms and categories.  
23 And this just shows an example of the pollutants  
24 broken out by exhaust and evaporative  
25 hydrocarbons. Very important to break them out,

1 because the toxics can also be tracked that way,  
2 NOx, particulate matter, and carbon monoxide.

3 Now, back to this question about new  
4 vehicles versus the average vehicle in the mix.  
5 This is the result from MFAC on the average  
6 vehicle basis for light duty vehicles in the year  
7 2017. The all light duty automobiles means all  
8 the cars, all of the gasoline catalyst-equipped  
9 cars in the inventory. Yeah, all of the cars.

10 And then the 2010 start is just the new  
11 catalyst-equipped vehicles. So if you have a  
12 strategy involving, say, CNG vehicles, you might  
13 think of replacing x percent of the new gasoline  
14 cars with CNG.

15 And the difference in the baseline is  
16 significantly different. So this is a very  
17 important consideration when looking at the  
18 criteria pollutant benefits from blended fuel  
19 options versus new vehicle technologies.

20 Another important input is the emissions  
21 impact from alternative fuels. A great deal of  
22 thought has been given to this in the GREET model,  
23 and they have adjustment factors for alternative  
24 fuels. Every single alternative fuel you can  
25 think of there's an adjustment factor. Take the

1 hydrocarbon, multiply it by one, or some number  
2 like that, 100 percent or 1000 percent.

3 So this year shows the adjustment  
4 factors for an example of the relevant fuels for  
5 light duty cars. And the green values are numbers  
6 that I've chosen to adjust based on inputs I've  
7 gotten from stakeholders. And these all bear re-  
8 examination.

9 In the case of CNG, we found that the  
10 fuel economy is better represented being equal to  
11 a gasoline vehicle; 3 percent better for an FFV  
12 rather than the 5 percent better in the GREET  
13 model. GREET model, the assumptions were 90  
14 percent of gasoline evaporative emissions, where  
15 CNG and LPG have closed fuel systems. And they  
16 might have emissions other where in the fuel  
17 cycle, but they're not going to leak out of the  
18 fuel tank.

19 And finally, methane emissions, some  
20 estimates are ten times that of a gasoline  
21 vehicle, but I got several comments saying they  
22 were actually the same as data supporting that.  
23 So I put in a placeholder number of 200 percent  
24 increase in methane relative to gasoline.

25 So this is the way that the alternative

1 fuels emissions would be estimated. And we have a  
2 good starting point with the GREET numbers. And  
3 we hope to get data and information from vehicle  
4 developers and other stakeholders.

5 So, finally, how do these numbers affect  
6 the results for the fuel cycle analysis. An  
7 example is shown here for greenhouse gas emissions  
8 for new passenger cars. So this is a new  
9 gasoline, IC engines, or new hybrid vehicles, CNG,  
10 hydrogen, plug-in hybrid or battery electric  
11 vehicles. And these are based on the full fuel  
12 cycle showing the weighted greenhouse gas  
13 emissions.

14 Now, the nuance I keep wanting to point  
15 out is that if you're looking at blended fuel  
16 options like mixing ethanol into the existing  
17 fleet of E-85 vehicles, that you would be looking  
18 at the existing vehicle mix, which has a somewhat  
19 different vehicle mix and CO2 emissions than in  
20 the case of the new vehicles.

21 Other important factors. For every fuel  
22 there are dozens of important factors that affect  
23 the fuel cycle emissions, both from all the  
24 figures of merit. In this example here you can  
25 see the sensitivity of various assumptions on

1 greenhouse gas emissions for ethanol from corn.

2 One scenario that's been considered is  
3 to import corn to California and set up the  
4 ethanol plant near where you can use the waste  
5 product as cattle feed, not to dry the material.  
6 And just ship the wet feed directly to feedlots.  
7 That reduces the process energy from the ethanol  
8 plant by some 10,000 to 15,000 Btus per gallon of  
9 ethanol. You could even collect the cattle manure  
10 and generate gas from that to run the ethanol  
11 plant, which would reduce your greenhouse gas  
12 emissions even further.

13 Another impact, another option would be  
14 what's the mix of natural gas to coal, and sorry  
15 it's not shown on the slide. What fraction is  
16 natural gas and what fraction is coal. The  
17 basecase shows the average mix for the U.S., but  
18 it's certainly possible that new ethanol plants  
19 could be configured to use more coal for their  
20 processing heat or else they could also be  
21 configured to run on some sort of biofuel  
22 feedstock.

23 Also the energy input to make the corn  
24 ethanol plant has an important impact, as does, to  
25 a lesser extent, the yield of the plant.

1                   And finally, where does the corn come  
2                   from? Does it come from the average corn  
3                   production yield in the U.S. or from marginal land  
4                   where you might need to use more fertilizer or get  
5                   a lower crop yield.

6                   This also bring up the point at the very  
7                   end that changes in land use have a very important  
8                   impact on biofuels. What was growing there  
9                   before. Was it pasture land converted to biofuel  
10                  production; or was it alfalfa that was recently  
11                  planted there. That would have an important  
12                  impact. And that's addressed in the LEM model  
13                  from UC Davis. And I'll be looking at that  
14                  further.

15                  And here you can see the impact of the  
16                  vehicle assumptions. What the efficiency of the  
17                  ethanol vehicle is versus the gasoline vehicle, as  
18                  well as the impact of N2O emission factors.

19                  So, for every fuel we're going through  
20                  these sensitivities, and hopefully trying to  
21                  identify the ones that are most important. And  
22                  also sharpening our pencil to get the right answer  
23                  for every fuel option.

24                  In the case of local pollutants,  
25                  hydrocarbons and NOx, they depend on other

1 factors. MNOQ depends a lot on vapor losses,  
2 whereas NOx emissions depend on combustion sources  
3 like refineries and trucks and tanker ships. And  
4 some of these numbers have gotten a lot of  
5 attention, especially the tanker ship figure.

6 Also what has gotten a lot of attention  
7 is how you draw your boundaries. Are you counting  
8 the marginal emissions or the emissions that were  
9 offset; or the emissions that are occurring in the  
10 entire world, which again would be ten times these  
11 and off the chart.

12 So, finally, we're looking to get input  
13 from you. Prior studies have provided a basis for  
14 the full fuel cycle assessment. However, we need  
15 stakeholder input to better reflect California-  
16 specific vehicles and fuel assumptions.

17 So, for energy inputs please tell us  
18 what your plant is doing, what its efficiency is,  
19 how much electric power is being used. Greenhouse  
20 gas emissions, there's limited uncertainty in the  
21 well-to-tank for fossil fuels, so there's a pretty  
22 good handle on gasoline and diesel and LPG.

23 But for the other fuels there needs to  
24 be a lot more information on what their production  
25 options are going to be, especially for

1 California.

2 And for criteria pollutants, what  
3 permits, what are the permit levels being used for  
4 new fuel facilities in California. Are we taking  
5 the right approach in examining the marginal power  
6 plants in California. There's many different ways  
7 to do that analysis, as well as how to look at  
8 when the electric vehicles are charged.

9 Water impacts, again this is really  
10 hard. We're getting, we're trying to collect  
11 information from permits And it's as complicated  
12 as criteria pollutants, the emissions from every  
13 different type of fuel production facility.

14 And finally, I know I'm going to hear  
15 about fuel economy. And I love talking about it.

16 Thank you very much.

17 VICE CHAIRMAN BOYD: Thank you, Stefan.  
18 Questions, comments from folks in the audience on  
19 Stefan's presentation? You're getting off easy,  
20 Stefan.

21 MR. UNNASCH: Wow.

22 (Applause.)

23 MS. WHITE: Commissioner, I'm sure as  
24 soon as we commit that to paper we'll be hearing a  
25 lot more from parties, and getting a lot more

1 input from folks.

2 MS. HALPERN-LANDE: Actually, I have a  
3 quick question for you.

4 Two questions. The first question is  
5 whether or not you looked at second use feedstocks  
6 like animal fats, yellow grease and other kinds of  
7 rendered materials like we were just talking over  
8 lunch about turkey offal and those kinds of  
9 things.

10 And the second question is if you could  
11 comment if you thought at all about how this data  
12 will be used in the process and what you plan to  
13 do with the lifecycle analysis as you look  
14 forward, if you've got some thoughts to share on  
15 that. Thank you.

16 MR. UNNASCH: The analysis matrix isn't  
17 completely specific in the presentation. I think  
18 restaurant fat, waste oil definitely wasn't going  
19 to be in there because it's such a small market.  
20 And we hadn't thought of including the animal  
21 fats. And we'd like to get information on that.

22 What's going to happen with this is  
23 there's going to be a draft report that's released  
24 and it'll have charts along this style, comparing  
25 relevant fuel options and relevant combinations of

1 fuels. So it might be gasoline versus three  
2 different ways to make ethanol. And then another  
3 story around natural gas fuels.

4 That doesn't even address my thousand  
5 pages of different combinations. So, we're also  
6 going to have a relational database in Excel where  
7 you pull down the fuel in the scenario year, and  
8 then that can be used to calculate different  
9 combinations.

10 Presumably also there's going to be a  
11 scenario-building exercise where the results can  
12 be combined to develop some aggregate values for  
13 the state.

14 So I think this has to address the  
15 question of no net material increase in emissions.  
16 And doesn't seem to me that that should best be  
17 done on a grand per mile basis.

18 DR. STOLTZ: Good afternoon; I'm Ron  
19 Stoltz from Sandia National Laboratories. I  
20 wanted to point out a little bit of something that  
21 is going on in parallel in the future which you  
22 may be aware of.

23 I run a new office that we've  
24 established for all the California energy, liaison  
25 office which is to bring information from our

1 laboratory and some from the DOE to your efforts,  
2 and then vice versa, to understand your efforts,  
3 as well.

4 New things are going on this fall and  
5 then into this fiscal year. One is a workshop on  
6 combustion of alternative fuel. This is a  
7 research-based workshop that's going to occur.  
8 It's a nationwide workshop. It's by invite only,  
9 I understand.

10 But it's to look at the gap between fuel  
11 mix and engine manufacturers to determine what  
12 research is needed. In the past our combustion  
13 research facility has looked at one fuel and many  
14 engines, but we know that the future will  
15 eventually be many fuels and many engines. And  
16 we've looked at that, called the dual revolution  
17 in fuels and engines.

18 The other thing is I found out just  
19 today that the Deputy Secretary of DOE energy  
20 efficiency and the UnderSecretary for Science has  
21 convened a laboratory working group to look at the  
22 full fuel cycle, fuels, engines, utilizations and  
23 also systems engineering. And I'd be happy to  
24 provide whatever kind of information that I know  
25 and that I can dig out about that.

1           I realize that the timing of these  
2           efforts may not match your timeline, but one of  
3           the goals of my office is to make sure that if  
4           there's not synchronization or alignment, there  
5           may be harmony between the efforts this group does  
6           here and the national efforts that are going on at  
7           the same time. Thank you.

8           VICE CHAIRMAN BOYD: Thank you;  
9           appreciate those offers.

10          MR. LARSON: Jim Larson, PG&E. Real  
11          quick on slide 24 there's a reference to RPS  
12          standard 20 percent in 2020. I think that's been  
13          updated. It's 2017 at 20 percent; and then 33  
14          percent in 2030.

15          Okay, beyond that, beyond the RPS  
16          portion of the overall generation mix if you look  
17          at PG&E's mix, about 40 percent of the state, up  
18          to 54 percent of that is carbon free when you  
19          consider high dam hydro and nuclear. It's not  
20          all --

21          MR. UNNASCH: Well, right. This topic  
22          has been worked over quite a bit though, and the  
23          nuclear isn't going to grow because of load  
24          growth, nor is the hydro. So, it's good to  
25          recognize that, but I think the approach for

1 looking at the marginal mix being -- unless PG&E  
2 commits to a larger RPS, which would be great --

3 (Laughter.)

4 MR. UNNASCH: -- I think the approach  
5 that's been well vetted within this California  
6 emissions community works out pretty well.

7 VICE CHAIRMAN BOYD: Anyone else in the  
8 room have any questions? Or seek any  
9 clarification?

10 MR. COLBY: My name is Ronnie Colby; I'm  
11 with Truckee Biofuels up in Truckee, California.  
12 Just a quick clarification on the difference  
13 between the fuel life analysis and the life cycle  
14 analysis. It is not necessarily the same?

15 MR. UNNASCH: Well, in an ideal  
16 situation the life cycle analysis is a comparison  
17 of the impacts done according to ISO-14040, which  
18 tells you to look at two ways of doing things.  
19 And to very carefully describe one option and then  
20 what you displaced.

21 And if there's a complicated set of  
22 byproducts, don't give it a byproduct credit;  
23 expand your boundaries further.

24 So, it's a very detailed thing of what  
25 you're looking at in a very specific set of

1 instructions that's a bit challenging to follow  
2 for 11 fuels and combinations.

3 Finally, a lifecycle analysis  
4 traditionally also counts the material in the  
5 facility. So the cement and the steel used to  
6 make the facility, as well as the vehicle, as well  
7 as the recycling of those facilities. Those are  
8 the key differences.

9 Now, the material into the vehicle is  
10 about 6 percent of the fuel cycle, and I'm not  
11 sure if it's terribly different amongst the fuel  
12 options, to put that in perspective.

13 DR. WHITTEN: My name is Gary Whitten  
14 and I'm with Smog Reyes. And I would like to  
15 point out that, as just was mentioned, that  
16 there's complications that are raised by  
17 byproducts.

18 And in the case of ethanol production  
19 from corn there's kind of an irony in on the one  
20 hand it's the largest alternative fuel we have in  
21 the country right now, and on the other hand it  
22 really doesn't fit into the paradigm of the full  
23 cycle analysis because there is a, I guess you  
24 could call it a byproduct, but really the nature  
25 of the production of ethanol is such that the

1 amount of energy that goes into growing the  
2 ethanol and the crop and things like that doesn't  
3 really, I don't think, count in terms of the  
4 production of ethanol.

5 Because the current corn crop that we  
6 have is similar to what it was over the last few  
7 decades. And it's governed by the size of the  
8 animals that the corn is produced to feed.

9 And when you make ethanol you change the  
10 diet of those animals from eating raw grain to  
11 eating the leftovers from removing the starch from  
12 that grain. And you feed the same number of  
13 animals.

14 I think there's a great example that  
15 today is the official opening of a large ethanol  
16 plant here in California; and there's some 35  
17 million gallons of ethanol that's going to be  
18 produced there each year. But there's no corn  
19 that was grown, new corn that was grown to produce  
20 that ethanol.

21 The cows in the Modesto or Merced area  
22 are getting a new diet. Instead of eating raw  
23 corn to put the protein in their milk, they're  
24 going to be getting wet distillers grain which is  
25 left over from removing that starch.

1                   And then there's another angle in terms  
2 of local warming gas, in that we know that these  
3 ruminant animals like cows, produce methane. And  
4 methane has been traced to eating starch. The  
5 starch is not good for them; it causes them to  
6 emit that methane.

7                   So if we stopped making ethanol in  
8 California we wouldn't get any global warming  
9 reduction from the stop growing corn. They're  
10 going to still grow the same amount of corn  
11 because those cows will then stop eating distiller  
12 grains and go back to eating raw grain and  
13 emitting methane again.

14                   So it's -- I just wanted to point out  
15 that we have this full cycle analysis paradigm,  
16 and it all looks very good. But the largest  
17 alternative fuel that we have really doesn't fit  
18 that because there's this animal kingdom out there  
19 that we've been feeding. And if we stop making  
20 ethanol we're going to go back to feeding that  
21 same thing, same amount of animals. Thank you.

22                   VICE CHAIRMAN BOYD: How about the stuff  
23 on the full cow cycle analysis?

24                   MR. UNNASCH: We do intend to take into  
25 account the bovine flatulence effect.

1 (Laughter.)

2 MR. UNNASCH: As well as the limit on  
3 the cattle. And some of these things are real  
4 paradoxes, especially when you're changing crops  
5 in Brazil, changing land use there. But we'll try  
6 to get a handle on it.

7 VICE CHAIRMAN BOYD: Any other  
8 questions? Okay, thank you, Stefan. Appreciate  
9 that very much.

10 MR. FREUND: One more question?

11 VICE CHAIRMAN BOYD: Oh, one question on  
12 the phone.

13 MR. FREUND: My name is Ron Freund; I'm  
14 with the Electric Auto Association. And I'd like  
15 to talk to stuff on page 11, -- mentioned that  
16 there was no need of incremental power capability,  
17 but there would be additional incremental power  
18 needed. And what I want to present -- is the EPRI  
19 studies in the past have shown that over a million  
20 pure electric vehicles could be put on the roads  
21 in California and -- off peak capacity without  
22 having any of that additional power plant  
23 requirements.

24 So I'd like to have them factor that in  
25 to get any decent market penetration by the year

1 2050, we'd have to have a massive ramp-up. So I'd  
2 like to have him examine that, in consideration,  
3 using the EPRI study.

4 Another point I want to bring up is on  
5 page 25 of the slides he admits that the battery  
6 electric vehicle data is using five-year-old data.  
7 And to my chagrin, in looking through his 300-plus  
8 pages that I've seen published in the -- files,  
9 but I didn't see the very popular vehicle, the  
10 Toyota Rav4, which I recently did a study on for  
11 CARB. I've handed that to Lorraine White; that  
12 would be included. And I would suggest that he  
13 embrace real-world numbers from our study.

14 I know he mentioned the words willy-  
15 nilly in there. We did a users' survey and have a  
16 number of vehicles concerning energy-per-mile  
17 consumption and I'd like to see those included,  
18 instead of just Department of Energy or NREL or  
19 manufacturers. Okay, thanks.

20 MR. UNNASCH: On your first comment I  
21 think we're talking about the load growth and the  
22 fuel use from those plants. So I think we have to  
23 acknowledge that even though we're filling the  
24 nighttime gap for generation, we don't need more  
25 power plants, but we do need a little bit more

1 fuel. And, of course, that needs to be examined  
2 if there's going to be daytime charging.

3 And I thought we did the Rav 4 on the  
4 2001 study. But, yeah, we look forward to getting  
5 your information, as well as unraveling the  
6 question of in-use data, AC power versus DC power.  
7 And the comparison of non-clone vehicles to  
8 relevant baselines.

9 For example, the Tesla. Does it compare  
10 to a Viper, or to a Geo Metro. But the Rav 4,  
11 it's pretty -- the Rav 4 isn't even a good one, --  
12 yeah, yeah, the Rav 4 is a good one. That one has  
13 arguably a perfectly gasoline clone. So we look  
14 forward to other people attempting to line the  
15 cars up with their comparisons. And hopefully not  
16 just average the electricity consumption for  
17 electric vehicles and compare that to some  
18 gasoline mix, but like the 2000 report that you  
19 seem to have read, comparing those vehicles to  
20 like vehicles on like driving cycles. Then  
21 calculating the EER and seeing how that compares  
22 to the values we have here.

23 MR. FREUND: One last comment?

24 MR. UNNASCH: Sure.

25 MR. FREUND: I'm surprised that actually

1 using such old data the -- minivan, the lead and  
2 nickel metal version of the Ranger and the EV-1.  
3 These are dead vehicles and the technology in  
4 those is arguably much improved. Tesla will be  
5 talking more state of the art. And their whole  
6 charging approach is much more efficient.

7 And you made mention of pumping air  
8 conditioning power into cooling the batteries.

9 Well, that was because of the desperate attempt to  
10 shoe-horn nickel metal hydride batteries into the  
11 GM81. They're the only people that ever did that.

12 Less invasive parasitic loads like fans  
13 were used in other vehicles with much greater  
14 success; I think Toyota did a good job of thermal  
15 engineering with their vehicle.

16 A lot of the -- you seem to have used  
17 there is old technology, and I'd like to see that  
18 revisited here in 2006; and the battery technology  
19 and everything else moved forward. So I'd like to  
20 talk to you when (inaudible).

21 MR. UNNASCH: Good, excellent.

22 (Laughter.)

23 VICE CHAIRMAN BOYD: Any other  
24 questions? Comments on Stefan's presentation?

25 MR. FRIEDLAND: I'd like to make a

1 comment.

2 MR. UNNASCH: Yes.

3 MR. FRIEDLAND: Hi. This is Jay  
4 Friedland from the Central Coast Electric Auto  
5 Association and PlugIn America.

6 And, Stefan, I just wanted a quick  
7 revisiting on slide 25. Can you describe the  
8 difference in the EPRI numbers that led to the  
9 plug-in hybrid sort of exceeding pure battery  
10 electrics in terms of the fuel economy comparison?  
11 Because we're going to -- off into a working group  
12 and look at both the plug-in hybrids and the  
13 battery electric in terms of getting you better  
14 numbers.

15 But I'm just curious what went into  
16 that; why did you get those numbers there?

17 MR. UNNASCH: Yeah, my pleasure. So the  
18 EV number is based on the 2001 study; both the  
19 data, as well as the wholehearted agreement of all  
20 of the participants in the group that we're not  
21 going to agree on this, but the 3X ratio is  
22 probably a pretty good one. By the way it's the  
23 number that's in GREET. The gasoline is going to  
24 improve; so is the electric. Let's disagree that  
25 we're going to use the 3X value. So that's where

1 the battery EV number comes from.

2 The EPRI values are from a newer study,  
3 and that was done based on modeling with the  
4 program advisor by Mark Duval, who's now at EPRI,  
5 as well as Tony Markel at NREL, where they built  
6 up specific configurations for identical mid-sized  
7 cars with a gasoline engine, as well as with a  
8 plug-in hybrid power train.

9 And they did lots of iterations on the  
10 modeling. And there was one very specific  
11 gasoline engine compared to the electric  
12 powertrain results.

13 So I don't know if the slightly higher  
14 EER is due to the better battery technology or the  
15 baseline gasoline engine, or the fact that the  
16 PHEV weighs exactly the same as the conventional  
17 gasoline vehicle. I suspect all of those are  
18 important factors.

19 You may be able to tease some additional  
20 analysis out of the EPRI report, because they did  
21 look at larger battery configurations, larger  
22 motor configurations at some point in time. And  
23 there may also be other drive cycle modeling  
24 studies.

25 So in the case of fuel cells there's

1 plenty of modeling studies that show, you know, 2  
2 to 2.9 X improvement over a gasoline vehicle.  
3 And, really, the EPRI study is the only one that's  
4 looked at it in that great level of detail where  
5 they really laid out all of the powertrain  
6 components and predicted the fuel economy.

7 So that was really a more focused group  
8 of people working a topic for, you know, a year  
9 and a very specific vehicle.

10 MR. FRIEDLAND: And one final follow-up  
11 to that, which is what is the -- do you remember  
12 what the all electric range of that hybrid was?

13 MR. UNNASCH: Well, the PHEVs in the  
14 EPRI report were HEV20s or HEV 60s.

15 MR. FRIEDLAND: Perfect, great. Thank  
16 you very much.

17 MR. UNNASCH: My pleasure.

18 VICE CHAIRMAN BOYD: Yes.

19 MR. STEVENSON: One comment on the  
20 process of the public evaluation of this matrix.  
21 I think you've already addressed this, but does  
22 seem impossible to get full public participation  
23 in evaluation of such a complex issue by January.

24 VICE CHAIRMAN BOYD: Well, we're off to  
25 June. Anything else for Stefan?

1                   MR. WUEBBEN: Yes. I'm Paul Wuebben  
2 with the South Coast Air District. And  
3 congratulations on an important task you set out  
4 for. There's a lot of complexity here.

5                   Just two comments, really, on the  
6 lifecycle that I wanted to bring some focus on.  
7 One has to do with the embedded carbon that I  
8 think we're assuming about gasoline. And I would  
9 maintain that that is a moving target. We're  
10 probably seeing heavier crudes in California  
11 refineries. We're probably seeing greater import  
12 distances for imported product.

13                   We're certainly seeing increased  
14 enhanced oil recovery utilization and the amounts  
15 of the severity of that EOR in the San Joaquin  
16 Valley. And we're certainly seeing, over time,  
17 some higher sulfur removal and severity associated  
18 with sulfur removal from both gasoline, or  
19 certainly diesel, as it's initially been  
20 introduced this year.

21                   Then when I think further upstream at  
22 the broader arena of oil shale, and particularly  
23 the tar sands in Canada, one-third of Canadian  
24 natural gas is being diverted to essentially embed  
25 that carbon into the recovered product.

1                   So it seems that this whole idea of 100  
2 percent assumptions that are in the EIA that  
3 gasoline is somehow fixed, in fact, it's not  
4 fixed. The carbon intensity appears to be  
5 increasing over time. So I think that's kind of  
6 an important transitional, you know, fact to  
7 reflect somehow.

8                   The second in this has to do more with  
9 the broad question of how valid and kind of what  
10 confidence do we have in GREET. And this goes to  
11 the question of has GREET ever been audited? I  
12 don't believe it has. And that's not a criticism.  
13 I think it's implicit in the complexity of the  
14 enterprise.

15                   But we're asking of this methodology to  
16 really inform us perhaps on one of the most  
17 critical questions of our generation, how to  
18 essentially manage and reduce carbon. And to do  
19 that adequately, in a really sound way, I would  
20 propose that you need the equivalent of SEC  
21 reporting requirements, with generally accepted  
22 accounting principles that are, in fact, auditable  
23 and reported and fully disclosed. And that there  
24 is a tremendous process of sunshine and mandatory  
25 reporting and auditing.

1                   And I would think one thing to do at  
2           least upstream of that, since we are not,  
3           unfortunately, at that juncture of mandatory  
4           reporting of carbon emissions, to at least have  
5           some database, or some attempt to apply and audit  
6           of say, a specific refinery. And not necessarily  
7           by name, but just to dig very deeply into a  
8           specific set of on-the-street or on-the-ground  
9           conditions. A specific ethanol production  
10          facility, perhaps one in Brazil.

11                   You know, a very large sugar cane, a  
12          very large corn processor, one with coal, one with  
13          natural gas, one with biofuels, biomethane. I  
14          mean you could look at each of these critical  
15          fuels and perhaps find one or two specific  
16          facilities which you would then bore into in a  
17          very detailed audit which would inform our  
18          confidence.

19                   Because right now, as familiar as I am  
20          with GREET1.6, and then 1.7, and all the work that  
21          Mike Wang has done, which is, you know, very  
22          impressive, I think what's really still  
23          challenging -- and I confirmed this, by the way,  
24          with Professor Dan Kaman at UC Berkeley who I'm  
25          sure you all know of -- and he agrees that there's

1 a real need for validation in this whole area.

2 So I would suggest that if there are  
3 additional resources, to perhaps at least to get  
4 some flavor for how do these numbers stack up to  
5 some audited case studies.

6 So that's my two comments.

7 VICE CHAIRMAN BOYD: Thank you, Paul.  
8 Two reactions. Those are all excellent points.  
9 You said get additional resources. Okay, all  
10 right.

11 (Laughter.)

12 VICE CHAIRMAN BOYD: And I was thinking,  
13 and we got to turn this in by June.

14 In any event, I don't think this is a  
15 one-size-fits-all, one-stop report. I think we,  
16 as you kind of said, we turned over a new rock  
17 here and I wouldn't doubt that future Energy  
18 Commissions, in their annual Integrated Energy  
19 Policy Reports, are going to be following the  
20 subject and working with ARB in perpetuity, I  
21 think.

22 In any event, any other --

23 MR. UNNASCH: I had a thought on that,  
24 too. I think the issue with GREET lies not in the  
25 model, itself, because the beauty of the model is

1 the fuel to make the fuel to make the fuel in the  
2 little bar up there. And that's a pretty small  
3 part of the fuel cycle.

4 The bigger question has to do with the  
5 assumptions for any specific facility or process.  
6 And it's not really a GREET-specific issue at all.

7 But I think, yeah, if there's some  
8 stakeholders here that would like to do a case  
9 study of their plant versus the benchmark case,  
10 that would -- I think that we could put in the  
11 report, or we'd have a hard time not putting it in  
12 the report.

13 Also, the question you brought up about  
14 the different pedigrees of oil. I think it's very  
15 important that the results of this study keep the  
16 pedigree with the fuel. So ethanol isn't just  
17 ethanol, a gasoline isn't just gasoline.

18 Somehow, this might be inconvenient, but  
19 somehow you've got to know what the pedigree of  
20 the fuel is. Find out a way of rating the fuel on  
21 its carbon intensiveness. So for different kinds  
22 of ethanol or different kinds of gasoline, if  
23 there's some way to come up with a score that  
24 process could be kept going in the future, that  
25 would be worth doing.

1                   VICE CHAIRMAN BOYD: Any other questions  
2 before we move into the public comment?

3                   MR. SHIPLEY: -- take a question from  
4 the phone?

5                   VICE CHAIRMAN BOYD: Excuse me? Yes. A  
6 question for Stefan, yes.

7                   MR. SHIPLEY: Yes. Two questions,  
8 actually. One is --

9                   UNIDENTIFIED SPEAKER: Who is speaking,  
10 please?

11                  MR. SHIPLEY: Who's speaking? Oh, I'm  
12 sorry, this is Greg shipley with Waste 2 Energy.  
13 I wanted to know how this study will be applied to  
14 the bioenergy plan. And number two, would they  
15 consider the lifecycle analysis done by the  
16 Integrated Waste Management Board in 2005?

17                  MR. UNNASCH: I think we'll be looking  
18 at finding the Integrated Waste Management plan  
19 lifecycle analysis and looking at it. And, I  
20 think, Lorraine, on the bioenergy plan, if --

21                  MS. WHITE: Just a point of  
22 clarification. The AB-1007 alternative  
23 transportation fuels plan is related to the  
24 bioenergy action plan. And, in fact, we have  
25 considered a lot of the strategies in the

1 bioenergy action plan as some of our first steps.

2 Commissioner Boyd has often referred to  
3 those activities as chapter one in the alternative  
4 transportation fuels plan. We actually look  
5 beyond the scope of the bioenergy action plan and  
6 timeline.

7 So, they are related, but they are not  
8 the same.

9 VICE CHAIRMAN BOYD: Any other  
10 questions? I'm still wrestling with that last  
11 answer, but any other questions?

12 (Laughter.)

13 VICE CHAIRMAN BOYD: Okay, thank you,  
14 Stefan. Thank you very much. And I do hope you  
15 get the input you've solicited from the audience.

16 MR. UNNASCH: Thank you. I look  
17 forward to getting all of it.

18 VICE CHAIRMAN BOYD: When Gina Grey of  
19 WSPA gets up here, we can ask her again if one of  
20 her members might volunteer to be the glass house  
21 that gets analyzed.

22 Okay, thank you.

23 I guess now it's time to turn to general  
24 public comment. And I have lists of names here of  
25 people who have asked to speak. And some may feel

1       you've already been able to get your comment in,  
2       but I'll just go down the list and either you rise  
3       to the occasion or you indicate that you've  
4       satisfied your comments.

5                 First on the list is Mike Eaves.  Mike,  
6       did you have some more?

7                 MR. EAVES:  I just would like to  
8       reiterate some of the things I said this morning.  
9       I think the market assessment is good.  I think we  
10      need to go there.  Unfortunately, I think there  
11      are elements -- the market assessment is like the  
12      tip of an iceberg.  The stuff that's up above the  
13      water, the real foundation you know is down below  
14      the water, the economic assessments, the  
15      cost/benefit analysis.

16                And we think that, you know, we're  
17      looking at making substantial comments, you know,  
18      to the record for the natural gas portion.  But we  
19      are going to be challenging some of those previous  
20      assumptions regarding some of the price  
21      forecasting.

22                We do have a product that's on the  
23      market right now that is economically competitive.  
24      Somebody asked this morning about the home  
25      refueling.  And the home refueling is a device

1 that Honda is selling with their Honda Civic. And  
2 that would refuel a vehicle at home overnight at a  
3 cost of about \$1.25 per gallon.

4 It also should be noted that in  
5 California probably 50 to 55 percent of the  
6 natural gas use, which is in either CNG or LNG,  
7 combined, that that 100 million gallons, 50 to 55  
8 percent of that is being sold into the marketplace  
9 to those transit properties for about \$1.50 a  
10 diesel equivalent gallon.

11 So we can't divorce ourselves from the  
12 economics; and we need to delve, you know, further  
13 in that. And I hope in working with the staff and  
14 everything, we can bring some of those issues out.

15 It's absolutely imperative if you want  
16 to have a good market assessment that you're well  
17 grounded in the economics.

18 I just wanted to show a couple -- next  
19 slide. We talked about the petroleum displacement  
20 with natural gas. These are the numbers. The  
21 chart isn't really pretty because I was doing this  
22 about 11:00 last night, trying to get it finished  
23 so I could bring it today.

24 But it shows you for Southern California  
25 Gas Company, 2005, 71 million therms. It shows

1 San Diego at 9 million; shows PG&E at 19.4.  
2 Coming to 100 million therms, which is 10 Bcf of  
3 gas load. And that only represents about 75  
4 percent of the NGV fuel. The other 25 percent is  
5 LNG. And it shows you the growth rate of that  
6 through-put.

7 Next slide, please. This shows the  
8 station count for California. And to the comment  
9 this morning about the numbers are all over the  
10 map. Well, if you take a look at the station  
11 growth from 2001 to 2005, those are real. Every  
12 single natural gas vehicle station, CNG station  
13 that's connected to a utility system has to have  
14 an individual meter on it because it's sold at a  
15 different tariff. And through-put is down into  
16 six significant figures, you know, for the  
17 through-put.

18 So, this is the growth of stations.

19 We took a look in July as we were getting  
20 some numbers ready for a meeting with CEC. And  
21 the station count was 408 as of July. It's not  
22 408 now; it's probably 415 or so.

23 So I wanted to show you how much the  
24 stations are growing. Those have nothing to do  
25 with fill home refueling units. Those are all

1 legitimate commercial stations at private fleets.  
2 And about 150 of those are public access.

3 Next slide, please. LNG is a newcomer;  
4 36 million gallons per year now consumed in  
5 California, and that's real easy to come by. Two  
6 suppliers, one delivering seven loads a day into  
7 California; the other one three loads a day into  
8 California.

9 That represents 24 percent of the  
10 natural gas fuel used. And that's about a nine  
11 times growth factor over the last six years. I  
12 have ten over five, but it's nine over six years.  
13 So that's showing you how much that market is  
14 growing. And that market, that 36 million gallons  
15 is generally with LNG trash trucks. That's all.

16 So we have in California, about 5400  
17 heavy duty vehicles; and those 5400 heavy duty  
18 vehicles are consuming about 95 or 85 million  
19 gallons of natural gas.

20 So, I think that not only is the goal  
21 that was originally proposed in the IEPR being  
22 met; it will shortly be exceeded. It certainly  
23 speaks that maybe the economics that we're  
24 predicting that natural gas was going to be a  
25 problematic fuel for the future, based on the

1 economics, seems to need to be revisited. And we  
2 will be doing that with staff.

3 VICE CHAIRMAN BOYD: Thank you. Seems  
4 to me we've gotten the economics of gasoline and  
5 natural gas wrong for quite awhile now.

6 Next, Mark Sweeney, also the Natural Gas  
7 Vehicle Coalition. Full court press today.

8 MR. SWEENEY: Thank you. My name is  
9 Mark Sweeney and I'm representing the Natural Gas  
10 Vehicle Coalition. I appreciate the opportunity  
11 to share our concerns with all of you this  
12 afternoon. I have about a 21-page PowerPoint  
13 presentation. I have a few hard copies that I'll  
14 hand out after my remarks. And what I intend to  
15 do is simply summarize the main points of my  
16 presentation.

17 And there are three large areas of  
18 concern that we have about what's been unfolding.  
19 First of all, we think that the Commission has  
20 understated the magnitude of the petroleum  
21 dependence problem.

22 And this for two reasons. One, by  
23 under-estimating the cost of petroleum. And  
24 secondly, by under-estimating the cost of -- the  
25 external cost of petroleum dependence. And for

1 those who went through the 2076 reports in great  
2 detail, there were three categories that costs  
3 were taken into account in the cost/benefit  
4 analyses. One being environmental, another being  
5 economic to the consumers, and a third is category  
6 of external costs.

7 Secondly, we have very serious concerns  
8 about the approach that the staff has taken to  
9 forecasting fuel prices. And there hasn't been  
10 enough opportunity for review and input from  
11 industry experts with respect to the fuel price  
12 forecast.

13 And lastly, we have a concern about the  
14 process. And let me start with an issue that's  
15 most important to us, and that's a concern about  
16 the fuel price forecast.

17 Now, every indication is that the same  
18 process that was followed for the 2076 report is  
19 going to be followed for the 1007 process. And  
20 that's a big problem for us.

21 Lorraine, which is the key to advance  
22 the slide? Arrow down? Okay. I'm going to skip  
23 through this in various places.

24 You know, the Commission Staff has  
25 presented information that is just extremely

1 misleading, which implies somehow an almost exact  
2 relationship between natural gas prices and oil  
3 prices. And I can tel you that the only  
4 coincidence in this graph results from the  
5 assumption that the staff has made, the natural  
6 gas prices, and oil prices are going to be almost  
7 exactly the same.

8 Now, when you look at the same  
9 information that's presented here, and look at the  
10 transportation sector fuel price forecast the  
11 Department of Energy prepares and presents in its  
12 annual energy reports, you get a very different  
13 story.

14 This basically shows the Department of  
15 Energy's forecast of world oil prices and U.S.  
16 natural gas prices on the same basis as the  
17 previous slide. And that's comparing world oil  
18 prices with domestic natural gas prices, wellhead  
19 natural gas prices per mcf.

20 Now, when you put the information on a  
21 consistent basis, dollars per million Btu basis,  
22 the DOE's analysis, which we think is a highly  
23 credible analysis, shows the same significant  
24 price advantage for natural gas in relation to oil  
25 and petroleum products.

1           You know, what happened before, and  
2           every indication is it looks like it's going to  
3           happen again, is the staff plans to develop fuel  
4           price forecasts for this process that are going to  
5           be used for cost/benefit analyses and market  
6           assessment and things like that.

7           And what the staff has done for a reason  
8           that is inexplicable to me, is assume that there's  
9           going to be a six-cents-per-gallon price advantage  
10          for compressed natural gas in relation to  
11          gasoline. And that 16 cents is kind of a  
12          universal constant. It applies today; it applies  
13          through 2030.

14          Now, what I've graphed here, to give you  
15          a frame of reference, is the Department of  
16          Energy's transportation fuel prices on a  
17          consistent basis. And their forecast shows that  
18          the price advantage for natural gas today is in  
19          excess of 60 cents a gallon. And will increase  
20          in the future to about \$1.60 a gallon in 2030.  
21          And all of this is in 2004 constant dollars.

22          Now, in the earlier analysis, relying on  
23          just a seriously flawed natural gas price  
24          forecast, the conclusion was reached that there  
25          were negative net benefits for natural gas

1 vehicle, a conclusion that is wholly unsupported  
2 and just simply wrong.

3 How do I go back. I'm skipping around  
4 here, so. I want to go to 14. Thank you.

5 And what I've done here is I've plotted  
6 the Department of Energy's transportation sector  
7 fuel price forecast for primary transportation  
8 fuels out through 2030. And this forecast shows a  
9 significant and increasing forecast price  
10 advantage for natural gas over petroleum and some  
11 of the other alternate fuels.

12 Now, this whole issue of fuel price  
13 forecasting is absolutely important, because if  
14 consumers aren't in a position to know, some  
15 opportunity to capture savings on the fuel cost  
16 side that might offset and defray the first-cost  
17 disadvantages of natural gas vehicles, that's  
18 going to have a huge impact on the  
19 commercialization rate of alternate fuel vehicles.

20 And as this information shows, natural  
21 gas is the only alternate transportation fuel in  
22 the market today that offers the prospect of  
23 significant fuel cost savings to NGV owners.

24 Let me turn to the issue of oil price  
25 forecasts and our concern that the forecasts have

1       understated the actual prices we're likely to see  
2       for oil. This chart kind of tested my PowerPoint  
3       capabilities, and it didn't come across as legible  
4       as I would have wanted.

5                 But what this is is the Energy  
6       Commission's forecast for oil prices in two  
7       scenarios. It was released in a November 2005  
8       report. And the high line is the high oil price  
9       case. And the low green line is the business-as-  
10      usual oil price forecast case. And what isn't  
11      clear is what the scale is on the left.

12                Let me tell you what the top point is  
13      for the scale on the left; it's \$45 a barrel. And  
14      the second data point on the horizontal axis is  
15      2005. And we can see that just this year alone  
16      oil prices have approached about \$80 a barrel.

17                Now, what I did in developing this  
18      presentation was to look at previous annual energy  
19      outlook forecasts going back to 1998, and looked  
20      at the price the Department of Energy forecast for  
21      the world oil price of 2005. And what I've done  
22      is plot those numbers in 2005 dollars across the  
23      chart. And in comparison of the actual price of  
24      oil in 2005, was \$48.85.

25                And basically what that means is that

1 the actual price of oil in 2005 was 200 percent  
2 what had been forecast in the previous five or six  
3 forecasts by the Department of Energy.

4 Now, this is true even in the high oil  
5 price case. This shows you the same information  
6 under DOE's high oil price cases. And basically  
7 the average of the previous forecast was well less  
8 than the actual prices we experienced in 2005.

9 Now, it's really important to know  
10 something about how the DOE forecasts oil prices.  
11 And I'm not criticizing them. I think they're as  
12 good a source as anyone. But it's important to  
13 understand that there's been a bias toward under-  
14 estimating prices. And I think the main reason  
15 for this is that in its forecast, basically the  
16 Department of Energy assumes a way for the future,  
17 the primary reason why oil prices have been as  
18 high as they've been over the past few years, and  
19 that is geopolitical instability in the Middle  
20 East.

21 Lastly, let me just say on the external  
22 cost of oil dependence, the previous work  
23 estimated that at 12 cents a barrel, and basically  
24 it was a cost penalty for petroleum fuels. And it  
25 was based on a number of studies. The study that

1 was the basis for the 12 cents was done in 1997.

2 All of the studies were done before 2002.

3           There was a study by a Columbia  
4 University Nobel Prize Laureate released earlier  
5 this year that estimated the cost of the Iraq war  
6 alone at \$1 to \$2 trillion. And we think that the  
7 estimates that have been relied on in the past for  
8 this external cost of petroleum dependence needs  
9 to be reconsidered and significantly increased.

10           Let me go back to just hit the  
11 conclusions here. Basically our view is that the  
12 Commission, in its analysis, should use the high  
13 oil price cases and assume those to be the most  
14 likely for any cost/benefit analyses that are  
15 conducted in this process.

16           And at the same time the Commission  
17 should recognize that there's a significant  
18 likelihood that these forecasts, the high oil  
19 price forecast will understate future oil prices.

20           In the absence of a more credible  
21 methodology, we believe that the Commission, for  
22 its fuel price forecast, should rely on those that  
23 are provided and developed by the Department of  
24 Energy using a very sophisticated peer review  
25 methodology as opposed to relying on the

1 approaches that the staff have used in the past.

2 And lastly, we need to reconsider and  
3 re-estimate the value for the external costs of  
4 petroleum dependence. Because we think it is much  
5 higher when you look at more recent information  
6 than was used before.

7 I'd be glad to take any questions you  
8 might have. Yes.

9 MR. UNNASCH: Stefan Unnasch with TIAX.  
10 Is there an issue with the value assigned to  
11 petroleum dependence that there should be a higher  
12 cost due to the Iraq war type of issues and the  
13 fact that we're importing petroleum? Or that the  
14 criteria pollutants and health effects weren't  
15 weighted high enough or something, or all of the  
16 above?

17 MR. SWEENEY: Well, as I understand it,  
18 I thought you guys did a good job on your external  
19 cost estimates of reviewing the literature.  
20 Basically we're looking at military and foreign  
21 policy costs associated with securing access to  
22 stable oil supplies, and the strategic petroleum  
23 reserve. And on the economic side, the economic  
24 harm of oil prices above a competitive level and  
25 the dislocations that result from fuel price

1 shocks.

2 And the analysis that was relied on is  
3 just simply out of date, and there's more current  
4 information that we think would provide a more  
5 credible foundation for an estimate of those  
6 costs.

7 VICE CHAIRMAN BOYD: Any other  
8 questions? Well, in --

9 MR. SWEENEY: Thank you.

10 VICE CHAIRMAN BOYD: -- addressing this  
11 issue to the two Commissioners sitting here,  
12 you're also addressing the Commission's Natural  
13 Gas Committee. And I can assure you that for all  
14 the years I've been here we've agonized every year  
15 over a better way to estimate particularly natural  
16 gas costs. But now it's becoming apparent for all  
17 fuel costs, the ability of all the estimators to  
18 land in the same ballpark as reality of late has  
19 been difficult, at best.

20 So, we hear what you say. We're going  
21 to keep working away at it. And we've had our  
22 differences with EIA in the past is the problem  
23 with regard to just accepting at face value what  
24 they say, also. So all I can say is we're still  
25 struggling with it, and appreciate your input and

1 your comments and you analysis here. I'm sure  
2 everybody will take a good hard look at it.

3 MR. SWEENEY: Thank you.

4 VICE CHAIRMAN BOYD: Okay, Todd  
5 Campbell. There he is. I thought Todd had left;  
6 I didn't see you through --

7 MR. CAMPBELL: I was hiding behind the -  
8 - I'm going to let Ms. White handle my slides. I  
9 figured I'd rather breeze through this, and I'm an  
10 elected official, so I'm not so good at this  
11 stuff.

12 But actually, instead of being the Mayor  
13 of Burbank before you today, I'm the Director of  
14 Public Policy for Clean Energy; we're North  
15 America's largest provider of natural gas. Very  
16 proud of that. For vehicles.

17 And why don't we go to the next slide.  
18 What's before us today is extremely important to  
19 me personally, but also extremely important for  
20 the economy and the world. World oil demand is  
21 approximately 84 million barrels per day. We have  
22 supply of about 84 to 85 million barrels per day.  
23 So we're very very close in terms of production  
24 and demand or supply.

25 And depending on where you are in terms

1 of where we are, in terms of oil production, some  
2 say in the most conservative sense that we are  
3 near the peak, if not at the peak. And then you  
4 have some less conservative views that within the  
5 next 20 years we'll be reaching the peak.

6 Either way, I think anyone and everyone  
7 would agree in this room that to be ahead of that  
8 curve, to be ahead of that peak would be  
9 advantageous for the health of the economy.  
10 Because if we're after that peak, I fear for us  
11 all in terms of economic stability.

12 When you look at the amount of fuel that  
13 we will need, 120 million barrels per day by 2020  
14 and you have a declining production curve, the  
15 final analysis says that we actually need all the  
16 fuels to make up that gap.

17 And so in sort of a solid -- stand here,  
18 I'm going to say to you that many, if not all, of  
19 the fuels that are being represented today we  
20 truly truly need them to make up that shortfall.

21 We also need to be vigilant when we are  
22 pushing forward with fuels to insure that air  
23 quality is at the forefront of each of our minds.  
24 Of course, some alternative fuels fare better than  
25 others. And if we can go to the next slide, this

1 is a slide that's presented by the South Coast Air  
2 Quality Management District during the MSRC  
3 retreat by Deputy Executive Officer, Henry Hogo,  
4 at the technology advancement office.

5 The good news is that most of the alt  
6 fuels are showing positive reductions or negative  
7 reductions in terms of emissions. And that's a  
8 good thing because as you see on the right-hand  
9 slide from the MATES II study, the above slide  
10 shows the toxicity with sources that do not  
11 include diesel exhaust. And the bottom slide  
12 clearly shows the toxicity when you include diesel  
13 exhaust. And obviously that has a huge impact in  
14 terms of, you know, how transportation can, in  
15 fact, not just our pocketbooks at the pump, but  
16 also our health.

17 Public health is an extreme concern for  
18 most of us. I'm sure that many of you are aware  
19 of goods movement and the impacts that that's  
20 having on the State of California. It's been  
21 estimated by the California Air Resources Board to  
22 commit about \$20 billion per year in health care  
23 costs. So we really need to not only bring  
24 forward alternatives, but alternatives that can  
25 also provide us health benefits.

1                   Next slide, please. You know, I usually  
2                   don't say these types of things, but I -- and I  
3                   shy away from them, but we're concerned that the  
4                   AB-1007 process is flawed. We feel that we've  
5                   always wanted to be at the table since the  
6                   beginning of the process.

7                   Many speakers have already come up and  
8                   said, you know, we just got this last week.  
9                   Really, we've only had five days to comment. And  
10                  we are more than willing, and you certainly have  
11                  heard from Mike Eaves and other representatives,  
12                  that they were willing to share their info. We  
13                  are still committed to sharing our info and our  
14                  documentation, as you saw. Mr. Sweeney had quite  
15                  a bit to share with you.

16                  But it's important and it's critical for  
17                  us to be able to share with you our analysis and  
18                  why we think -- or share with you why we have  
19                  concerns with the process so far.

20                  A perfect example is the economic  
21                  analysis. We have really yet to see or understand  
22                  how the agencies are going to move forward as we  
23                  believe the economic analysis will be the basis,  
24                  or is the best basis for the market assessment.

25                  And if you have poor assumptions or poor

1 analyses for the economic assessment, we feel that  
2 the market assessment will be impaired. The next  
3 slide kind of demonstrates this fact.

4 I kind of use the triangle; it's a very  
5 simple way of putting it, but we think the  
6 economic assessment is the basis. We believe that  
7 if -- and we can only assume that AB-2076 is going  
8 to be the way the agencies will develop their  
9 assumptions.

10 Our concerns, I think, were very well  
11 highlighted by the previous speaker, but just some  
12 of the highlights are we believe that the  
13 petroleum dependence issue is too optimistic. I  
14 mean in that we are under-estimating petroleum  
15 dependence and the costs that come with petroleum  
16 dependence.

17 We also are concerned with the links of  
18 natural gas prices to petroleum, which we feel are  
19 without basis. And we would really like to sit  
20 down with staff and understand why they are so  
21 committed to some sort of 16-cent link to  
22 petroleum prices, when other agencies don't do  
23 this.

24 We feel that ultimately we want to get  
25 away from our petroleum dependence. And we feel

1       that this way of moving forward actually ties us  
2       closer to it. It doesn't, it actually under -- or  
3       erodes the goals, the very goals that AB-1007 is  
4       trying to achieve. And that's unfortunately, in  
5       our view.

6                 So, if we could go to the next slide.  
7       We really think the next steps for both agencies  
8       to act on are as follows: We would love to have  
9       more transparency. We'd like to see the  
10      supporting documentation assumptions that were  
11      made for the economic analysis. We would like to  
12      help improve the economic assumptions, that they  
13      reflect real world energy conditions and futures.  
14      We think that's extremely important. Not just for  
15      natural gas, but for all fuels. And also for us  
16      to focus on problem areas that we need to address  
17      to get all fuels into the marketplace.

18                We also believe that we need to initiate  
19      more public meetings, and actually more meetings  
20      with staff to share that information for you.  
21      We're committed to do that. We'd like to have the  
22      next six to eight weeks to do that.

23                And we also think that other forecasts  
24      should be used that DOE also considers, I think  
25      that's extremely important. We'd like for the

1 improved economic analysis to perfect the market  
2 assessment, obviously. And, of course, our  
3 industry is committed, and I'm sure every other  
4 industry here representing their niche is also  
5 willing to do that.

6 So in the final analysis we would really  
7 like a commitment from both agencies to do this.  
8 And we are willing to roll up our sleeves with  
9 you, because we want to make sure we want to get  
10 it right. If we don't get it right, and we under-  
11 estimate or over-estimate, I think we'll find  
12 ourselves in a big big problem in the end.

13 Final thought. I didn't bring 20 slides  
14 with me today. We just want to conclude that  
15 California's strong policy emphasis on reducing  
16 petroleum dependence is critical to insuring that  
17 California's energy security, its economy, its  
18 environment and public health are intact.

19 We need all the alternatives to close  
20 the 30 million barrels per day, that demand in  
21 2020. Take the City of Burbank, for example. We  
22 have natural gas, we're a plug-in partner for  
23 hybrids. We have a hydrogen station. We are  
24 trying to do it all. We know we need all the  
25 fuels to meet the gap.

1                   And we need to have obviously from our  
2 biggest concern accurate economic assumptions and  
3 energy forecasts so that we can make the right  
4 decisions to meet or maximize the AB-1007 goals.

5                   So, with that, I'm asking for  
6 transparency; I'm asking you for industry  
7 collaboration; and time to have an honest  
8 dialogue. And I'm sure everyone at this table,  
9 and as well in this room, are interested in those  
10 goals.

11                   So, with that, thank you very much. And  
12 I appreciate your time.

13                   VICE CHAIRMAN BOYD: Thank you, Todd.  
14 Questions, comments? Thanks.

15                   Ron Freund, are you still on the phone?  
16 I have you on the list. Apparently not.

17                   Mark Geller. You're fine? Pass.

18                   Gina Grey.

19                   MS. GREY: Good afternoon, everyone. I  
20 have a very low tech presentation today. My name  
21 is Gina Grey and I'm here today representing the  
22 Western States Petroleum Association, also known  
23 as WSPA.

24                   Our 26-member companies are engaged in  
25 everything from exploration through to marketing

1 of a variety of fuels. Basically we like to look  
2 upon ourselves these days as more energy  
3 companies.

4 We did look at the key issues and  
5 questions that were listed for today's workshop.  
6 And basically determined that most of them were  
7 not within the realm that we could, as a trade  
8 association, respond. So we did ask our  
9 individual companies to get in touch with you and  
10 try and hold more dialogue on a lot of those  
11 issues.

12 But there are some questions that we do  
13 want to weigh in on today, in particular with  
14 respect to what role the government has to play in  
15 increasing alternative fuels in the state.

16 We are hopeful that this state plan will  
17 help corral all the separate government efforts  
18 being applied recently to alternative fuels so the  
19 state will have a chance to develop a well thought  
20 out and effective plan.

21 Now, I beg your indulgence, and I'm  
22 going to spend a couple of minutes on just  
23 education before I get into what our comments are.  
24 I get tired of wearing a black hat all the time,  
25 Jim, so here's the educational piece.

1           First, I think it's very important to  
2           say that WSPA supports the administration's goals,  
3           which aim to, and I'm quoting, "insure adequate,  
4           reliable and affordable energy supplies, while  
5           promoting renewable energy and advancing  
6           technology to improve California's economic and  
7           environmental conditions." And hopefully that  
8           doesn't surprise any of you at the podium here.

9           Our companies are committed to meeting  
10          the energy needs of industrial and transportation  
11          consumers well into the future. And the research  
12          and development efforts are continuing in the  
13          search for the most competitive, efficient and  
14          economical energy technologies.

15          Already it's becoming clear that going  
16          forward the mix of our fuels will be more diverse.  
17          In fact, according to a study that was completed  
18          in May by the Institute for Energy Research, our  
19          oil industry has invested \$98 billion, with a "b",  
20          in a five-year period from 2000 to 2005 in  
21          emerging energy technologies in North America.

22          Some of this investment has gone towards  
23          frontier hydrocarbons, such as gasification, GTL,  
24          tar and oil sands, et cetera. The same report  
25          states the industry invested 11 billion for

1 advanced end-use technologies and for fuel cells.  
2 Another 1.2 billion investment went to  
3 nonhydrocarbon investments.

4 I'd like to cite a couple of examples or  
5 projects that were announced recently. And I  
6 can't name the companies, unfortunately, but we  
7 can all discuss it later. One company will spend  
8 \$500 million over the next ten years to establish  
9 a dedicated biosciences energy research lab, the  
10 first facility of its kind in the world.

11 Another has formed a strategic research  
12 alliance with Georgia Tech and UC Davis to pursue  
13 advanced technology aimed at making cellulosic  
14 biofuels and hydrogen viable transportation fuels.  
15 As well as transportation fuels from renewable  
16 sources such as forests and agricultural residues  
17 and municipal solid waste.

18 And yet another has a \$46 million  
19 partnership with Iogen Corporation for the  
20 development and commercialization of cellulosic  
21 ethanol.

22 Now you add to this list, we have a lot  
23 of announcements that you may have heard of in the  
24 press recently where WSPA companies have joined  
25 together in several joint ventures to construct

1 and operate a number of biofuels plants. And  
2 hopefully you get a sense that there's quite a  
3 high level of interest by our industry in this  
4 whole field.

5 Here's the kicker. But, we also want it  
6 to be clear, we believe the promotion of  
7 alternative fuels, to the exclusion of base  
8 petroleum fuels, is not good public policy. And I  
9 believe we've said this quite a number of times.

10 We believe the state should support the  
11 expansion of clean-burning petroleum fuels  
12 augmented by any and all alternative and renewable  
13 fuels that are scientifically sound, cost  
14 effective and not mandated. And you may recall  
15 that we call this approach petroleum-plus.

16 We would encourage the state to adopt a  
17 balanced philosophy that does not exclude gasoline  
18 and diesel. If the state wishes to encourage  
19 renewable feedstock fuels, for example, we can't  
20 actually make gasoline and diesel from renewable  
21 feedstocks.

22 And I think one of the things that we  
23 noted was missing from the current report is  
24 renewable diesel, which several of our companies  
25 and I believe other entities are very interested

1 in. So, again, the mindset of gasoline and diesel  
2 are bad and everything else is good, I think may  
3 need a bit of revisitation. Just in terms of,  
4 again, if you want renewable feedstocks, let's  
5 look at renewable feedstocks.

6 On to the comment section. There is a  
7 critical need for this study to broaden its frame  
8 of reference to look at alternative fuels  
9 activities nationally and internationally. We are  
10 starting to see, for example, state and local  
11 efforts to promote alternative fuels with no  
12 thought being given to whether there will be  
13 sufficient fuel supplies or other impacts to the  
14 transportation fuel system.

15 The federal RFS was supposed to provide  
16 a national framework for the promotion of  
17 renewable fuels. Unfortunately, all the separate  
18 state actions are putting the federal program,  
19 which was, by the way, painstakingly developed in  
20 a very in-depth stakeholder process, it's putting  
21 that program at risk.

22 Second, aggressive state policies to  
23 implement alternative fuels before adequate fuel  
24 specifications and standards are in place, which I  
25 believe Dave Smith of BP mentioned this morning,

1 before adequate supplies are available and cost  
2 competitive, before adequate distribution systems  
3 are in place, before an adequate enforcement  
4 structure is in place, and before consumers are  
5 prepared and educated, will likely lead to market  
6 disruption, waste of public dollars and a backlash  
7 against the state's fuel or fuels of choice.  
8 Similar to what was seen by M-85 several years  
9 ago, which unfortunately our industry was part of  
10 that experiment.

11 The results of this study must result in  
12 stable public policy that allows all  
13 transportation fuels to compete after a thorough  
14 study is done. And I think what I've been hearing  
15 in many ways this morning was the three elements.  
16 You know, we're dealing a lot with the fuel here  
17 in 1007. The other two components are the  
18 consumer and the vehicles.

19 I think it would just be probably a good  
20 idea for all of us to understand that, you know,  
21 fuel is one element; and the other two are just as  
22 critical, if not moreso.

23 To avoid possible future negative  
24 consequences for California consumers, we suggest  
25 you pull in appropriate resources to fully

1 evaluate the financial impacts of new fuels or  
2 measures put in place by the state to encourage  
3 those fuels.

4 Many of the potential new policies and  
5 measures relative to alternative fuels, in  
6 particular mandates and subsidies, may have cost  
7 implications that need to be disclosed and  
8 analyzed. A tool, such as the Vantana  
9 transportation model that we understand your staff  
10 is reviewing, may be very valuable as part of that  
11 analysis.

12 And finally, among all of the work in  
13 the coming months relative to alternative fuels we  
14 hope we don't lose sight of a parallel challenge,  
15 which is how the state will deal with conserving  
16 and preserving energy resources, whether  
17 conventional or not.

18 Again, our position, and I thought I  
19 heard Todd Campbell say this, is that all fuel  
20 sources will need to play a role in the future to  
21 meet the demand. Even if the demand curve is  
22 dampened. Did you say that, Todd? Okay.

23 To summarize, getting to government's  
24 role. Government does have a role to play here,  
25 too. But it's important we not ask government to

1 pick technology winners and losers. History has  
2 demonstrated that we should not focus prematurely  
3 on just one approach which may or may not prove  
4 effective, while discouraging others that may have  
5 more potential in the long term.

6 Our view is the best path forward on  
7 alternative fuels will best be determined by  
8 technology, consumer preference, and a free  
9 marketplace. And I guess if we step back a second  
10 and just look at what is it the government  
11 typically does well, you know, the study, itself,  
12 definitely is a step in the right direction.

13 Streamlining of permitting requirements  
14 is another. Setting of standards, whether that  
15 specifications or other kinds of standards.  
16 Educating consumers; identifying barriers. And I  
17 think certification requirements have been  
18 mentioned a number of times. And things like  
19 research and development. Definitely all those  
20 things are things that government excels at.

21 And then finally in closing I just  
22 wanted to add that we also requested additional  
23 time to review the market assessment draft. So if  
24 that is granted we will be very happy.

25 Thank you. Any questions?

1                   VICE CHAIRMAN BOYD: Questions? From  
2                   the audience any questions? This is a workshop,  
3                   not a formal hearing. Now's your chance to have  
4                   at the oil industry.

5                   (Laughter.)

6                   MS. GREY: No tomatoes.

7                   VICE CHAIRMAN BOYD: Thank you, Gina. I  
8                   need to make a couple of comments. As has been  
9                   repeated here several times today, the bioenergy  
10                  agency working group is working very hard on the  
11                  whole question of renewable fuels. And has been  
12                  semi-jokingly said today, that, you know, a lot of  
13                  work has gone in there. A lot of you have seen a  
14                  lot of that work. And that certainly is a major  
15                  chapter of this report. So there is no lack of  
16                  interest in renewable transportation fuels.

17                  Secondly, I think this agency, and I  
18                  trust both agencies, have gone on record multiple  
19                  times saying there's no silver bullet; there's no  
20                  single fuel approach. The IEPR very clearly, the  
21                  Integrated Energy Policy Report, Energy Report,  
22                  call it what you want, says very clearly we need a  
23                  mixed, diversified portfolio of fuels. That one  
24                  of the problems this country has is relying on a  
25                  single fuel, and it's not working out too well for

1 a whole host of reasons right now.

2 And just like your financial advisers  
3 tell you to diversify your portfolio, well, we're  
4 trying to diversify the portfolio of fuels. And  
5 find the niches and the appropriate fuels and  
6 what-have-you. So, fears that we're going to  
7 drive this in the direction of a single fuel  
8 perhaps are misguided.

9 Lastly, or maybe not lastly, efficiency;  
10 the Integrated Energy Policy Report has three legs  
11 on the transportation energy stool. One of them  
12 is technology; the second is alternative fuels;  
13 and the third is land use and transportation  
14 planning improvements. All of which can  
15 contribute to improving in this arena.

16 And so we're very cognizant of the  
17 technology and fuels match. And that's why this  
18 is a partnership with the ARB, who has extreme  
19 expertise in technology as it relates to motor  
20 vehicles. And we intend to capitalize on that.

21 Were we, as a state, able to do in  
22 transportation fuel what we've done so well in  
23 electricity and natural gas, and have our own  
24 efficiency programs, and make vehicles more  
25 efficient, that would be job one. Because that's

1 the cheapest thing to do. But not having that  
2 authority, all we can do is push on that subject  
3 and push into the fuels arena.

4 And I'm pleased to hear that the oil  
5 companies are becoming energy companies. Because  
6 for years a lot of us have waited for that. So,  
7 hopefully through this joint effort we're all  
8 involved in, we can address that.

9 Having said that, I think we need to  
10 move into another witness, since some people think  
11 it is a hearing rather than -- Greg Shipley, are  
12 you still out there, and did you want to say  
13 anything more?

14 MR. SHIPLEY: Yeah, I'm still here and  
15 one comment that I wanted to make was that I would  
16 hope that the general approach is that we can all  
17 shed light on production capacity of alternative  
18 fuels in California.

19 In particular, over the past oh, two  
20 years, we've introduced legislation called AB-1090  
21 and AB-2118. And they've been killed in the  
22 natural resources division of the Assembly. And I  
23 believe it's the Assembly Members, and (inaudible)  
24 Hancock, in particular, needs additional  
25 information to justify promoting legislation that

1 would permit biomass-to-ethanol facilities in  
2 California.

3 I would hope that that would be some  
4 type of a balanced approach that a good study or a  
5 good process to come up that would aid our  
6 legislators in coming to a determination that we  
7 not only need alternative fuels for California,  
8 but we also need to have the capacity to produce  
9 those fuels in California, so that we don't have  
10 to import, whether it's from the Midwest, from  
11 Brazil or from other parts of the world, that we  
12 can take care of our own here in California.

13 VICE CHAIRMAN BOYD: Thank you, Greg.  
14 Any comments, questions? Harry Simpson, Crimson  
15 Resource Management.

16 MR. SIMPSON: Hello?

17 VICE CHAIRMAN BOYD: Hello.

18 MR. SIMPSON: Can you hear me?

19 VICE CHAIRMAN BOYD: We hear you.

20 MR. SIMPSON: Okay. I'm with Crimson  
21 Resource Management. We're an oil and gas  
22 producer in the State of California. We operate  
23 about 400 wells down in Kern, Ventura and L.A.  
24 Counties. And we operate pipelines, as well as  
25 gas -- facilities. And we operate the terminal,

1 (inaudible).

2 We've been looking at renewable energy,  
3 and, in particular, renewable fuels, for the past  
4 year. Earlier this year we committed ourselves to  
5 sort of getting in the game, if you will, having  
6 created a renewable energy subsidiary.

7 (inaudible) has primarily been an ethanol and in  
8 biodiesel. So we looked at the market assessment  
9 with a great deal of interest.

10 A couple comments on it. First of all,  
11 I think in terms of the LNG, CNG, hydrogen  
12 electric, you know, we didn't do any -- ourselves,  
13 we did do a fair amount of research based on  
14 material that was already available out there in  
15 the public domain and from talking to  
16 universities, as well as some existing users,  
17 particularly (inaudible).

18 And I tend to agree with what's in the  
19 market assessment. I think some of the comments I  
20 heard making a lot of hay about the pricing of gas  
21 is not so much the issue. I think ultimately, as  
22 Gina from WSPA said, I think consumer preference  
23 is part of that. Relative economics will  
24 ultimately dictate what technology wins.

25 I don't think government's role, once

1       again, I'm agreeing with Gina, is one of picking  
2       technologies. And so to the extent that engine  
3       manufacturers and the other folks that need to be  
4       present in a significant way for those fuels to  
5       have a large displacement effect in terms of  
6       displacing petroleum-based fuels. I think that's  
7       really one of the critical issues, rather than  
8       dwell on the price of gas.

9                Because I think, in the end, consumers  
10       will make the choices accordingly, although I'll  
11       tell you a funny story about a municipality in the  
12       Central Valley that has spent a half a million  
13       dollars of the state entitlement grant money  
14       putting in a CNG fueling station that they still  
15       don't have, three years later, a single CNG  
16       vehicle. And the thing just sits there un-used.

17               And I think that's an example of bad  
18       incentive and grant policy.

19               On ethanol, in regards to the market  
20       assessment, I think one of the things that really  
21       struck us as a little bit odd was the notion that,  
22       you know, perhaps a 3 percent number in terms of  
23       market coverage, as defined by the number of --  
24       percentage of number or percentage of existing gas  
25       stations that might be on E-85 might be

1 sufficient, I think is wholly understating what's  
2 going to be necessary for E-85 to really get the  
3 consumer uptake that you would need in order to  
4 have any significant petroleum displacement  
5 effect.

6           You know, if you look at what's  
7 happening in the Midwest, where they have, at  
8 most, 6 percent coverage, they're still not  
9 getting a large take regardless of the  
10 availability of flex fuel vehicles.

11           I'm not saying that E-85 won't make  
12 sense. What I'm saying is that I think TIAX, when  
13 they take another crack at this, might want to  
14 look at, you know, a given metro market. I think  
15 the reality is that most consumers are going to  
16 buy their gas, you know, on their way to or from  
17 work, near their home or near this office.  
18 They're not going to go four miles, five miles out  
19 of their way. I doubt that they'll go more than a  
20 mile out of their way to find fuel.

21           We suspect that if you look at a given  
22 metro market, you're going to need something  
23 closer to 20 to 30 percent coverage in terms of  
24 the percentage of service stations offering E-85.

25           And perhaps one way to do it is to look

1 at a specific metro market, maybe a smaller one  
2 like Sacramento, and try to test that notion.  
3 Because I really don't think 3 percent is going to  
4 do it.

5 The issue of instate ethanol production  
6 versus when we need it for E-85, I think is a  
7 relevant one. We've looked at ethanol production;  
8 decided not to get into it for a variety of  
9 reasons. But I think it would be pretty safe to  
10 assume, I think the report makes note of this,  
11 that even with the current 5.7 percent requirement  
12 for ethanol to gasoline additive, the state's  
13 going to be a net importer of ethanol pretty much  
14 in perpetuity.

15 If you want to add E-85 to the mix  
16 you're really going to look at how ethanol's going  
17 to get it stable. My company, for instance, we do  
18 a lot of ethanol transloading for the refineries  
19 in Bakersfield. And if you look at the value  
20 chain on how an E-85 product is going to need to  
21 get to market, the role of the terminal, the role  
22 of whether it's a third-party terminal, such as  
23 Kinder, or whether it's a, you know, a terminal  
24 through-put or position-holder, such as ourselves,  
25 that needs to really be looked at. And be

1 basically to help speed that along if you want to  
2 see significant E-85 distribution in the market.

3 Those are my comments on ethanol real quick.

4 Biodiesel, there's a woman who spoke  
5 earlier today; I think her name was Hannah; talked  
6 a bit about instate feedstock production. This is  
7 an area where we've spent a lot of time and energy  
8 talking with some of the larger growers in the  
9 Central Valley.

10 And I think this also perhaps relates to  
11 ethanol to a degree. Certainly corn's available  
12 today because of the burgeoning dairy industry in  
13 California. Whether California is going to plant  
14 more corn to meet the demands of ethanol remains  
15 to be seen.

16 I don't think right now at the rate of  
17 new ethanol plants going in it's going to  
18 massively outstrip the state supply. But if you  
19 look at biodiesel production, the reality is that  
20 we're certainly not going to grow soy in the state  
21 and so it's probably not the best bet.

22 And the other side to that coin is that  
23 most growers frankly make too much money from  
24 planting other crops. I mean the cash value, the  
25 net margin value per acre of nearly all the crops

1 that are grown in California, with the exception  
2 of wheat, way outstrip canola.

3 And if you look at the economics of  
4 canola, if you're just growing for seed, the  
5 economics are pretty bad for the farmer. And the  
6 money for the oil, so to speak, and getting crush  
7 capacity; the state has very limited oil seed  
8 crush capacity. Most of the existing crush plants  
9 in the United States utilize a technology called  
10 solvent -- extraction. It's not very popular with  
11 the ARB for obvious reasons and understandable  
12 ones. But that's something that the state is  
13 going to have to wrestle with if they want to see  
14 more instate production of an oil seed such as  
15 canola or safflower or even mustard seed crops  
16 that are more suitable for California. And the  
17 crops they would likely displace in terms of  
18 acreage would be wheat crops.

19 The likelihood of sugar beets and other  
20 things being grown, it's been tried and the  
21 economics weren't there in the past. There is an  
22 effort that is just getting started over at UC  
23 Davis, being headed up by Dr. Stephen Kafka, where  
24 he's forming a biofuels working group. We've  
25 actually made a, or about to make a small

1 financial contribution to kick-start it. But his  
2 efforts on a winter canola trial program where  
3 we're testing, hopefully be able to test a number  
4 of seed hybrids from Australia that are better  
5 suited to the California climate.

6 But I think that's an area that the  
7 state really needs to look at as part of this  
8 alternative fuels plan.

9 To the extent that somebody mentioned  
10 the availability of animal fat, there is nowhere  
11 near enough animal fat to meet the state's  
12 requirements if, for instance, we wanted to see  
13 something like 10 percent of diesel consumption  
14 offset by biofuels. The state consumes, including  
15 offroad uses, 4 billion gallons, a little over, of  
16 diesel a year. So, you know, 10 percent number is  
17 400 million gallons.

18 Our company is committed to building our  
19 first biodiesel plant that'll go online in June of  
20 next year. And it's a sort of starter plant for  
21 us at 30 million gallons a year. And I can tell  
22 you that I can't source enough tallow to meet the  
23 needs of that plant. I certainly can't source any  
24 canola oil instate or really any other feedstock  
25 other than yellow grease. Yellow grease has

1 certain issues with it when it comes to biodiesel  
2 production. We're prepared to deal with it, but  
3 you know, if you try to look at something like a  
4 200- or 400-million gallon a year number, there  
5 just isn't enough yellow grease or tallow by a  
6 long shot.

7 And you really need to look at some of  
8 the ag crops that I mentioned. In particular, I  
9 think canola, because of the oil yield per acre.  
10 But then you've got to resolve the problem around  
11 crush capacity.

12 And so those are some comments, if the  
13 CEC is going to look at sort of the feedstock  
14 production side of biodiesel that I would urge you  
15 to look at and perhaps talk to some of the same  
16 large agricultural outfits that we've talked to.

17 So I had mentioned -- I'd made a note of  
18 the likelihood that biodiesel is going to be  
19 moving through the pipeline. I think that's --  
20 our discussions with folks like Kinder Morgan and  
21 Colonial lead us to believe that at best we might  
22 be looking at perhaps a B-2 or B-5. In other  
23 words, a 2 percent or a 5 percent blended product  
24 that can move through the pipeline.

25 But you're still going to have the issue

1 of getting biodiesel to the terminal, and  
2 biodiesel to the refiner. Biodiesel, much like  
3 ethanol, really likes water. And that's a real  
4 issue for the pipeline folks. And I can't say I  
5 blame them, that you can't have a product moving  
6 through that's going to, you know, soak up water  
7 from the atmosphere and effectively contaminate  
8 the pipeline.

9 And so I think we need to be realistic  
10 in our assumptions of how biodiesel would move in  
11 a large scale, at least in higher blends or in its  
12 pure form, in a preblended state, if you will,  
13 through the pipeline network.

14 I've talked with some other folks that  
15 had been working on the alternative fuels plan at  
16 the CEC; and I've urged them to really look at the  
17 value chain of how petroleum products today get to  
18 the market. And if you look at that, and look at  
19 the kind of incentives and policy that impact  
20 terminal operators, whether they're third-party  
21 terminals, or whether they're terminal position-  
22 holders, such as ourselves, and if you look at  
23 distributors and the kind of infrastructure costs  
24 they may need to make in order to support E-85 or  
25 support biodiesel, those are some of the areas you

1 need to look at how you sort of sprinkle your  
2 incentives.

3 And it's not just a case of getting the  
4 product to be more price-competitive. Biodiesel  
5 in California, you know, if I look at the rack  
6 prices now, there is one terminal through-put  
7 that's starting to offer biodiesel next week out  
8 of their rack in Long Beach; that's PetroDiamond.  
9 And the current rack price is noted it's quoted by  
10 the distributor, actually, that operates their own  
11 rack, called GP Resources. That -- report and  
12 it's showing about a 20 to 30 cent premium for a  
13 B-20 fuel over standard diesel.

14 And a lot of that has to do with the  
15 economics of transportation, the importing of  
16 biodiesel from the Midwest. And so I think it's,  
17 we look at the alternative fuels plan and look in  
18 particular to renewable diesel, we really need to  
19 factor in instate production as a critical  
20 element. Because the reality is that out-of-state  
21 producers are fickle animals. They're going to go  
22 where they get the best price.

23 Some of you might find it interesting to  
24 note that this year, this winter and into early  
25 '07, we'll probably export, the United States that

1 is, close to 50 billion gallons of biodiesel to  
2 Europe because the pricing's better. And  
3 California can't compete on a price basis for  
4 renewable diesel if they're totally reliant on  
5 out-of-state production. That's going to be  
6 obviously problematic for meeting the state's  
7 goals.

8 So, just some thoughts for us to  
9 continue looking at as we study this plan and the  
10 implications of it, and how do we meet the goals.

11 That's it for my comments. Thank you  
12 for your time. And I look forward to  
13 participating more in this dialogue.

14 VICE CHAIRMAN BOYD: Thank you --

15 MR. SIMPSON: Any questions?

16 VICE CHAIRMAN BOYD: Thank you, Mr.  
17 Simpson. Anybody have a question? There is a  
18 question.

19 MR. LARSON: Mr. Simpson, Jim Larson  
20 here, PG&E. Where's the location of the  
21 municipality you referenced that had an unused CNG  
22 station?

23 MR. SIMPSON: I don't want to say it's  
24 Wasco, I don't have it handy in my notes. But if  
25 you -- I can find out the name of municipality. I

1 don't think it's Wasco, but it's nearby.

2 MR. LARSON: Okay, please do.

3 MR. SIMPSON: Will do.

4 VICE CHAIRMAN BOYD: Any other  
5 questions?

6 MR. UNNASCH: I guess since it's a  
7 workshop --

8 VICE CHAIRMAN BOYD: It is a workshop.  
9 Please. I wasn't even going to chair this  
10 thing --

11 (Laughter.)

12 MR. UNNASCH: Stefan Unnasch with TIAX.  
13 The comment on the station count, I guess I would  
14 think the thing that might be changed in the  
15 report is the wording on there's an example given  
16 that if you wanted to fuel the current FFVs, 200  
17 to 300 stations might be the right number, because  
18 then they would be properly utilized.

19 I think -- I don't want the report to  
20 say that we need 1000 or 30 percent of the  
21 stations, because the analysis that, for example,  
22 UC Davis has been doing has been looking at like  
23 the distribution of stations and the driving time  
24 to those stations. And if you get anywhere over 5  
25 percent market penetration, the driving time to

1       those stations ends up being like two minutes, if  
2       you accept whatever that figure of merit means.  
3       Whereas it's like a minute for a gasoline car.

4                So if you don't have to fill your car  
5       all the time on E-85, it would seem that the  
6       constraint isn't necessarily the station  
7       population, but rather the price of the ethanol or  
8       the consumer's interest in even buying the  
9       ethanol. So that was my comment on that.

10               MR. SIMPSON: In response to that, real  
11       quick, I think certainly energy equivalent pricing  
12       on ethanol's going to be critical to any consumer  
13       of E-85. Consumers aren't dumb. You know, figure  
14       it --

15               (Laughter.)

16               MR. SIMPSON: I still think that, you  
17       know, the 5 percent station penetration number  
18       versus drive times, I don't think that's  
19       necessarily applicable when you look at density  
20       and people's propensity to make the additional  
21       drive. And it's a question of -- and you're also  
22       assuming that you get exactly the stations you  
23       need to participate in an E-85 program, to make  
24       that, you know, precise geographic coverage viable  
25       to the 5 percent number.

1                   And, you know, I think some of the  
2 things that, you know, if you rolled this out  
3 let's say in a test market basis, and you create  
4 an incentive program in a test market basis, and  
5 you can get a reasonable number of service  
6 stations to participate, it's that traffic count  
7 and looking at the revenue stream to the owner of  
8 the service station that's going to be critical to  
9 getting the kind of uptake I think you're going to  
10 need.

11                   I still just don't believe the 3 percent  
12 number's going to come anywhere close to having a  
13 significant effect on consumer consumption.

14                   VICE CHAIRMAN BOYD: Okay, any other  
15 questions or comments on this particular issue  
16 that's being discussed? I guess not.

17                   Now, I have no more names. Is there  
18 anyone out there who'd like to say anything? Is  
19 there anyone on the phone who I don't happen to  
20 have a name, who wants to say something?

21                   Anyone in the audience like to say  
22 something? Bonnie, you looked like you were ready  
23 to leap up out of you chair.

24                   MS. HOLMES-GEN: I'd like to have the  
25 presence of the American Lung Association noted.

1 And I wanted to just convey that we are very  
2 strongly concerned about seeing a transition to  
3 alternative fuels as part of the public health and  
4 air quality agenda in California. And so we are  
5 watching this process very closely.

6 I wanted to join in stating a concern  
7 about the timeframe for reviewing the market  
8 assessment that has been brought up by other  
9 groups. And express that especially from all the  
10 comments that were brought up today, it seems  
11 there's a lot more work that needs to be done to  
12 fully take into account all of the promising  
13 alternative technologies, especially in the area  
14 of electric technologies, and natural gas and  
15 other areas that have been brought up today.

16 But it does seem like there's a lot more  
17 work that needs to be done to map out a pathway to  
18 success in increasing the marketshare of all these  
19 technologies.

20 And we would hope that the report would  
21 lay out incentives, ideas, new strategies that the  
22 state could pursue to increase the implementation,  
23 use, commercialization of these technologies. And  
24 we hope this report will be innovative in bringing  
25 together some new strategies, ideas; and

1 marshaling the resources of the state so that we  
2 can move quickly toward transitioning to  
3 alternative technologies.

4           The American Lung Association is  
5 particularly interested in seeing progress in  
6 hybrid electric and plug-in technologies, and  
7 compressed natural gas. You know, we're  
8 particularly interested in seeing sectors such as  
9 school buses and public transit buses turn over to  
10 alternative technologies so that we can both get  
11 public health benefits and get benefits to  
12 communities that are suffering from huge numbers  
13 of pollution sources and the circulation of these  
14 kinds of vehicles every day in their communities.

15           I also just wanted to find out a little  
16 more about what is envisioned in terms of the  
17 public health analysis, and the air quality  
18 analysis in the report that you're doing. I noted  
19 that you have some discussion of toxic air  
20 contaminants, and discussion of benzene,  
21 formaldehyde, some other toxic air contaminants.  
22 But I didn't notice a lot of discussion of other  
23 pollutants from the fuel sector.

24           And I'm just wondering how broad will  
25 this public health analysis be. Is there going to

1 be a discussion of the public health costs from  
2 these toxic particulate and other emissions from  
3 the fuels?

4 As you're aware, the Air Resources Board  
5 has very stunning numbers related to the public  
6 health impacts. We're talking about the numbers  
7 of premature deaths related to air pollution are  
8 in the numbers of 8000 or more per year and  
9 growing. We have over 350,000 asthma attacks;  
10 thousands of hospitalizations every year directly  
11 related to air quality. And a majority of those  
12 are related to fuel emissions.

13 So I guess I'd like to understand, is  
14 this report going to be incorporating the public  
15 health costs of all of those illnesses and  
16 premature deaths, asthma attacks, and even -- and  
17 the other lung health impacts.

18 New studies are coming out every day  
19 talking about impacts to infants in terms of  
20 infant mortality, even. And premature births.  
21 There's a huge number of studies in that area.

22 So I want to make sure that as we're  
23 moving forward this report is going to take into  
24 account the full public health costs. And take  
25 into account some of the numbers.

1           I know the ARB is currently updating the  
2 numbers because of the Jarret study. We're  
3 looking at public health impacts that are two to  
4 three times greater than previously estimated. So  
5 even the numbers that we currently have are being  
6 updated and increased.

7           And the numbers that I have right now  
8 from the Air Resources Board are in the range of  
9 over 50 billion per year in terms of health costs,  
10 the cost of premature deaths, the costs from  
11 missed work and of school absences. All of these  
12 various costs.

13           So, I'm trying to understand how all  
14 this is going to be taken into account in looking  
15 at the full health impact of transitioning to  
16 alternative fuels and reducing our petroleum  
17 dependence.

18           And I think that's part of your charge  
19 in AB-1007. It's a very big charge. I know that  
20 you tried to visit this once in 2076, but it seems  
21 that there's more work to be done.

22           So that's my big question for you.

23           VICE CHAIRMAN BOYD: Well, I'm going to  
24 defer the question to the agency that you  
25 mentioned multiple times there that has all this

1 data and --

2 MS. HOLMES-GEN: Okay.

3 VICE CHAIRMAN BOYD: -- and ask if the  
4 ARB would like to comment on this. And Lorraine  
5 and Barbara may want to have some comments in  
6 terms of their managing this activity. And as  
7 indicated today, to me today is a workshop on just  
8 a couple of the pieces of this whole study, so  
9 anything we've seen so far isn't comprehensive  
10 enough to answer all your questions.

11 But, Mike?

12 DEPUTY EXECUTIVE OFFICER SCHEIBLE: I  
13 think we'll probably be dealing with those issues  
14 more comprehensively in the updates to the state  
15 implementation plan, and showing how we attain  
16 standards. In this exercise we have to make sure  
17 that as we move from what would have been in place  
18 to using more alternative fuels that we make the  
19 situation better, not worse.

20 And to the extent that those fuels offer  
21 the opportunity to make it better, then there  
22 would be benefits to be put into the plan.

23 But I don't know how rigorous we're  
24 going to get with that in this timeframe.

25 MS. HOLMES-GEN: Um-hum.

1 DEPUTY EXECUTIVE OFFICER SCHEIBLE:

2 Clearly we have to do it in a way that we come up  
3 with a solution that doesn't make the path to  
4 clean air any slower.

5 MS. HOLMES-GEN: And clearly that's --

6 DEPUTY EXECUTIVE OFFICER SCHEIBLE: And  
7 hopefully we'll find some ways to make it faster.

8 MS. HOLMES-GEN: Um-hum, yeah, we'd  
9 strongly agree. We don't want to see any  
10 tradeoffs where we're allowing worsening of air  
11 quality just to move in an alternative fuels  
12 direction. We have to have both clean fuels that  
13 meet the air standards and reduce greenhouse gas  
14 emissions. And, you know, I think we're on the  
15 same page.

16 But we also want to see the full impact  
17 on public health considered as part of the urgency  
18 for moving forward on the cleanest alternative  
19 fuels as quickly as possible. And providing some  
20 urgency in developing the approaches that are  
21 going to get us as quickly as possible to reduce  
22 our petroleum dependence.

23 Thank you.

24 MS. WHITE: If I may. I just wanted to  
25 touch on a couple of slides I presented earlier

1       this morning. This first one lays out some of our  
2       next steps. And, of course, we're just talking  
3       about the first two major tasks associated with  
4       this effort. And they provide the baseline  
5       essentially from which we will do the evaluation  
6       that you speak of, in setting goals.

7                 We're trying to have all of the building  
8       blocks that are necessary to set goals for the  
9       future that meet the criteria that are specified  
10      in the legislation. And there's really five major  
11      criteria we have to satisfy:

12                Addressing public health and  
13      environmental improvement; addressing cost  
14      effectiveness and instate cost/benefits, or  
15      maximizing cost/benefits; looking at consumer  
16      acceptance and having no material increase in  
17      emissions.

18                Those are all activities that we really  
19      feel we have to incorporate as part of this  
20      scenario evaluation so that we can look at what  
21      types of goals make sense in meeting all of that  
22      criteria.

23                And previous in this presentation I had  
24      talked about just the four major things we've  
25      identified so far we know have to be a part of

1       that scenario analysis: Looking at the  
2       incentives; looking at instate production; doing  
3       consumer surveys; looking at the economic  
4       analysis.

5                But inherent in all of that is also what  
6       we learn in the full fuel cycle assessments about  
7       the emissions and their impacts and their costs.  
8       And also what we're starting with from the market  
9       assessment.

10               So these are all building blocks we're  
11       pulling together, and the market assessment right  
12       now maybe didn't meet everybody's expectations for  
13       that view into the future and looking at all the  
14       potential, but that's really what the scenario  
15       analysis has to address. Because it's going to  
16       have to be a scenario and a recommended goal that  
17       meets the criteria that's specified in AB-1007.

18               So, from the actions today, we've  
19       defined some of these major components of any  
20       scenario analysis, but we need to be bringing  
21       people in to help us insure that of those  
22       components we're looking at the right types of  
23       things in terms of incentives and potential for  
24       instate production. But that we've not missed  
25       something; that there's not something else we need

1 to be looking at, as well.

2 We have a couple of things on the table,  
3 Commissioners, and we need to decide how far we  
4 want to push out the comment period on the market  
5 assessment.

6 VICE CHAIRMAN BOYD: That was going to  
7 be my very next question of you. We, up here,  
8 have taken a little poll, but I'm going to let the  
9 staff volunteer some --

10 MS. WHITE: I'd like to recommend no  
11 later than November 3rd. That's two --

12 VICE CHAIRMAN BOYD: Oh, well, we're all  
13 thinking of the same date.

14 MS. WHITE: Okay, it's two weeks --

15 VICE CHAIRMAN BOYD: We didn't  
16 rehearse --

17 MS. WHITE: -- from this Friday.

18 UNIDENTIFIED SPEAKER: November what?

19 MS. WHITE: Third.

20 VICE CHAIRMAN BOYD: Third.

21 MS. WHITE: So it will give people a  
22 total of four weeks to have looked at the -- 20  
23 working days, responding to Dave Modisette's  
24 request, to look at the market assessment.

25 We will also be taking the comments that

1 we've received today and work them into the  
2 proposal for the market assessment assumptions,  
3 sensitivity analysis and overall recommendation  
4 for approach to put together a written document on  
5 which people can comment even further.

6 We had envisioned this as being just the  
7 first of likely many discussions on the full fuel  
8 cycle assessment. And identifying the appropriate  
9 assumptions to build into that; the approach; all  
10 of the considerations that need to be a part of  
11 it.

12 That work will continue. And as soon as  
13 we get the written document together, we will  
14 convene working groups, try and get them out to  
15 the existing working groups that we had put  
16 together as part of AB-2076, and continued in  
17 2005. And then convene a larger workshop to  
18 obtain public input.

19 So, as you look at the schedule, there's  
20 a bit of work to do in the next six to eight  
21 weeks, of course. The market assessment revision  
22 will slip a couple of weeks, so it will be in  
23 December. We still have to do a status report to  
24 the Governor for December 2006, which will  
25 document the work to date, input we've gotten from

1 parties. And so we encourage you to look at those  
2 questions, look at the market assessment, provide  
3 meaningful input to that.

4 And then to the extent appropriate, as  
5 folks are looking out in terms of potential for  
6 different fuels, economic considerations we need  
7 to be making, concerns about public health that we  
8 need to consider. We would like to encourage you  
9 to take advantage of this comment period and  
10 provide us that input as early as possible.

11 Ultimately, of course, we have to submit  
12 the report, the plan, June 2007. So it's going to  
13 be a busy next eight months.

14 VICE CHAIRMAN BOYD: Any questions from  
15 folks in the audience about process, procedure or  
16 what Lorraine just said? Or comments on the day,  
17 recognizing it's kind of -- I now see how  
18 difficult it is to have a workshop on two very  
19 narrow parts of the entire, you know. Chip a  
20 couple of ice cubes out of that iceberg that we're  
21 hauling out of the water, and not talk about the  
22 whole bloody iceberg. Which is good, because more  
23 and more recognition of the fact that it's a giant  
24 system and everything's interconnected. But it's  
25 also difficult, therefore, to stick to the agenda,

1 and not recognize how everything is interfaced.

2 I'm suddenly, after Bonnie talked, I'm  
3 reflecting on the number of years I've been at  
4 this, and the fact in the early years -- I mean  
5 California's been in alternative fuels for two  
6 decades, and the drivers were air quality and  
7 energy security through energy diversity.

8 But the latter always went away every  
9 time OPEC decided to take the heat off. And the  
10 price of fuel got cheap again.

11 But air quality has been the persistent  
12 driver for years and years and years. And that  
13 isn't forgotten or lost, I don't think, on anybody  
14 involved in this.

15 But times have changed, and energy  
16 security is more important to the citizens.  
17 Because now they recognize that energy security  
18 has a lot to do with the price they pay for fuel,  
19 and that's what sensitized the politicians to  
20 really get on this issue of late.

21 But energy security now has two  
22 different facets. It's the old one that I just  
23 talked about, and now it's the international  
24 security and the terrorism and where might the  
25 money be going we're spending, the \$300- and \$400-

1 billion a year of trade imbalance associated just  
2 with the cost of transportation fuel.

3 And climate change is the last new  
4 driver. And perhaps the strongest one of all, or  
5 practically. So when you get all those new things  
6 pushing us to do something, it does show the  
7 interconnection amongst all the systems.

8 And as I shouldn't say, but will,  
9 because I do it in speeches all the time, when the  
10 oil president says, you know, we're addicted to  
11 oil and need to change, I think the public gets  
12 the idea that something is wrong. And what  
13 California's been trying to do for years is maybe  
14 what a lot of other people ought to be trying to  
15 do, too, now.

16 So, once again we find we have to maybe  
17 be a little out front, just because that's our  
18 nature. But, this is really more part of a  
19 national effort than anything else I have seen.

20 So there are a lot of circles of  
21 activity that overlap here; and a lot of chains or  
22 links in this chain that have got to be put  
23 together. And this is a monstrous task as it cuts  
24 across everything possible.

25 So, I commend the staff for what they've

1 done. Some people think they've taken an awful  
2 long time to get to this point. But when you  
3 realize the magnitude of the issue I just  
4 described that's why it takes a long time. And  
5 it'll take the resources of both agencies. And I  
6 look forward to the next workshop over at the ARB,  
7 and Mike can do all the chairing, or Bob Sawyer,  
8 or what-have-you.

9 There's a hand in the audience. And  
10 it's a workshop, have at it.

11 MR. SWEENEY: It would be great to have  
12 the opportunity to review any --

13 MS. WHITE: At the microphone.

14 MR. SWEENEY: Sure. It would be great  
15 to have the opportunity to review any proposed  
16 fuel price forecasts and any economic assumptions  
17 that might be used in cost/benefit analyses of the  
18 alternative fuel technologies that are being  
19 considered sooner, as opposed to later.

20 MS. WHITE: Well, in terms of the  
21 economic analysis, one of the things I'd mentioned  
22 this morning is we are trying to coordinate it  
23 with the efforts of the Climate Action Team's  
24 economics analysis.

25 And as soon as we're able to insure that

1 they're consistent, not going to be in conflict  
2 with each other, we'll be able to provide that to  
3 folks and get their input on it.

4 MR. SWEENEY: Including the fuel price  
5 forecasts?

6 MS. WHITE: Oh, yeah, yeah, --

7 MR. SWEENEY: Good.

8 MS. WHITE: -- that'll be a part of it.

9 MR. SWEENEY: Thank you.

10 MS. WHITE: Um-hum.

11 VICE CHAIRMAN BOYD: Any closing  
12 comments from -- since I've dominated the  
13 microphone all day.

14 COMMISSIONER BYRON: Thank you,  
15 Commissioner. You know, I'd first like to thank  
16 everyone that's here. The participation, the  
17 input that we received today was just fabulous.

18 But that's not to cover in any way, I  
19 think, some extremely significant comments that I  
20 heard with regard to the material that we covered  
21 today.

22 Some of the most important ones are  
23 transparency, and we take that very seriously.  
24 This Commissioner, and I think my fellow  
25 Commissioner and colleagues of the ARB are very

1 committed to making sure this process is  
2 transparent, and that you have plenty of  
3 opportunity for input.

4 And we've got a number of what appear to  
5 be data errors and some assumptions in our work  
6 that need to be looked at more critically. And  
7 we're committed to doing that.

8 And this was discussed a little bit  
9 earlier, making sure that you all have enough time  
10 for the input that we're soliciting.

11 So, having said all that, the  
12 legislative mandate that we have here is a  
13 challenging one. It's going to be difficult. And  
14 my Advisor tells me we have to meet that June date  
15 or there will be problems with that. The  
16 Legislature mandates it. So we really continue to  
17 solicit your input and assistance on that.

18 I think the transference that happened  
19 today, at least in my mind, is pushing you for  
20 input is now going to be transferred to pushing  
21 the staff and our contractors to be a little bit  
22 faster and quicker in responding to the work that  
23 needs to get done in order that we can meet our  
24 schedule.

25 So, again, thank you all very much for

1 coming today.

2 DEPUTY EXECUTIVE OFFICER SCHEIBLE: On  
3 behalf of the Air Resources Board I want to thank  
4 you for participating. It helps us greatly to  
5 focus on the issues that are important to you, and  
6 make us double-check all the stuff that we've done  
7 so far.

8 If anyone out there has suggestions on  
9 how we handle projecting the future prices of oil  
10 and the other fuels --

11 (Laughter.)

12 DEPUTY EXECUTIVE OFFICER SCHEIBLE: --  
13 and how we handle the uncertainty in that, I look  
14 forward to seeing that. I think that's a whole  
15 new ballgame that the economics of alternatives  
16 are far different today than they were three years  
17 ago. And when you look out into the future, the  
18 economics are going to work for many things, where  
19 in the past they've worked against it.

20 But I don't know what they're going to  
21 be. And we may need to design a plan that says if  
22 this is what happens, the economics work, and  
23 probably push us that way. If something else  
24 happens, we're going to need incentives or some  
25 other approach to make sure that we sustain it.

1 And what do we do if it bounces up and down.

2 And second, for those of you that were  
3 underwhelmed with the market assessment because it  
4 kind of looked at where we are today and where  
5 we've been and what past policies have done, I'm  
6 so optimistic that as we come forth with the  
7 scenarios and we put together something for  
8 consideration, you're going to see a much  
9 different picture. We didn't project what we  
10 think will happen in the future, we basically have  
11 a snapshot of where we've gotten to today.

12 VICE CHAIRMAN BOYD: Thank you, Mike.  
13 That was a good summary. The scenarios are, as  
14 Lorraine said earlier today, a major component  
15 that will reveal some of the issues that folks  
16 raised today that they had wished were contained  
17 in this document. But we've got to crawl before we  
18 walk to this issue.

19 Well, thank you, everybody. And  
20 appreciate you being here, and I'm sure the staff  
21 looks forward to seeing more of you more often in  
22 the future.

23 (Whereupon, at 4:10 p.m., the workshop  
24 was adjourned.)

25 --o0o--

## CERTIFICATE OF REPORTER

I, PETER PETTY, an Electronic Reporter, do hereby certify that I am a disinterested person herein; that I recorded the foregoing California Energy Commission and California Air Resources Board Joint Workshop; that it was thereafter transcribed into typewriting.

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

IN WITNESS WHEREOF, I have hereunto set my hand this 20th day of October, 2006.