

California Energy Commission

In the Matter of, ) Docket No. 14-ALT-01  
 )  
2015-2016 Investment Plan) )  
Update ) )  
 ) )  
\_\_\_\_\_ )

Wednesday, November 12, 2014

Meeting and Public Workshop of the

Advisory Committee

Alternative and Renewable Fuel and Vehicle Technology

Program (ARFVTP)

Held at the CEC  
1516 Ninth Street, Hearing Room A, First Floor  
Sacramento, California 95814

Committee Members Present:

Janea Scott, Commissioner  
Alberto Ayala  
Shannon Baker-Branstetter  
Tim Carmichael  
Peter cooper  
Joe Gershen  
Brian Goldstein  
Bonnie Holmes-Gen  
Stephen Kaffka  
Ralph Knight  
Brenda Smith for Howard Levenson  
Simon Mui  
Kurt Schuparra  
Jananne Sharpless  
Chris Shimoda  
Kate White

Staff Present:

Jean Baronas  
Jim Bartridge  
John Butler  
Kristen Driskell  
Andre Freeman  
Judith Friedman  
Jim McKinney  
Jacob Orenberg  
Randy Roesser  
Charles Smith

Attending:

Cory Bullis  
Jamie Hall  
Julia Levin  
Urvi Nagrani  
Raoul Renaud  
Paul Staples  
Brittany Syz

## I N D E X

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

2 NOVEMBER 12, 2014 10:05 a.m.

3 COMMISSIONER SCOTT: Good morning. I'm  
4 Commissioner Janea Scott and I oversee the transportation  
5 work here at the California Energy Commission. I want to  
6 welcome all of you. It's great to see everybody and to  
7 thank you all again for lending your expertise and insights  
8 to our Alternative and Renewable Fuel and Vehicle Technology  
9 Program.

10 I wanted to just highlight a couple of things for  
11 you and then we'll do some introductions. And then we'll  
12 get right to it.

13 Some of the highlights that I wanted to raise with  
14 you all is that things that the program has been doing for  
15 a while. And so, as you know, we've got a map of all of our  
16 projects. That's up on the webpage so you can kind of take  
17 a look at that and see where the projects are.

18 We've put together a clean transportation tour on  
19 the webpage. And that showcases projects from each of the  
20 categories that we fund. And if you have a project that you  
21 would like to see us showcase, please let us know because  
22 we'd be happy to add some additional projects to that Clean  
23 Transportation Tour.

24 We've included on our webpage a schedule for the  
25 upcoming solicitations and it gives folks a sense of what  
26 order to expect our solicitations so you have a sense of when

1 they're coming.

2           We've been working on some efforts to include a  
3 broader set of interested stakeholders. And to do that what  
4 we did was we held a series of workshops around the state  
5 and we talked about the Alternative and Renewable Fuel and  
6 Vehicle Technology Program, and what it is and how you could  
7 be involved. And so we're trying to do some outreach to get  
8 a broader set of folks interested in the work that we are  
9 doing.

10           I've been to a bunch of groundbreaking and  
11 ribbon-cuttings, which is always a lot of fun. It's great  
12 to see the projects kind of come to fruition. And one  
13 that's coming up, actually, is the West Sacramento Hydrogen  
14 Station is opening in early December, so we're really  
15 excited about that.

16           We've done some vehicle and technology displays  
17 around the Commission. So we've had some plug-in electric  
18 vehicles, we've had fuel-cell electric vehicles, natural  
19 gas trucks, charging stations. We've kind of had a lot of  
20 those outfront so that we can showcase for folks what this  
21 technology is. And I'd like to thank those of you around  
22 the room and around the table and on the phone who helped  
23 us to get those set up.

24           And then one other thing I wanted to highlight for  
25 you is our Integrated Energy Policy Report. And this has  
26 been an update here for us. And in an update here, what that

1 does is it allows the Energy Commission to focus on a topic.  
2 And we focused this year on transportation. And so for me  
3 that was really exciting because it gave us an opportunity  
4 to hone in and have good discussions on some of the key  
5 issues, like the statewide plug-in electric vehicle  
6 infrastructure, the metrics that we've all been discussing,  
7 alternative-financing mechanisms, how the transportation  
8 system and the electric grid and the natural gas system are  
9 all sort of starting to integrate with one another.

10 And I raise that because we just released the  
11 draft for comment on Monday. There's going to be a workshop  
12 on November 24th, and I hope that you guys will take a look  
13 at it and review it and provide us with comments. And many  
14 of you have participated in the workshops. You've provided  
15 us with comments already, but take a look at what we've put  
16 together. And we'd love your thoughts on that. The  
17 comments for that are due by close of business December 8th.  
18 I just wanted to mention that.

19 And then I also wanted to mention where we've had  
20 changes in the program. Our Deputy Director Randy Roesser  
21 has retired. But never fear, he's still lending his  
22 expertise to the program. And we have a new Deputy Director  
23 for the Fuels and Transportation Division that I wanted to  
24 introduce to you. Her name is Judith Friedman.

25 And would you like to make a few remarks?

26 MS. FRIEDMAN: Thank you, Commissioner Scott.

1           Thank you, everybody. I'm very, very pleased to  
2 be here. Some of you may remember me from my Air Resources  
3 Board days, some of you may remember me from my Integrated  
4 Waste Management Board in our Cal Recycle days, and some of  
5 you just may not remember me, but I'm very, very pleased to  
6 be here, part of this very fine program and the really good  
7 work that's going on. It's an exciting time to be here.  
8 Thank you.

9           COMMISSIONER SCOTT: Great. Well, welcome.  
10 We are so glad to have Judy.

11           So why don't we take a minute to go around the  
12 table for introductions. So I introduced myself already.  
13 I am Janea Scott, Commissioner at the California Energy  
14 Commission.

15           MR. MCKINNEY: This is Jim McKinney, Program  
16 Manager for the Alternative and Renewable Fuel and Vehicle  
17 Technology Program.

18           MS. FRIEDMAN: And I also was introduced, Judy  
19 Friedman, Deputy Director, Fuels and Transportation  
20 Division.

21           MS. SHARPLESS: I'm Jan Sharpless, former chair  
22 of the California Air Resources Board and former Energy  
23 Commission. And, as you could see by the listing, I'm here  
24 representing the public at large. Thank you for having me.

25           MS. SMITH: And I'm Brenda Smith. I'm a branch  
26 chief at CalRecycle and I'm here standing in for Howard

1 Levenson.

2 MR. KAFFKA: Steve Kaffka from the University of  
3 California at Davis and the California Biomass  
4 Collaborative.

5 MR. KNIGHT: Ralph Knight, Napa Valley Unified  
6 School District.

7 MR. MUI: Simon Mui, the Natural Resources  
8 Defense Council.

9 DR. AYALA: Good morning. Alberto Ayala,  
10 California Air Resources Board.

11 MR. CARMICHAEL: Good morning. Tim Carmichael  
12 with the California Natural Gas Vehicle Coalition.

13 MR. SHIMODA: Chris Shimoda, Policy Director for  
14 the California Trucking Association.

15 MR. GERSHEN: Joe Gershen, the California  
16 Biodiesel Alliance.

17 MS. DRISKELL: Kristen Driskell, Advisor to  
18 Chair Weisenmiller at the California Energy Commission.

19 MR. BARTRIDGE: I'm Jim Bartridge, Advisor to  
20 Commissioner Scott.

21 COMMISSIONER SCOTT: And, Charles, do we have any  
22 Advisory Committee members on the phone?

23 (Static sounds from the telephone connection.)

24 MR. SMITH: I believe we have Brian Goldstein  
25 from Energy Independence Now on the phone as well.

26 COMMISSIONER SCOTT: Oh, great. Okay, we've got  
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1 Brian Goldstein from Energy Independence Now on the phone.

2 Thanks for joining us.

3 Okay. Well, thank you, everyone, for being here.

4 Let me now turn it over to Charles Smith and Jim McKinney.

5 They're going to discuss the program's accomplishments to

6 date and the proposed 1516 investments.

7 MR. MCKINNEY: Okay. Good morning, everybody.

8 So again, Jim McKinney, program manager. So are we on?

9 Can you hear me through the mic okay?

10 (Discussion off the record about the microphone.)

11 MR. MCKINNEY: I'm going to speak from over here

12 to get it going. Okay, here we go.

13 Okay. So again welcome on behalf of staff to our

14 Advisory Committee Meeting for the 1516 Investment Plan.

15 So the way Charles and I will divide the staff presentations,

16 I will do a summary of where we've been, what our

17 achievements are to date, and then Charles will walk us

18 through the staff proposals for funding plan

19 recommendations in the 1516 Investment Plan.

20 And for the housekeeping items, I'll try to do

21 that from memory. Bathrooms are located out in the hallway

22 here on the left side. We do have some semblance of a snack

23 bar now upstairs and I think there's something resembling

24 coffee. Let's hope. I haven't tasted it yet. In effect

25 of an emergency, please exit the room and assemble out on

26 the sidewalk and walk katycorner over to the park and then

1 wait for people that look official with signs to tell you  
2 where to go and what to do afterwards.

3 And, with that, why don't we go into the program,  
4 so slide, please.

5 Thank you, Commissioner.

6 For the discussion part of the meeting I've been  
7 asked to moderate that. So the way we do it is for -- for  
8 each funding line category, we will first hear from members  
9 of the Advisory Committee present. Then we will go to  
10 members of the Advisory Committee on the phone. And, third,  
11 we will take public comment.

12 Please bring a blue card up to where I sit here  
13 and I will be moderating that part of the discussion.

14 Through the staff presentations we will take  
15 clarifying questions at the end of each, but let's save the  
16 substantive policy questions and discussion for your role  
17 as Advisory Committee members.

18 And we have today's agenda, so again  
19 introductions, program status report, development of the  
20 1516 Investment Plan, Advisory Committee discussion, lunch,  
21 and then we'll continue will discussion until we've  
22 completed all the Funding Plan elements. Slide, please.  
23 Slide, please.

24 So to set the stage, I think the sense of scale  
25 in California is critical for us to remember. A hundred  
26 million dollars seems like a lot of money until you put it

1 up against a \$2 trillion economy, and the sense of scale is  
2 important. So we have a large economy, we have very high  
3 GHG emission levels. We have severe air quality  
4 non-attainment in the San Joaquin Valley and parts of the  
5 South Coast Air District. We have one of the largest  
6 vehicle fleets in the world with over 27 million passenger  
7 vehicles and light-duty pickup trucks and nearly one million  
8 medium-duty and heavy-duty trucks.

9 Our fuels market is also one of the largest in the  
10 world, so we have over 14 billion gallons of gasoline, 3.6  
11 billion gallons of diesel fuel, and 170,000 miles of major  
12 roadways. Slide, please.

13 So Assembly bill 118 established our program back  
14 in 2007. We had our rulemaking in '08. And we've done  
15 investment plans and grant awards ever since. In 2013 this  
16 bill was reauthorized through the leadership of Assembly  
17 Perez in a very broad coalition within the State Legislature  
18 with the support of many of our stakeholders here today.

19 With the addition, with the passage of AB 8 we'll  
20 be adding another \$1 billion in funding for the California  
21 Energy Commission and about a half a billion dollars in  
22 funding through our sister program at the California Air  
23 Resources Board, the Air Quality Improvement Programs. So  
24 we're pleased to have Dr. Ayala here representing those  
25 programs today. So the cumulative funding for the Energy  
26 Commission will \$1.5 billion. That's supposed to be

1 through 2024 and \$2 billion total when you add in the moneys  
2 through the Air Resources Board.

3           Commissioner Scott mentioned the IEPRs. We had  
4 excellent testimony from the some of the key legislative  
5 leaders this spring, so people like Assemblyman Perea,  
6 Skinner, Senator Pavley, and then Cliff Rechtschaffen from  
7 the Governor's Office. So first-rate testimony to get us  
8 into their visions for how this money should be expended.  
9 And, again, it's kind of a modest mission we have: Develop  
10 and deploy innovative technologies that transform  
11 California's vehicle fleet. So we focus on the technology  
12 development and deployment phases. Our Research Division  
13 handles R and D. And then programs like AQIP tend to handle  
14 more of the commercially-mature vehicles and technologies  
15 with voucher programs. Slide, please.

16           So these are the key policies and regulations that  
17 really drive the policies for our program. We are primarily  
18 a carbon-based program, whereas the mission for the ARB and  
19 AQIP is more criteria mission reductions and air quality.  
20 But, as we discussed over the last few Advisory Committee  
21 meetings, through the workshops at the Air Board and our  
22 IEPR, these are converging, so the need for vehicles,  
23 technologies, and fuels that are extremely low carbon and  
24 very low to zero emissions on the criteria side.

25           So just a few other things to highlight here. So  
26 again for air quality, I think we're all familiar with the

1 carbon-reduction mandate, so about a 30-percent reduction  
2 from 1990 by 2020, accelerating rapidly to an 80-percent  
3 reduction by 2050. For petroleum reduction, a 15-percent  
4 reduction in levels by 2020.

5           The Low Carbon Fuel Standards, one of the early  
6 action items under AB 32 and one of the things that we learned  
7 from the ARB staff this summer is that goal has also been  
8 quantified, so a ten-percent reduction in carbon intensity  
9 works out to about 15 million metric tons reduction, annual  
10 reduction by 2020.

11           We have the Federal RFS, and we have provided  
12 comment to them asking them to maintain the volumetric  
13 categories for advanced low carbon biofuels that we're  
14 promoting here in California. We hope that they hear us.

15           For the Federal Clean Air Act, that's what's going  
16 to drive the extensive Nox reductions needed in the San  
17 Joaquin Valley and South Coast in the 2023, 2035 timeframes.  
18 And we continue, we think, to make very good progress for  
19 our meeting the Governor's goal for 1.5 million electric  
20 vehicles on the road by 2025. And I will note, I think I  
21 might as well too, the major milestone we had at  
22 100,000-vehicle sales this past August. Slide, please.

23           So this is a pre-Copernican view of the solar  
24 system with the Energy Commission at the center and others  
25 in orbit around us. So we'll have to see if the laws of  
26 physics are corrected today.

1 (Laughter.)

2 MR. MCKINNEY: But we did want to show there's so  
3 much going on around the state. All different agencies,  
4 different statutes, policy regulations. And we just want  
5 to demonstrate that we work very closely with our agency  
6 partners at the state level. We didn't have enough space  
7 on the slide to get our federal partners in here.

8 But just to quickly go through some of these, so  
9 the Governor's Office, obviously at the policy level with  
10 the ZEV Action Plan, their policy guidance and direction.  
11 And then more recently with GoBiz and Mr. Tyson Eckerle and  
12 all the good work that he's doing to enable the development  
13 of hydrogen-fueling stations here in California.

14 With the ARB, there is a heavy stream of traffic  
15 from this side of town to your side of town and back again  
16 with all of the workshops and activities happening at the  
17 Air Board, so ZEV planning, the AQIP programs, the new GGRF  
18 programs that are going underway, major work underway on  
19 sustainable freight strategies, the technology assessments  
20 that we're trying to track that and keep up that and advise  
21 as appropriate. And then the Low Carbon Fuel Standard,  
22 which is again just going through major reorganization,  
23 reauthorizing the regulation, and getting the reductions  
24 back on track. So it's a critical part of the state's  
25 strategy.

26 For workforce, our partners at the Employment  
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1 Development Division, the Employment Training Panel; and  
2 the County -- Chancellor's Office with the Community College  
3 Districts. CalRecycle, thanks for being here today. So  
4 the good work they're doing in waste-based biofuels and also  
5 administering GGRF money.

6 CalTrans sustainability and freight planning,  
7 their mobility work is critical. The University of  
8 California, so thank you, Steve, for representing U.C.  
9 Davis, but we also work very closely with Berkeley and Irvine  
10 in there as well. CDFA, Division of Weights and Measures,  
11 their work is critical for hydrogen fueling standards and  
12 retail standards. And last but certainly not least, our  
13 very close partners at the air districts, so South Coast,  
14 San Joaquin, Bay Area, and Sacramento are the ones we work  
15 with the most closely. Just excellent partners. They're  
16 starting to pull more of their tap money, or the little  
17 surcharges from DMV registration that we use, they also get  
18 very good work coming out of there. Slide, please.

19 And push it again there. Thank you.

20 Okay. This is a schematic that Charles put  
21 together that really kind of lays out the different phases  
22 for how the money comes into our program and how we work to  
23 allocate it.

24 So up on the top there, the Investment Plan,  
25 update and funding allocations, that's what we're doing here  
26 today. When this document is finalized in April-May by our

1 Commissioners at the business meeting, we then have  
2 authority to release selections. And you can see how that  
3 plays out there. So too this funding category results in  
4 one more solicitations.

5 And the blue type in there is to illustrate where  
6 the benefit cost measures from AB 8 really kick in. And,  
7 as we've discussed before, that's something that we've done  
8 for a long time that now it's more formalized, but this is  
9 where that occurs.

10 We then, after the solicitations are released, we  
11 review proposals, make the awards, sign the agreements, and  
12 then we go to the agreement management phase. And that's  
13 where the bulk of our staff work goes now. And so we have  
14 agreement management.

15 And then as we move towards completion, we get  
16 surveys, data collection. And then that culminates in a  
17 benefit's report. Again under Commissioner Scott's policy  
18 leadership, we had some really good discussions with IEPR  
19 on what types of metrics and data should be integrated back  
20 into the investment plan discussion, solicitation  
21 discussions, and I'll say a little bit about our Benefit  
22 Report results at the end of my presentation. Slide,  
23 please.

24 So one of the big milestones we hit this year was  
25 we passed the half-billion-dollar mark for our contract  
26 award, so we're now at 531 million in awarded contracts for

1 over 460 individual projects. And, I think as most of you  
2 know, project awards can have multiple, multiple pieces of  
3 hardware within there. So, say for example, an EDSC award  
4 may have 10 to 15 individual charge points. So the number  
5 of -- I'll guess I'll say -- widgets that we're funding is  
6 actually much greater than 462.

7           One of the things to take away from this slide,  
8 this shows the four main fuel categories that we fund. So  
9 this really embodies our portfolio approach. So as you long  
10 term members of the Committee know, we have good discussions  
11 on technologies that are more commercially mature now and  
12 can offer near term and midterm benefits, and then those that  
13 we expect to mature over the long term and offer substantial  
14 benefits for ZEV categories and very low carbon fuels. So  
15 biofuels and natural gas have been more in the near term part  
16 of the program and electricity and hydrogen tend to be later  
17 term development. Slide, please.

18           So this breaks the same amount of money down by  
19 supply chain phase, so fuel production, fuel and  
20 infrastructure, vehicle development, manufacturing, and  
21 then programmatic support. So starting from the left,  
22 which is fuel production, the two red bars and the gold bar  
23 there, so biodiesel, we are at about 15 million investments  
24 there now. We're incredibly pleased with the way the  
25 biodiesel producers have really made their technology work  
26 and the costs work. And we're getting some fantastic

1 projects, and I'll talk a little bit more about that later.

2 Biogas, also at \$15 million in investments. And,  
3 again, that technology continues to mature. Costs are  
4 coming down. And that has a very key role to play with  
5 natural gas fuel blending.

6 Ethanol is working more slowly and especially  
7 there's still some really serious development challenges  
8 for cellulosic ethanol, not to mention green gasoline. So  
9 those investments are more modest.

10 The next bar is fuel and infrastructure, so  
11 biodiesel there a little bit at the top. And then ethanol,  
12 those are our E85 investments. We've actually had to scale  
13 some of those back due to the slow development in that  
14 market, so we've actually had to cancel some of those awards.

15 The green bar are electric investments, so \$38  
16 million in EESD to date. Blue represents hydrogen. I'll  
17 more about that, but we're at over \$90 million in our  
18 hydrogen investments so far. Natural gas, so that's  
19 primarily infrastructure and that's at about 17,- -- no,  
20 that's not very good -- that's on the vehicles -- I'm sorry,  
21 I got confused. Yeah, so fuel and infrastructure, about 17  
22 million.

23 For vehicles, 80 million of that is in electric  
24 drive, about 55 million is in natural gas vehicles. Our  
25 electric drive investments are split between support to the  
26 Clean Vehicle Rebate Project at the Air Board, so we put in

1 41 million to date on that. For natural gas vehicles, we're  
2 at about 55 million for our truck voucher program. And the  
3 rest of our electric drive investments are actually  
4 medium-duty and heavy-duty in electric-truck technology  
5 development, so we're putting a lot of investments into that  
6 space. And then manufacturing, as you could see, over \$40  
7 million. And those are primarily electric-drive focused.  
8 Slide, please.

9 So I'm going to take a little deeper dive and show  
10 you what we've got in each of these four main categories.  
11 So EVSE, \$38 million with over 9300 charge points now  
12 distributed between commercial, residential, workplace,  
13 and DC Fast Chargers. And we're especially pleased with the  
14 way the DC Fast Chargers are being bid on and being built  
15 out, and we really are starting to see the backbone for a  
16 corridor along the major routes within California,  
17 north-south, and some on the east-west axis as well.

18 And, again, I mentioned the 40 million in  
19 vouchers, so that's about one-third of total CVRP  
20 allocations to date and are resulting in over 21,000  
21 individual vouchers.

22 And our Regional Readiness Grant Program  
23 continues. I think it's a great investment. There are  
24 modest investments, but we are getting so much return from  
25 regional governments and local governments and we're now at  
26 17 grants for \$4 million. Slide, please.

1           The ZEV Action Plan is a key part of our work. We  
2 might want to acknowledge Leslie Baroody and Jennifer Allen  
3 for being our team leaders for that effort. It's been a  
4 large amount of work and we think we're adding value to the  
5 state's efforts to get these cars out there in the  
6 infrastructure as well. Slide, please.

7           So for hydrogen station funding, we have passed  
8 the \$90 million mark, so we have 45 new station grants, three  
9 station upgrades, an additional amount of operation and  
10 maintenance grants, and our mobile refueler. So again I  
11 want to acknowledge Jean Baronas and her team for this  
12 tremendous work they're doing to get this network up and  
13 running.

14           All 48 of these stations that we funded are  
15 scheduled to come online by December 2015. And again, as  
16 the Commissioner mentioned, some of the 2010 grantees are  
17 starting to have stations come online, so the pending  
18 station in West Sacramento for early December, Air Product  
19 Station on the South Coast HQMD, and then another series of  
20 stations in Los Angeles and the Bay Area.

21           We expect to have about 55 stations online by May  
22 2015 to support the commercial launch of hydrogen fuel  
23 vehicles for three automakers thus far.

24           I also want to mention the work of Tyson Eckerle  
25 again from GoBiz. So he and Jean are kind of our dynamic  
26 duo for getting permits, applications through local

1 government quickly. For a lot of locales this is new work,  
2 a new set of technology issues to work with, and they have  
3 really done a great job in terms of education, outreach, and  
4 bringing data, practical experience to bear on that.  
5 Slide, please.

6           These represent the three automakers that have  
7 announced commercial launch, so the Toyota fuel cell vehicle  
8 in blue, the Honda concept car, and the Hyundai Tucson fuel  
9 cell electric version on the right there which is available  
10 to the public right now. So according to the Air Resources  
11 Board, the AB 8 report, so that team is Catherine Dunwoody  
12 and Analisa Bevan and their senior staff. So their most  
13 recent survey shows 6600 vehicles in the 2015-'17 time line,  
14 rising to over 18,000 to '18-'20. So it's really hard to  
15 get completely separate parts of industry to work together,  
16 but we think it's finally coming together. And we'll have  
17 good synergy here in the 2014-'15 timeframe. Slide,  
18 please.

19           These next two slides represent the stations that  
20 are either in operation or funded initially by South Coast,  
21 DOE, and then the Air Resources Board, and then by the Energy  
22 Commission. So the green dots mean open. So in the San  
23 Francisco there is the AC Transit station, so that fuels both  
24 buses and individual passenger vehicles. In development,  
25 those were our 2010 awardees. And then NOPA are the ones  
26 that were most recently announced this year. So 18 stations

1 in total in Northern California -- slide, please -- and 38  
2 stations in total in Southern California. So eight  
3 stations are operational down there. Again, the green  
4 dots. And then you see the series of blue and orange dots,  
5 so there's 30 stations overall that are actively in the  
6 development phase. So we're quite busy and quite pleased  
7 with the development here.

8           And one of the great things about the recent NOPA  
9 was that we saw more new entrants. So we only had two  
10 awardees in 2010, we now have eight awardees overall.  
11 Companies like First Element are coming in with a different  
12 business model and financial support from industry. So in  
13 this case it's Toyota. So it's a major development in the  
14 ability of the station-development sector to get stations  
15 out. Slide, please.

16           Turning to our truck funding. So I think most of  
17 you are aware that the one million trucks that we have in  
18 California that represents just over three percent of the  
19 total vehicle fleet, but they burn about 60 percent of total  
20 fuel. So most of the diesel fuel that we have in California  
21 for sale goes to the truck fleet and the results in up to  
22 25 percent total contribution to both criteria emissions and  
23 carbon emissions. So we're investing heavily in the truck  
24 sector, as is the Air Board, as are the Air Districts, to  
25 get alternative fuels and technologies into those  
26 drivetrains.

1           So you can see here commercial natural gas trucks,  
2 about 55 million. I'm going to clarify that top row. That  
3 should read: 2735 trucks and another 1700 or so light-duty  
4 vehicles. So that's a bit of a typo there.

5           Fueling infrastructure, we've got over 60  
6 stations out there for a very modest investment.  
7 Commercial propane trucks, over 500. And that's something  
8 that we've discontinued due to their modest carbon  
9 reductions. The commercial ZEV trucks, the four million  
10 that we gave to ARB several years ago for HVIP. And then  
11 our 38 projects. We're up to now Ford Mass Technology  
12 Demonstration and Manufacturing. And that's where we get  
13 companies like Motive and Transpower developing  
14 all-electric drivetrains. Slide, please.

15           So this is the results, and we have a few pictures  
16 for you, from our commercial electric truck investment. So  
17 the EVI-UPS 100 Truck Demonstration Project welcomed here  
18 by Governor Brown. So that was a major milestone. The  
19 market has kind of softened up a bit in a sense, so we're  
20 really looking for ways with the Air Board to reinvigorate,  
21 regnerize this critical part of the truck fleet. Slide,  
22 please.

23           Mike Simon, CEO of Transpower. So this puppy is  
24 all electric drive. It can pull container weight payloads  
25 through the Los Angeles area. They're in final trials right  
26 now. This is just amazing engineering, to get the

1 batteries, the controllers and the traction motors to really  
2 work properly to pull this kind of payload. Slide, please.

3 For biofuels funding, this is a relatively new  
4 chart because we've been able to add in production in million  
5 gallons per year on the far right-hand column. But you can  
6 see, so biogas, 15 projects, 9.6 million gallons per year  
7 of production capacity. Ethanol, most of these adjustments  
8 are with our first-generation corn biorefineries as we  
9 assist them in transitioning to different process  
10 technologies and the low carbon feedstocks.

11 Cellulosic ethanol, I think Commissioner Boyd  
12 said many years ago this is just a great technology whose  
13 potential was before us, and I think we're still in that  
14 situation.

15 Then biodiesel and renewable diesel, just  
16 incredible gains from industry on this, so welcome, Joe, for  
17 representing that part of industry. Over \$50 million in  
18 investments. And the production numbers are really  
19 phenomenal here. So 78 million gallons per year for  
20 biodiesel and another 50 million renewable diesel.  
21 Renewable diesel is critical. It's completely fungible.  
22 With diesel it can be blended up to, well, as high as you  
23 want to go, up to 100, so we don't have parallel  
24 infrastructure concerns. We have good emissions  
25 performance, and AltAir is a recent grantee here. So it's,  
26 again, just tremendous advancement with that industry

1 segment. Slide, please.

2 A couple more pictures. So Clean World anaerobic  
3 biodigestion, so this is a 100-ton-per-day facility that we  
4 funded. A very low carbon intensity value, so 15 grams per  
5 mega joule, and that's dynamite. And, again, this is a  
6 local station. So this is emblematic of the diversion of  
7 organic waste streams and municipal solid waste streams.  
8 And I know our partners at CalRecycle are also funding  
9 projects such as this. Slide, please.

10 And then Crimson Renewable Fuels, this is their  
11 Phase 1 of the grants that we've awarded them to expand their  
12 Bakersfield facility to 17 million gallons per year.  
13 Again, a very low carbon intensity footprint, so this is down  
14 to 14 grams CO<sub>2</sub> equivalent per mega joule. And we had Harry  
15 Simpson in here for our IEPR workshops. Slide, please.

16 Workforce development and training. You cannot  
17 have next generation fuels, vehicles, and fueling  
18 infrastructure without technicians and engineers that can  
19 maintain and operate them. So we invest quite a bit of  
20 money year to date, so nearly \$20 million. The match on  
21 that is \$17 million. So we have provided funding for  
22 training for over 13,000 individual technicians and  
23 engineers here in California, across more than 600  
24 businesses, so we're very pleased with that. Dave Nichols,  
25 I don't know if you're in the audience here today, but he  
26 is our team leader for our Workforce Development

1 Investments.

2           And, again, those acronyms on the left, ETP is the  
3 Employment Training Panel; EDD is the Employment  
4 Development commission; and CCCO, the Chancellor's Office  
5 on Community Organization -- and that's incorrect, but I'll  
6 be corrected later. Slide, please.

7           Here's some examples from recent training  
8 projects. So the California-Nevada Labor Trust, a grant to  
9 retrain 1100 journeyman electricians to be able to work on  
10 EVSE installation and maintenance. Foothill-DeAnza  
11 Community College in Silicon Valley, it's a training for 378  
12 public and private fleet operators for alt fuels  
13 infrastructure. Tesla Motors also applied for training  
14 grants to support their highly-advanced robotics and  
15 manufacturing technology down in Fremont. That was a good  
16 investment. And then Electric Vehicles International, I  
17 had mentioned, so a half-million-dollar grant for training  
18 for over 100 employees in Stockton. Slide, please.

19           I'm going to touch briefly on the results from our  
20 most recent Benefits Report. So this is a project that we  
21 do with the National Renewable Energy Lab. Dr. Marc Melaina  
22 is the PI, and he was out this spring to explain the results  
23 of the current work, again, and Commissioner Scott's IEPR  
24 workshops. Slide, please.

25           Let me take a little bit of time to walk you  
26 through this slide. The benefits from our program for

1 carbon reduction are divided into two categories. The  
2 first is shown on this slide, expected benefits. So this  
3 assumes that everything that we have funded to date, and  
4 actually this work, the cutoff line was May 2014, and then  
5 we added in the hydrogen-fueling system. But everything  
6 funded through that date is built out and operated design  
7 capacity for a design life of 15 to 20 years. And these are  
8 the projected carbon results. So the top there is the  
9 vehicle category, and the light's not very good over here,  
10 but -- I'm really sorry -- I think electric drive there is  
11 the small dark green wedge -- no, that's gas commercial  
12 trucks in the dark green. So, again, those are the natural  
13 gas vehicles that we've put on the road.

14           And a surprise to many of us here was the bulk of  
15 that first pie chart is actually electric vehicle  
16 manufacturing, so that represents a grant we've given, one,  
17 to Tesla. But predominantly to the five or six companies  
18 that are doing medium-duty and heavy-duty truck technology  
19 development here in California. So these have funded those  
20 plans. And that part of the curve goes up because the  
21 capacity of those plans can expand through the 2025 period.  
22 So, again, with the regulatory drivers coming from our  
23 quality partners and the need for ongoing carbon reductions,  
24 we see big potential for electric drive trucks in  
25 California.

26           Turning to the blue bar there, this represents our

1 infrastructure investments. And the return on investment  
2 for natural gas and biogas, it's a very high ratio, so again  
3 only \$17 million invested in about 60 projects. And you can  
4 see the substantial contributions from that one sector.  
5 And then we also see electric chargers, biodiesel, E85, and  
6 a little bit from hydrogen here in the early years. So  
7 those lines for the blue curve and the red curve are flat  
8 because those will hit production peak in about 2019, 2020,  
9 and then continuing again through the design line with those  
10 projects. But each year we will add another tranche or  
11 slice to each of these bars here. And at the bottom is  
12 biodiesel or biofuels, and you can see the breakout there  
13 for biodiesel which is a large part of the pie chart, and  
14 then the others you can see. Slide, please.

15 So that was expected benefits. There's another  
16 benefit category called market transformation benefits.  
17 And if you think back to the original language in the  
18 statute, it's really to transform markets. And so what that  
19 means is that for all of these demonstration projects that  
20 we're doing, whether it's in the biofuels category, whether  
21 it's an electric truck technology development demo down in  
22 the ports in the South Bay Area, we know that these will build  
23 out over time. But right now we're just funding one or two  
24 or three trucks or, say, a very small volume with biofuels.

25 But we know those technologies will reach  
26 commercial maturity at some point, they will attract private

1 investment, maybe other investments from us or other state  
2 agencies, and then there will be a whole other wave of  
3 development and benefits. We can't claim 100 percent for  
4 that, but we can claim partial credit for that. So that's  
5 what the orange bars here represent, is a low and a high range  
6 for market transformation benefits. And these are additive  
7 to the expected or direct benefits. They're real benefits,  
8 they're just much harder to measure. So if you look at the  
9 Benefits Report, that second section, there's a lot of good  
10 math in there that backs up these numbers.

11 So the cumulative totals here are 2.8 to 4.2  
12 million metric tons carbon reduction from investments to  
13 date. So, to put that in context, the green bar there  
14 entitled "Market Growth Benefits," what that represents is  
15 the trajectory to maintain the 80-percent reduction by 2050.  
16 So that's what we need to stay at pace here. And I think  
17 in our view we're doing a pretty good job at supporting the  
18 state's policy goals with these reductions.

19 So assuming about seven million metric tons  
20 reductions needed in the 2020 to 2022 timeframe, what we've  
21 done thus far with the ARFVTP investments accounts for more  
22 than half of that, with the high range, again, 2.8 to 4.2  
23 million metric tons.

24 Another point of context is the Low Carbon Fuel  
25 Standard Program. So this summer Micah Wofford's team  
26 quantified the investments: So what is that going to mean

1 for a ten-percent carbon reduction. They estimate about 15  
2 million metric tons. So this is more than a quarter, a  
3 little less than a third contributions towards meeting that  
4 goal. So lots more to discuss on this, and we've had  
5 separate workshops and we're always available kind of  
6 privately to discuss this further. Slide, please.

7 So a couple more slides in my part of the  
8 presentation. So these next couple slides represent some  
9 recent awards from us since we last met. I will start with  
10 biofuels. So we've done 43 million in awards, 11 new  
11 awards. And these are, again, some really great projects  
12 and companies. We had very heavy demand, we had \$91 million  
13 in applications that were made and we were able to fund about  
14 half of those. So Recology in Vacaville, a 1.1  
15 million-gallon-per-year biogas facility. That's why I'm  
16 talking about biogas projects here. City of San Mateo Waste  
17 Water Treatment Plants, those are carbon negative projects.

18 Turning to renewable and biodiesel, so AltAir  
19 down in Southern California, and that's our first renewable  
20 diesel project. UrbanEx in the Bay Area is going to expand  
21 to a 10-million-gallon-per-year biodiesel facility and  
22 American Biodiesel and Crimson were some other awardees.

23 On the ethanol part of these biofuels  
24 investments, most of those went to the three main companies  
25 operating in California with corn biorefineries, and this  
26 is to help fund their transition to alternative feedstocks,

1 such as grain sorghum. And, again, we're somewhat  
2 disappointed with the lack of commercial progress on, say,  
3 ethanol technology, but again if you attended our IEPR  
4 workshops, so we had a very good discussion on that both from  
5 U.C. Davis, Andy Denick (phonetic), and there's tremendous  
6 potential there.

7           And then on EVSE, I just wanted to highlight a few  
8 things, so the State Parks, the adopted charters, we're  
9 getting charters out into the state park system now.  
10 Through the South Coast AQMD, we've got 50 Fast Chargers that  
11 we're funding down there. And the U.S. Green Vehicle  
12 Council, another ten DC Fast Chargers along the I-5 and  
13 Highway 99 corridors. Slide, please.

14           So this slide represents the current  
15 solicitations that are out there. So manufacturing, that  
16 was released recently, \$10 million available, a \$3 million  
17 award cap, and those applications were due last week.

18           For biofuels, \$3 million, and this is to do what  
19 we call Phase 1, or really more technology development and  
20 demonstration, so precommercial. There's still a lot of  
21 good technology work to do there. And then ZEV readiness,  
22 a series of grants for \$3.3 million that are in evaluation,  
23 and that's on a first-come, first-served basis. Slide,  
24 please.

25           And some upcoming solicitations. So EV charging  
26 station, pilot alternative financing program, so we had a

1 workshop on this last Friday. So we are funding a loan loss  
2 reserve program through the state treasurer's office.  
3 Larry Viera (phonetic) is our point person for that. So we  
4 get a lot of calls to kind of go to the next level, the next  
5 phase beyond direct grants, and this is an example of one  
6 of those activities.

7           For the biofuels industry, we see this as a  
8 potential funding mechanism because the capital costs for  
9 biofuels and eplant are so high that we can just really fund  
10 a small portion of that. So loan guaranty, loan loss  
11 reserve funding strategies may play a big role in the future.

12           Natural gas fueling infrastructure, we have a  
13 \$1.5 million solicitation in development. Natural gas  
14 vehicle incentives, we are negotiating with U.C. Irvine to  
15 have them administer as part of our program, and that will  
16 really I think help us, one, just on staff workload because  
17 I'm not sure this is Andre's favorite activity, but more  
18 importantly to really get kind of feedback data from the  
19 grantees so we can identify what the duty cycles are and how  
20 much fuel they're burning, which means how much petroleum  
21 is not being burned. So we really look forward to those  
22 research results. And I want to acknowledge Andre Freeman  
23 for his tremendous work with the natural gas part of our  
24 program.

25           And then, lastly, medium- and heavy-duty advanced  
26 technology solicitation. This is a \$25 million

1 solicitation that is going to hit the streets pretty soon  
2 here. So we have done a lot of coordination with our  
3 partners at the Air Board to be sure that this compliments  
4 the kind of mega solicitations we're going to do integrating  
5 GGRF money with AQIP money for the chart sector.

6 That concludes my part of the presentation.  
7 There are links to more programmatic level information, and  
8 I will turn it over to Charles.

9 Do you have a microphone up there?

10 MR. SMITH: Yeah. Okay, we got it working  
11 again.

12 Thank you, Jim. Good morning, everybody. I'm  
13 Charles Smith, Project Manager for the 2015-2016 Investment  
14 Plan Update for the ARFVTP.

15 For those who are you to this program, the Annual  
16 Investment Plan Update serves as the basis for each fiscal  
17 year solicitations, agreements, and other funding  
18 opportunities. This year, as with most, we are preparing  
19 an Investment Plan Update that allocates \$100 million to a  
20 portfolio of fuel and technology categories that help meet  
21 the policy goals of our program that Jim mentioned. And,  
22 also as I think Jim's presentation laid out, these  
23 allocations are for project categories as a whole, not for  
24 individual projects.

25 This schedule summarizes the development of the  
26 '15-'16 Investment Plan Update. We released the staff

1 draft on November 5th and are holding our first Advisory  
2 Committee meeting today, of the 12th. We hope to release  
3 a Revised Staff Draft by January 10th, which is the statutory  
4 deadline that reflects the governor's budget. The second  
5 Advisory Committee meeting we expect to be in late January  
6 2015. We expect we will release the Lead Commission Report  
7 in March and go to a Commission business meeting for formal  
8 approval in April.

9           Because this is an investment plan update, the few  
10 key considerations that we wanted to specifically call out  
11 in our first staff draft, we'll talk about each of these in  
12 more depth and how they play into our funding allocations,  
13 but to briefly summarize, first is the influx of new funds  
14 for low carbon transportation projects from the Greenhouse  
15 Gas Reduction Fund, or GGRF, which was created as part of  
16 the AB 32 Cap and Trade Program.

17           Plug-In Electric Vehicles, or PEV, growth, this  
18 is not maybe a new story but still a very exciting area and  
19 still a very important consideration for us.

20           This year is the first year that we have an AB 8  
21 report prepared by the ARB on hydrogen fueling stations and  
22 fuel cell vehicles, that I will discuss a little later.

23           This is the first year that we have proposed  
24 integrating two of our previously-separate funding  
25 allocations, the medium- and heavy-duty vehicle  
26 demonstration category and the manufacturing category.

1           And then, finally, the Low Carbon Fuel Standard,  
2 which has been limited in its impact due to previous court  
3 orders, is expected to be readopted early next year with  
4 several key updates as well.

5           This is a brief outline of the Investment Plan  
6 Update structure as a document. As you can see, we try to  
7 cover the supply chain of alternative fuels from production  
8 to distribution infrastructure, to the vehicles themselves.  
9 And this is also the structure of the presentation I'll be  
10 giving.

11           In the first section is biofuel production and  
12 supply. Within our program, this includes low carbon  
13 renewable fuels that can displace natural gas in the case  
14 of biomethane, diesel fuels, and gasoline fuel. Here you  
15 can see some of the progress that our commercial scale  
16 recipients have made in expanding in-state biofuel  
17 production.

18           There are two key things to note here. First is  
19 to look at the average GHG emission reductions compared to  
20 diesel or gasoline. For biomethane, you see the averages  
21 are around 110 percent below diesel. Diesel substitute  
22 projects were about 81 percent lower than diesel. Gasoline  
23 substitute projects around 31 percent lower than gasoline.  
24 Because these projects focus primarily on waste-based  
25 feedstocks, they have very low carbon intensities under the  
26 LCFS lifecycle analysis.

1           The other column to pay attention to is the "Total  
2 Annual Capacity Increases," in the millions, or for diesel  
3 substitutes, in the tens of millions. For comparison, one  
4 million gallons is roughly comparable to the amount of fuel  
5 used by 2,- to 3,000 cars per year. So obviously a lot of  
6 direct near term GHG reductions tied to these projects.

7           That being said, we still have some important  
8 challenges of opportunities to address, namely our program  
9 investments alone aren't enough to meet 2020 GHG reduction  
10 goals, let alone the more aggressive 2050 goals. We will  
11 need other mechanisms to succeed as well, including the  
12 LCFS, AB 32, and the Federal Renewable Fuel Standard. And  
13 we also need to keep our eye on market transformation, both  
14 within biofuels and other fuels and technologies. And one  
15 way we can get to market transformation, for example, might  
16 be a focus on drop-in fuels, whereas major biofuels, such  
17 as biodiesel or ethanol face blending limits, drop-in fuels,  
18 such as renewable diesel and hopefully one day renewable  
19 gasoline, are fungible with conventional fuels in existing  
20 infrastructure and engines.

21           For the coming fiscal year we propose to maintain  
22 our previous year's \$20 million allocation in this category.  
23 Within the Investment Plan, we are leaving this open to  
24 multiple fuel types and technology maturation levels. And  
25 then as we implement these allocations in future  
26 solicitations, we may consider providing narrower

1 requirements, as we've done recently by splitting the R and  
2 D focused biofuel production projects from the more  
3 commercial scale biofuel production projects.

4           And actually finally I'll mention for each of  
5 these funding allocations you can see some of the policy  
6 goals that were mentioned in Jim's slide that feed into each  
7 of these funding allocations. So in the case of biofuel  
8 production and supply, the foremost goal, obviously GHG  
9 reduction, but in addition to that petroleum reduction,  
10 in-state biofuels production, and achieving the goals of the  
11 Low Carbon Fuel Standard.

12           Leading from fuel production to infrastructure,  
13 specifically charging infrastructure, I wanted to give you  
14 an idea of the pace electric vehicles are setting in  
15 California. This graph shows the number of rebates  
16 provided by the ARB for primarily plug-in electric vehicles  
17 each month. As Jim mentioned, we recently passed 100,000  
18 PEVs in the state, which was a terrific milestone. So then  
19 the question becomes what does it take for our programs'  
20 investments in charging infrastructure took place up with  
21 this rate of growth.

22           Some of you familiar with our work in supporting  
23 the ZEV Action Plan might recall the California Statewide  
24 Plug-In Electric Vehicle Infrastructure Assessment that we  
25 commissioned from NREL, or the National Renewable Energy  
26 Laboratory. For those unfamiliar with this, it was a report

1 that looked at California's charging infrastructure and how  
2 it would need to grow in order to support one million ZEVs  
3 by 2020.

4 In this document NREL included two scenarios for  
5 charging in 2020: The home-dominant scenario and the high  
6 public-access scenario. So using these 2020 scenarios,  
7 NREL worked backwards and developed this analysis of interim  
8 needs for 2017 and 2018. The numbers in white here indicate  
9 the additional number of chargers needed to stay on our 2020  
10 trajectory for both nonresidential level 2 chargers and  
11 public DC Fast Chargers. The numbers in yellow indicate the  
12 potential cost to the ARFVTP if we needed to fund all of these  
13 units, which may not necessarily be the case.

14 There are a lot of assumptions and unknowns that  
15 feed into this table, but it provides sort of a useful  
16 benchmark towards our 2020 charging infrastructure goal.  
17 In short, we know that we need to keep pace with rapid PEV  
18 growth and we will be exploring new means of doing so,  
19 including the pilot financing program with CPCFA that Jim  
20 mentioned.

21 Based on previous allocations, as well as the  
22 benchmark provided by NREL, we are proposing an increase to  
23 this category from \$15 million in the previous Investment  
24 Plan to \$18 million. Sorry, I skipped a slide there. You  
25 can see some of the key charging types that we expect our  
26 program to focus on, including multiunit dwelling chargers,

1 DC Fast Chargers, charging at workplaces, and charging  
2 opportunities for areas that have been previously  
3 underserved or may be disadvantaged.

4           And here again you can see some of the policy goals  
5 supported by this allocation. So, again, GHG reduction,  
6 petroleum reduction, Low Carbon Fuel Standard, air quality,  
7 and the ZEV mandate goals that we coordinate with the ARB  
8 on.

9           Now moving to hydrogen refueling infrastructure.  
10 This was the first year that we benefitted from the annual  
11 evaluation of fuel cell electric vehicle deployment and  
12 hydrogen fuel station network development established under  
13 AB 8 and developed by the Air Resources Board. This  
14 document evaluates the need for additional  
15 publicly-available hydrogen fueling stations for the next  
16 three years, based on a combination of DMV data, automaker  
17 projections, targeted geographic areas, and station  
18 coverage.

19           And so the Report identified 68 stations needed  
20 to support the initial market launch of fuel cell electric  
21 vehicles, and then a gradual increase to 100 stations in  
22 order to transition toward a more market-driven industry.

23           This graph composed the expected deployment of  
24 fuel cell electric vehicles and the development of hydrogen  
25 fueling stations through 2020. The red-dashed line  
26 indicates the number of fuel cell vehicles anticipated by

1 automakers increasing through 2020. The green dots  
2 represent the number of stations funded to date, while the  
3 green band represents the fueling capacity of those stations  
4 compared against the number of vehicles.

5 The purple dots and the purple band above that  
6 represent the expected hydrogen stations that are needed to  
7 support fuel cell vehicles, both in terms of station  
8 coverage and station fueling capacity.

9 The annual evaluation also included a summary of  
10 recommended locations for upcoming stations. You can see  
11 the 10 to 11 locations listed here. A lot of these  
12 locations, as you would expect, reflect early-adopter  
13 communities anticipated by the automakers. So AB 8  
14 requires the Energy Commission to dedicate \$20 million per  
15 Investment Plan cycle as needed for hydrogen refueling  
16 stations, as identified in the annual evaluation. Based on  
17 our work with hydrogen station developers so far, we've also  
18 offered up to \$300,000 for three years operation and  
19 maintenance support once a station begins its service.

20 A proposed allocation of \$20 million could  
21 provide for the development of six to nine new stations plus  
22 O and M funding needs for the next stations to come online.  
23 This allocation is identical to that of previous years as  
24 well. And, again, you can see the policy goals that we have  
25 here, very similar to the ones provided for charging  
26 infrastructure.

1           Our next category is natural gas fueling  
2 infrastructure. Since most large nonpublic fleets can  
3 access capital-to-finance refueling stations, our program  
4 is focused foremost on infrastructure for school districts  
5 and municipal fleets. You can see this in our previous  
6 solicitation, where we funded all qualifying applicants  
7 among school districts and municipalities.

8           In Jim's presentation you may recall natural gas  
9 infrastructure represented a sizable sum of the near term  
10 GHG reductions from ARFVTP-funded projects. These  
11 projects can also be a key entry point for the incorporation  
12 of biomethane, as seen in five of our previously-funded  
13 stations. For this investment plan update we're proposing  
14 a \$5 million allocation for this category, based in large  
15 part on a desire to provide a lower pollution option,  
16 alternative fuel option aimed primarily at disadvantaged  
17 communities and fleets that might not otherwise have an  
18 alternative fuel option. And here again you can see the  
19 policy goals supported by this category, from petroleum  
20 reduction to air quality benefits, Low Carbon Fuel Standard,  
21 as well as longerterm GHG reduction with the incorporation  
22 of biomethane.

23           The next section of the Investment Plan is focused  
24 on vehicles. The first category focuses on the  
25 demonstration and scale-up of advanced technologies for  
26 medium- and heavy-duty vehicles. As you can see by these

1 numbers, class 3 through 8 trucks represent a tremendous  
2 opportunity for reducing GHG emissions by focusing on a  
3 comparatively small number of vehicles. However, as shown  
4 in this chart, the vehicles serve a very broad array of  
5 applications. And so each potential vehicle technology  
6 solution has to be pared a way that addresses the needs of  
7 each application.

8           This table captures the range of truck and bus  
9 technologies that are demonstration projects have supported  
10 so far. One thing to notice is that other than one  
11 particularly large federal cost-sharing project in the  
12 first row, most of our demonstration projects have involved  
13 a comparatively small number of units. These small scale  
14 demonstration will benefit from the ARB's introduction of  
15 GGRF funding categories that focus on larger-scale  
16 demonstrations and pilot deployment projects. Meanwhile,  
17 the ARB's HVIP Hybrid and Zero Emission Truck and Bus Vehicle  
18 Incentive Project will continue to provide incentives for  
19 vehicles that have achieved early commercialization.

20           For the '15-'16 Investment Plan Update, we have  
21 proposed combining the scope and allocation of our previous  
22 manufacturing funds with this category. We see this as a  
23 good way to allow companies that need an opportunity to build  
24 on successful demonstrations to transition toward  
25 manufacturing lines, otherwise they may get stuck doing  
26 small vehicle demonstration projects with no way to

1 transition to the next step.

2           This also can simplify the participation in our  
3 program by giving them one allocation and potentially a  
4 single solicitation to compete under, rather than having to  
5 compete both under the demonstration category and under the  
6 manufacturing category. And based on the combination of  
7 those two allocations from previous years, we've proposed  
8 here an allocation of \$20 million. The policy goals  
9 supported by this category are pretty familiar: GHG  
10 reduction, air quality improvements, petroleum reduction,  
11 and achieving the Low Carbon Fuel Standard targets.

12           Next under the vehicles category we have natural  
13 gas vehicles. As mentioned in Jim's slides, our program has  
14 provided about \$55 million in deployment incentives to date  
15 for natural gas vehicles. Based on current LCFS analyses,  
16 these vehicles provide a range of GHG reductions of 10 to  
17 25 percent below gasoline or diesel. And that of course can  
18 become much higher or lower, depending on how you look at  
19 it, with the incorporation of biomethane.

20           The ARB is also looking at updates to the  
21 California Green Model which informs the GHG lifecycle  
22 analyses. Some of these updates, which include new numbers  
23 regarding methane leakage estimates, could increase  
24 lifecycle GHG emissions of natural gas. So that's  
25 something that we're obviously keeping a close eye on. And  
26 for now, the research and analysis on this issue continues.

1           Natural gas engines also offer an opportunity for  
2 criteria pollution reductions, including NOX. For  
3 instance, our program is partnering with the South Coast  
4 AQMD and other participants to develop a low NOX engine that  
5 could reduce NOX emissions 90 percent below the current  
6 standard.

7           Natural gas vehicles have an advantage of both  
8 technological and market maturity relative to some other  
9 alternative fuels. This fuel is cheaper than conventional  
10 fuel and they have similar logistics to conventional  
11 vehicles. That said, they are still a little less than two  
12 percent of all medium- and heavy-duty trucks in California.  
13 Our program aims to increase that number by addressing both  
14 the infrastructure side that I mentioned as well as the  
15 vehicle deployment incentives here.

16           In the long term we hope to be able to gradually  
17 reduce the incentive amount that we provide for most natural  
18 gas vehicles to focus new technologies such as natural gas  
19 hybrids or low NOX engines, and to focus our incentives on  
20 getting natural gas vehicles into disadvantaged  
21 communities. So for this draft we've proposed maintaining  
22 the previous year's allocation of \$10 million. You could  
23 also see the policy goals that we have for natural gas  
24 vehicles identical to those that we had for natural gas  
25 fueling infrastructure.

26           Moving to light-duty electric vehicles, this

1 category has seen significant support from the Greenhouse  
2 Gas Reduction Fund that I mentioned previously. The Clean  
3 Vehicle Rebate Project or CVRP developed by the ARB received  
4 about \$111 million from that Greenhouse Gas Reduction Fund  
5 for the current fiscal year. SB 1275, the Charge Ahead  
6 California Initiative, also requires the ARB to revise  
7 incentives based on income eligibility to phased-out  
8 incentives over time based on sales and consider other  
9 incentive methods. So in the past our program has provided  
10 comparatively small transfers to sustain the CVRP as needed.  
11 However, with anticipated support for this category from the  
12 Greenhouse Gas Reduction Fund, we're not proposed an  
13 allocation of ARFVTP funding for this category in the  
14 current draft.

15 Finally, this slide summarizes some of the  
16 related needs and opportunities for supporting alternative  
17 fuels and advanced technology vehicles outside of the  
18 previous categories. This begins with our Emerging  
19 Opportunities Allocation. This is something that we've  
20 reserved for project types that cannot necessarily be  
21 anticipated during the Investment Plan's development  
22 process and for federal cost-sharing projects. For  
23 example, in the -- of the last year's allocation, only a  
24 little less than a million was needed to fully fund the  
25 previous federal cost-sharing solicitation. We have a  
26 little over \$5 million remaining. Based on that remaining

1 amount, we feel comfortable with a slightly smaller  
2 allocation in this draft of \$4 million.

3 Our workforce training and development projects,  
4 this is work that we're continuing to do with our partner  
5 agencies, including the ones Jim mentioned: The Employment  
6 Training Panel, the Employment Development Division, and  
7 the Community College's Chancellor's Office.

8 We've proposed a \$3 million allocation for this  
9 category and that's based on the expectations of needed  
10 funds by our partner agencies, sort of who they have in the  
11 queue, what they expect to be able to go through in the coming  
12 fiscal year.

13 We've also had a category called Regional  
14 Readiness that Jim mentioned. This helps local agencies  
15 and organizations prepare for and expedite the deployment  
16 of alternative fuel vehicles. We don't have a proposed  
17 allocation for this category in this draft. We have a  
18 Regional Readiness solicitation, a first-come,  
19 first-served solicitation that's out right now, and so we're  
20 monitoring that to see how much more demand is expected for  
21 this category. And then based on that we may reconsider the  
22 funding allocation for this draft.

23 And all of these support are our overall program  
24 goal of greenhouse gas emission reductions within the  
25 transportation sector, albeit in a more indirect way than  
26 some of the projects that I mentioned previously.

1           So that's a wrap-up of the Investment Plan  
2 allocations that we have for this draft. We are seeking  
3 feedback on those allocations as well as the investment plan  
4 and the program in general from all stakeholders. In order  
5 to incorporate these comments into the revised staff draft,  
6 we're asking for your comments by November 21st, which I  
7 believe is by next Friday. And you can email those to us  
8 by emailing our docket: Docket@energy.ca.gov. And please  
9 include our docket number which is 14-ALT-01.

10           In the interim we will continue our review of  
11 existing ARFVTP investments as well related programs and  
12 policies. We hope to release a revised staff draft of this  
13 Investment Plan Update by January 10th of next year. And  
14 we expect to convene our second Advisory Committee meeting  
15 and public workshop in late January of next year.

16           This is a summary of all of our funding  
17 allocations. I will leave this up for the Advisory  
18 Committee discussion period and I take, I suppose, any  
19 clarifying questions that people might have, saving the more  
20 substantive questions and discussions for later.

21           None? Okay, if none, thank you.

22           COMMISSIONER SCOTT: Great. Thank you very  
23 much, both Charles and Jim, for your terrific presentations.  
24 I think we've got a really good overview here.

25           I just wanted to check before we go into the  
26 discussion, did we have any other Advisory Committee members

1 join us on the phone or on the WebEx?

2 (Unintelligible voice due to static or distortion.)

3 MS. FRIEDMAN: I don't know if we can hear them.

4 MR. SMITH: So I think we still have Brian from  
5 Energy Independence Now and also Shannon Baker-Branstetter  
6 from Consumers Union.

7 COMMISSIONER SCOTT: Oh, great. Terrific.

8 Welcome, Shannon.

9 Okay. I will turn it to Jim and to Charles to  
10 lead us through our discussion.

11 MR. MCKINNEY: Okay. Thank you, Commissioner.

12 So again Jim McKinney here. I'll be moderating  
13 the Committee discussion and public discussion parts of the  
14 remainder of the workshop. So as a friendly remainder, the  
15 way the discussion will proceed, we'll start with comments  
16 and questions from members of the Committee present at the  
17 table, then turn to members of the Committee available by  
18 phone, and then we'll turn to members of the public first  
19 here within the room and then again by phone and WebEx.

20 As a friendly remainder to the members of the  
21 public here who want to speak on a given category, please  
22 fill out a blue card. These are available in the front  
23 lobby. And get them to Charles or myself. Charles has got  
24 a handful there.

25 And, Charles, I was thinking members of the public  
26 could use that microphone; what do you think?

1 MR. SMITH: Yeah, that sounds good.

2 MR. MCKINNEY: Okay. So let's get down to  
3 business here. So beginning with the staff recommendation  
4 for biofuel production and supply at \$20 million, I'd like  
5 to open discussion to members of the Committee who are  
6 present.

7 MR. GERSHEN: I guess that's me.

8 MR. MCKINNEY: Hi, Joe.

9 MR. GERSHEN: Hi. Thanks. Hey, thanks for all  
10 the hard work. Obviously maybe some of what's been talked  
11 about is getting in there and that's -- and we really  
12 appreciate it.

13 One thing I wanted to kind of make a point about  
14 was your comments about renewable diesel, just a FYI. I  
15 personally market both renewable diesel and biodiesel, so  
16 I am familiar with those products, and I think there's some  
17 stuff you guys should know about it.

18 While I support it and think it's another good  
19 alternative, renewable diesel is not -- not all RDs are the  
20 same. Not all renewable diesel is completely fungible.  
21 In fact, the EMA and Truck and Engine Manufacturing  
22 Association verbalized recently a 20-percent limit. We  
23 know that Caterpillar is only looking at petroleum origin,  
24 so they're not accepting any renewable diesel in their  
25 equipment.

26 Unlike biodiesel, which has a specification and

1 a definition, renewable diesel has no unified definition or  
2 specification. There are issues with lubricity, actually  
3 lack of aromatics which protect gaskets and seals and  
4 o-rings and things like that. So these are kind of issues.  
5 You know that the jet industry is only looking at synthetics  
6 up to 50 percent.

7           So your statement, Jim, about you can use it up  
8 to 100 percent is actually not accurate. And there are some  
9 statements for OEMs and EMN and others forthcoming that I  
10 think will inform that, but it's something to look at when  
11 you're looking at the overall biofuels profile. I think  
12 that's an important thing.

13           Additionally, and I may have left some more out,  
14 but we'll put more into our comments that we get in before  
15 the 21st, I still have some questions about the metrics.  
16 You know at the workshop last June there was a lot of  
17 discussion of future benefits, and that's great. But some  
18 of us on the Advisory Committee here suggested potentially  
19 doing sort of a subcommittee or a subadvisory panel and we're  
20 curious about thoughts about that. I know we had talked a  
21 little bit about that offline and I'm curious to get  
22 everyone's thoughts, staff's thoughts about that.

23           You know carrying forward, I won't take too much  
24 time, it looks like diesel substitute are receiving about  
25 ten percent of the funding. We still think that biodiesel  
26 provides a substantially larger percentage of the benefits.

1 We know that they're providing thus far about 16 percent of  
2 all the LCF credits to date that have gone out according to  
3 ARB numbers. So at 59 million gallons per year based on the  
4 Draft Report, that looks about accurate. We think it may  
5 be a little bit more than that, but close enough.

6           The biodiesel industry is capable of delivering,  
7 by my calculations, about 610,589 metric tons of carbon  
8 reduction, which is the equivalent to removing almost  
9 140,000 vehicles from California roads. The in-state  
10 production is providing hundreds of high-paying green jobs  
11 in some of the most economically challenged communities in  
12 the state. Preliminary estimates are showing that  
13 biodiesel plants will contribute approximately \$120 million  
14 in economic activity -- it could be more -- to the California  
15 economy in 2014 alone, somewhere in the neighborhood of \$100  
16 million in tax revenues. So in addition to all the great  
17 lower carbon that you've identified, there's also some real  
18 economic benefits there as well, as you said, lower carbon.

19           With the right kind of support in the state for  
20 this program, for every \$1,000 invested from ARFVTP, the  
21 biodiesel industry we figure can deliver close to 1350  
22 gallons of ultra low carbon biodiesel production and about  
23 14 tons of carbon reduction. That's like taking over three  
24 cars off the road for every \$1,000 invested.

25           And I think that the state offers \$1,000 rebates  
26 to folks that are just retiring their old cars. So just as

1 an interesting point, we're getting three times what that  
2 program gets, which is great. I just want to sort to point  
3 that out to everybody.

4 And if we bring our in-state capacity up to 200  
5 million gallons a year, it would be equivalent to taking an  
6 additional 332,000 cars off the road or taking an additional  
7 1.4 million metric tons, which I think is about ten percent  
8 of that 2020 goal of carbon out of the atmosphere every year.

9 So we would still like to see some more separate  
10 categories for the different biofuels, although that's been  
11 progressing nicely. Looks like you guys are more carefully  
12 vetting some of the projects, which is also really good.  
13 I'm happy to see that.

14 And, generally, one other thing, if some of these  
15 projects end up -- and I realize this is sort of a bigger  
16 issue potentially -- but if some of these projects don't end  
17 up accepting funding and they go back, we'd like still like  
18 to see those funds go back into biofuels productions rather  
19 than to general fund or the general program fund. I think  
20 that would be important because, as you've identified, some  
21 of these projects are really doing some great work in helping  
22 this project achieve its goals.

23 Generally, thanks very much, and you guys are  
24 doing a good job. We appreciate it.

25 COMMISSIONER SCOTT: Thanks for those thoughtful  
26 comments, Joe. Let me add, I don't think right this minute

1 we want to put together a subcommittee for the metrics, but  
2 we did do a lot of thinking based on the terrific letter that  
3 you sent to us and Tim Carmichael and others on what the  
4 metrics ought to look like. And we tried to incorporate a  
5 lot of that into the IEPR chapter and some thoughts for how  
6 we'd like to proceed.

7           And I think maybe what the next thing would be is  
8 to take a look at that chapter, see what you think about it,  
9 see how we've done in incorporating -- I think we had a really  
10 good workshop and we got a lot of good kind of bookends and  
11 parameters for what that ought to look like. But I would  
12 be happy to sit down and talk with you and anyone else,  
13 really, in some more detail on the metrics. And it is  
14 something that we need to continue to think about and be  
15 mindful of and make sure we're doing a good job with it. So  
16 if that requires us to put together a subgroup that meets  
17 quarterly or something to keep thinking about it, I think  
18 we're still open to that option, but take a look at the  
19 chapter first and see what you guys think there.

20           MR. GERSHEN: Okay, great.

21           COMMISSIONER SCOTT: There was something else  
22 that you said right at the end that I wanted to address, but  
23 I'm blanking on it, so I'll --

24           MR. GERSHEN: Funds that weren't used maybe?

25           COMMISSIONER SCOTT: Was what?

26           MR. GERSHEN: Funds that weren't used.

1           COMMISSIONER SCOTT: Oh, yeah, it was on the  
2 funds that weren't used. We're on the same brainwave.  
3 Which is the way that funds are set up, there is a period  
4 in which we can reallocate them, so they have to come back  
5 to us within that period for us to be able to reallocate them.  
6 And if they do, then we typically do put them right back into  
7 the category that they out, but if they come back after that,  
8 that's when they get put into the general fund. And I think  
9 it's the statute as it's set up, right? But we take your  
10 point on that.

11           MR. GERSHEN: Okay, thanks.

12           COMMISSIONER SCOTT: Yes.

13           MR. MCKINNEY: Okay. Thank you, Joe. Are  
14 there other members? Steve Kaffka, U.C. Davis.

15           MR. KAFFKA: Hi. I have several comments. You  
16 mentioned the slow development or pace of build out of  
17 cellulosic ethanol facilities, but in fact I think that's  
18 increasing somewhat rapidly now. As you know, there is, I  
19 think, four facility, mostly in the Midwestern U.S. that  
20 have come on line or will be on line shortly and at least  
21 one or two planned that have been announced recently.  
22 There's also one in Brazil that seems to be operating based  
23 on sugarcane residues. And at least one of the California  
24 companies has announced plans for at least a cooperative  
25 arrangement for some residue-based production in  
26 conjunction with their grain-based system.

1           The other issue was that some of the other  
2 projects, for example, energy beets will have at least a  
3 small portion of the fuel produced would be actually from  
4 cellulosic sources within the feedstock. So it's not quite  
5 so black and white that it's one or the other.

6           So I think that at least one company that remains  
7 quite serious about trying to establish a cellulosic  
8 feedstore source based fuel supply in the Imperial Valley.  
9 So I think that there's prospects for that in the near term  
10 that are probably as much dependent on the financial  
11 vagaries of the market and policy stability as anything  
12 else.

13           Another thing I'd like to raise is at least seems  
14 to me an open question is the relationship between power and  
15 fuel. So electricity can be a transportation fuel. It's  
16 obviously also just basically electricity for all other  
17 uses. Some of the biorefineries that may be built or will  
18 be build also can generate electricity. They may generate  
19 some natural gas or biogas that may be used to generate  
20 electricity as a byproduct.

21           If we're going to use woody residues from forest  
22 in any significant way to help with management of forest  
23 growth, it may be more economic to generate electricity  
24 rather than transportation fuels from that source, at least  
25 easier. In that case, would those fuels be -- where would  
26 the credit go. So I think it's a question that might be

1 discussed somewhat because I don't think it's resolved yet  
2 in policy. Maybe it's difficult to resolve.

3           Despite my comments about cellulosic fuels coming  
4 on line, I think it's important to kind of remain in the  
5 spirit of the Low Carbon Fuel Standard, which is a  
6 performance standard. It can be that cellulosic feedstocks  
7 end up having the lowest carbon intensity associated with  
8 transportation fuels, but that's not necessarily true.  
9 There can be conventional feedstocks or alternate  
10 feedstocks, for example the energy beets, which can be at  
11 least as competitive. So I think it's important that we  
12 keep in mind that the performance standard be adhered to in  
13 the sense that the best, most competitive fuels be used  
14 irrespective of what sometimes are simply semantic distinctions  
15 among feedstock sources. You can have feedstocks that are  
16 both started, for example, maize, corn is used in new  
17 facilities both for stocks, which are cellulosic, and the  
18 grains, which are starch based, are used. And, even from  
19 the grain supplies, you have some cellulosic residues, like  
20 Udaniken (phonetic), other companies working on -- so  
21 sometimes these distinctions are not helpful. And the  
22 California policy of the Low Carbon Fuel Standard, which is  
23 a performance standard, is the best way I think to sort  
24 through those distinctions.

25           I know there has been some discussion about  
26 including jet fuel in the future that didn't come up today

1 as part of the potential fuels that might be produced in this  
2 program, I'm not sure where that stands, so I want to ask  
3 about it.

4 And, lastly, I want to applaud you for keeping in  
5 mind the potential benefits for in-state businesses. If  
6 biofuels are made in California they will be largely made  
7 in rural areas other than from urban sources. If they're  
8 from forestry or agricultural sources, they will be in rural  
9 areas. Biorefineries, as Joe has noted, are excellent  
10 sources of high-quality employment and jobs and relatively  
11 significant second and tertiary economic benefits in  
12 regions where they're established. It may be one of the  
13 best ways in which we can help distribute the benefits from  
14 our greenhouse gas policies to rural areas.

15 So while that may not be a direct metric that you  
16 use here, these kinds of facilities are in fact outstanding  
17 uses, I think, of both public moneys and natural resources  
18 used to support them.

19 COMMISSIONER SCOTT: Thank you. I don't have an  
20 answer to the jet fuel question.

21 Do you?

22 MR. MCKINNEY: I believe I'm looking to John for  
23 confirmation, but I believe we open that aviation-grade jet  
24 fuels or biodiesel?

25 MR. BUTLER: Yes. I think we are open to that.

26 MR. MCKINNEY: Yeah. Thank you, John.

1           And I didn't get a chance to reference John  
2 Butler, so our Office Manager and really the leader for all  
3 the grant and solicitation development work.

4           Yes, and if I can add to what John said, you're  
5 recognizing kind of the market pull that would be available  
6 from opening renewable diesel and biodiesel to the aviation  
7 sector. It's a high-volume consumption for fuels, so we  
8 thought that would be an excellent market, yet another  
9 market pull, to get that industry up and running.

10           Tim Carmichael.

11           MR. CARMICHAEL: Good morning. Tim Carmichael  
12 with the California Natural Gas Vehicle Coalition. I echo  
13 many of the comments Joe and Steven made, and I just wanted  
14 to add a couple.

15           On the metrics issue, I appreciate the  
16 Commissioner's openness to continue that conversation.  
17 We'll definitely look at the IEPR, the section that you  
18 referred to.

19           And I just wanted to add that I found that the  
20 final analysis, that shared, is incredibly valuable. And  
21 that is consistent with Joe's and mine and others that we've  
22 talked to about this metrics, the ability to do more  
23 measurement of the benefits of a project as  
24 contemporaneously as possible with the funding decisions,  
25 the better we will be at making good investments.

26           I think I've said this before, I used to think a  
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1 hundred million was a lot of money, and this project or this  
2 experience with this working group has reminded me how  
3 quickly we can spend a hundred million, and we do it each  
4 year. And there's a lot more demand than the funds that you  
5 and the ARB combined have. So that's the motivation behind  
6 wanting to try and incorporate more metrics, and we can  
7 maximize the benefits of the investments that we make, that  
8 you as an agency make and we as a state make.

9 I wanted to highlight that if we're not yet  
10 realizing the potential of biodiesel, I would say the same  
11 is true exponentially for biomethane. And, one of the  
12 things I want to point out, which was interesting, and I know  
13 Jim has tracked this and probably others at CEC, but there  
14 was a recent ARB workshop on the Low Carbon Fuel Standard.  
15 And it was just an illustrative scenario of how we can comply  
16 with the LCFS in 2020, but it's worth noting that in that  
17 illustrative scenario more than 50 percent of the  
18 anticipated credits to be generated would come from  
19 biomethane, renewable diesel, and biodiesel. More than 50  
20 percent in the 2020 timeframe.

21 So as much as we appreciate 20 million for this  
22 category, there is a tremendous amount of demand and,  
23 frankly, a reliance on the success of these fuels to achieve  
24 California's multiple goals here.

25 One other point. I anticipate Julia Levin may  
26 want to, may be speaking on this in the public comment

1 period, but there is a tremendous potential to produce more  
2 biomethane within the state of California. And we today are  
3 at a fraction of what's possible. And there are three or  
4 four reports that have been produced in the last year or two  
5 that speak to that and the various feedstocks that can be  
6 used.

7 And I absolutely agree with Stephen's point about  
8 the value of producing more of these fuels in the state and  
9 the jobs are of equal benefit. Thank you.

10 MR. MCKINNEY: Okay, Simon Mui.

11 MR. MUI: Simon Mui with NRDC. I just wanted to  
12 echo some of the previous comments. I had some overarching  
13 comments, but I'll leave some of that for later on.

14 I will say that the amount, right, we're spending  
15 about, my estimate, 600, \$700 billion on gasoline and diesel  
16 going forward over the next decade, and when you look at the  
17 overall funds here, it is in some ways a drop in the bucket.  
18 So 1.5 billion, one-fifth of one percent of what California  
19 will be spending over the next decade investing in  
20 alternatives. So we do want to see and support sort of  
21 making sure that those limited funds are utilized in a manner  
22 that is effective, particularly to some of the metrics  
23 discussion which I think is important going forward in terms  
24 of, just to echo some of the previous comments, in terms of  
25 having additional input and ensuring that those  
26 cost-effective tests, that we are able to adequately

1 describe the transformational changes, which I think you are  
2 starting to capture now, in terms of the seed-funding  
3 investments -- what I'll call seed-funding investments,  
4 because it's very challenging to talk about tens of millions  
5 of dollars going into billions of dollars overall in fuel  
6 expenditure and be able to tease out the benefits without  
7 understanding how this fits into the overall  
8 transformation. So that sort of narrative I think is very  
9 important to this.

10           And I think we shouldn't get too caught up into  
11 the details of whether or not one policy is the cause of X  
12 or another policy is cause for Y, because we know that all  
13 of these policies are working together. And rather than  
14 saying this is CEC doing all of this or ARB doing all of this,  
15 or some other -- or federally some other policy, maybe  
16 looking at the benefits overall from these types of vehicles  
17 and fuels, and then trying to take a second step at cutting  
18 out, okay, what are specific benefits, programs might be a  
19 better approach.

20           Finally, I do want to comment a bit on biofuels  
21 as well. We do see the importance, particularly not just  
22 with California's Low Carbon Fuel Standard going forward,  
23 but now other states along the West Coast. And I know there  
24 is a lot of engagement right now by other agencies in the  
25 northwest, British Columbia around biofuels but also around  
26 alternative fuels. And to the extent that the different

1 agencies are working together, data, the understanding of  
2 fuel volumes, all of that I think is very important as well  
3 as coordinating on incentives so that we can sort of lift  
4 all those, so to speak.

5 I think Steve's comments, just to emphasize on the  
6 cellulosic question, our data is showing that different  
7 kinds of facilities are indeed being developed. We just  
8 visited some in the Midwest. There's actually a list  
9 that -- I don't know if the CEC subscribes to Bloomberg New  
10 Energy Finance, which we describe to at NRDC, but gives  
11 project sort of status updates. We're very aware of  
12 projects by DuPont, by Coad, by Apingoa (phonetics), as well  
13 as down -- in the Midwest, as well as down in Brazil for both  
14 wind and bio as well as investments, rice in -- these are  
15 multibillion dollar companies that are starting to make  
16 movement and we're seeing first-time generation. I  
17 think -- for some kind of facilities.

18 I think for CEC what would be important is to  
19 collect some of that data as we go forward, understand what  
20 it is the -- why those facilities located where they did,  
21 but then also trying to figure out, okay, if the West Coast  
22 has clean fuel standards how do facilities look at project  
23 development on the West Coast and where is the best  
24 leveraging for funds. I think you're already doing this.  
25 I mean we were very excited to hear about AltAir, which is  
26 actually producing some of the jet fuels as well that was

1 discussed earlier.

2           Okay. Thank you.

3           MR. MCKINNEY: Thank you very much, Simon.

4           Joe, did you have another...

5           MR. GERSHEN: I think everybody pretty much  
6 covered it. I just wanted to agree with what everyone was  
7 saying, that the secondary and tertiary employment -- we  
8 were trying to calculate this the other day and we  
9 really -- it sort of got out of our control. There was so  
10 much ripple effect with employment in places like  
11 Bakersfield, Stockton, Coachella Valley, Barrio Logan down  
12 in San Diego. I mean it's really quite stunning when you  
13 really start to scratch that surface and see what's going  
14 on.

15           Also in -- in the presentation earlier about  
16 biofuel, ARFVTP may consider requiring higher levels of  
17 benefits for dollar -- per dollar for future awards. You  
18 know that was one of the questions we had in the metrics,  
19 is could there be a dollar-per-ton estimate for each  
20 category performed, and that's -- you know, that's some of  
21 the stuff that we have been considering, but thanks.

22           MR. MCKINNEY: Okay. CalRecycle, then Steve.

23           MS. SMITH: Yes. This is Brenda Smith with  
24 CalRecycle and I just want to thank you for your past work  
25 on these projects and also especially I'm interested in the  
26 biomethane projects and the hard work we're doing in trying

1 to get organics out of landfills. And we look forward to  
2 working with you on future solicitations for those projects  
3 as well.

4 And just a really quick announcement that we are  
5 rolling out our GTRF funding. Next Tuesday we have our  
6 monthly public meeting at 10:00 a.m. at the CalEPA building.  
7 And we received \$15 million for organics type projects, so  
8 we will be awarding hopefully five or six projects. That  
9 was open for compost standard but digestion-fermentation  
10 type projects, so we may be contributing to that.

11 MR. MCKINNEY: Great. Thank you. Yeah, thanks  
12 for being here today.

13 Steve.

14 MR. KAFFKA: Well, just a comment to support  
15 Joe's work. These estimations, the new plan on the economic  
16 effects of several different types of biofuel,  
17 biorefineries set in California, at different locations  
18 that you will have actually shortly, Jim, as a function of  
19 the ITS contract. Also there are some preliminary  
20 estimates that have been submitted to the Pure Program. In  
21 that same way they're very substantial, at least based on  
22 the model estimates. The model estimates perhaps over  
23 estimate at some level but, in any case, they are an  
24 indicator of the order of magnitude of these effects.

25 The other thing I actually failed to mention is  
26 a question. At least some of the automobile companies have

1 looked at these nearing and the potential benefits of higher  
2 alcohol blends in their vehicles as a means of greenhouse  
3 gas reduction. And with the higher alcohol blends, the  
4 power disadvantage of ethanol tends to disappear, for  
5 example, and we would question the benefits of using those  
6 given their aromatics and other secondary health effects  
7 that are present in gasoline.

8           And so there's not much discussed in here, but I  
9 think there would be some thought maybe given to the idea  
10 of what the role of what higher alcohol blends might have  
11 based in some portion of the future vehicle infrastructure.

12           MR. MCKINNEY: Great. Thank you for those  
13 comments.

14           Any other comments from members of the Committee  
15 here today?

16           (No audible response.)

17           MR. MCKINNEY: Okay. Charles and Andre, why  
18 don't we go to Committee members on the phone.

19           MR. SMITH: So we're having some noise with some  
20 of our Advisory Committee members online. They should  
21 hypothetically be able to unmute themselves, we think. So  
22 if that doesn't happen, maybe send a message, if you're on  
23 WebEx, to the host, and we'll see what we can do to get you  
24 speaking to the room.

25           (No audible response.)

26           MR. MCKINNEY: Okay. With that, I'd like to

1 open it to public comment here today. So I have one blue  
2 card from Ms. Julia Levin, for the Bioenergy Association of  
3 California.

4 So if you could use the microphone at the podium,  
5 please.

6 MS. LEVIN: Good morning and thank you to staff  
7 and to Commissioner Scott.

8 And welcome to Ms. Friedman. Given your  
9 background, I think you're in the perfect position at the  
10 perfect time, and we're glad to have you onboard.

11 I do want to thank the Energy Commission, and I'm  
12 a little bit biased, having been here myself, but you have  
13 been a world leader in reducing greenhouse gas emissions  
14 from all different energy sectors and I think continue to  
15 push the envelope here. And I think all of us are really  
16 grateful for that, and we need you to continue to do so.

17 I am particularly grateful for the continued  
18 emphasize on greenhouse gas reduction. Like Tim and a  
19 number of other folks in the room, we were at a workshop at  
20 the Air Board last week. And even though the Air Board  
21 received \$200 million for greenhouse gas reduction from the  
22 transportation sector, they are prioritizing Nox and  
23 criteria pollutant reduction, not greenhouse gas reduction.  
24 And that was very troubling to a number of us given the  
25 purpose of AB 32 is 100 percent to reduce very dangerous  
26 climate-change emissions. I hope that the Air Board in next

1 year's budget will reconsider that, but in the current year  
2 they are putting zero dollars into the lowest carbon  
3 transportation, which is fuels made from organic waste,  
4 biomethane and biodiesel from organic waste.

5 I think that that makes it even more important for  
6 this Commission to put greater emphasis on organic-waste-  
7 based fuels going forward until the Air Board actually  
8 starts to prioritize greenhouse gas reduction, as it should.

9 The benefits you know from a climate-change  
10 standpoint, there are significant additional benefits.  
11 And a number of you mentioned jobs. There is a study by U.C.  
12 Berkeley by Dan Kammen that shows that biogas produces two  
13 to six times as many jobs per megawatt as fossil fuel gas.  
14 And I think that the same will be shown on the transportation  
15 side as well. There are significantly more jobs with  
16 renewable fuels, with waste-based fuels than there are with  
17 fossil fuels.

18 And California from organic waste alone, and this  
19 is thanks to Steve and his team at U.C. Davis, we could  
20 produce more than two billion gasoline gallon equivalents  
21 per year of renewable transportation fuels just from organic  
22 waste. Over two billion gasoline gallon equivalents per  
23 year. That's more than enough to meet the 2020 Low Carbon  
24 Fuel Standard. It's enough to replace three-quarters of  
25 all of the diesel that motor vehicles use on California  
26 roads. Three-quarters of all the diesel.

1           So you think about not just the greenhouse gas  
2 reduction benefits but the benefits for environmental  
3 justice communities for air pollution more generally. And,  
4 as Brenda well knows, increasing the use of organic waste  
5 to produce transportation fuels will also help us to meet  
6 California's landfill-reduction goals, and particularly  
7 the two laws that just passed and were enacted this year,  
8 AB 1826 and AB 1594, that require diversion of organic waste  
9 away from landfills.

10           Two other laws that increasing organic waste  
11 based fuels will help to comply with, SB 1505, which requires  
12 a third of all the hydrogen at publicly-funded hydrogen  
13 fueling stations, it needs to be renewable hydrogen. And,  
14 again, I don't think that the Air Board is putting adequate  
15 resources into renewable hydrogen. A number of questions  
16 came up about it at last week's Air Board workshop and were  
17 met with not very conclusive answers, so I think that's  
18 another really important priority for the AB 118 program,  
19 whose proper acronym I can never remember.

20           So we have a couple of specific recommendations.  
21 Commissioner Scott, we strongly support the need for  
22 metrics, and that's actually something a number of us raised  
23 last week at the Air Board. That would be very, very  
24 helpful to adopt metrics that can be applied across all of  
25 these programs so we really see what's the focus on  
26 greenhouse gas reduction, what's the focus on criteria

1 reduction, criteria pollutants, et cetera, jobs, all the  
2 other benefits.

3 I think I've already said but I think it bears  
4 repeating, we strongly encourage you to increase the  
5 proportion of funding for organic-waste-based fuels as the  
6 lowest carbon transportation, by far.

7 Given the amount of funding that the Air Board has  
8 and is putting entirely into electric vehicles and hydrogen  
9 fueling infrastructure, we encourage you to reduce that  
10 funding in the AB 181 program. It is dwarfed by the funding  
11 that the Air Board now has for those programs, where I think  
12 this Commission can really continue to focus on alternative  
13 fuels, the actual fueling part.

14 And, as I mentioned, both agencies need to  
15 increase the emphasis on renewable hydrogen production.

16 Finally, this touches a bit on something that  
17 Steve Kaffka mentioned, I think that there is need for a  
18 study or an assessment of where facilities can be colocated  
19 to produce organic renewable hydrogen from organic waste and  
20 hydrogen-fueling infrastructure, so that the investments  
21 you make going forward have a readily-available supply of  
22 renewable hydrogen. And I think really assessing where  
23 those opportunities are to colocate would be very valuable  
24 for both parts of the industry.

25 So, again, I thank you very much. You're doing  
26 great work and we really appreciate it.

1 MR. MCKINNEY: Great. Thank you, Julia.

2 The next blue card is from Brittany Syz with  
3 Oberon Fuels.

4 MS. SYZ: Hi. I'm Brittany Applestein Syz and  
5 I'm here from Oberon Fuels. Thank you so much for the  
6 opportunity to comment on the Plan. I need to address DME's  
7 placement in this plan and consideration for it to be  
8 explicitly put in the Plan.

9 DME, for those that aren't familiar with it, is  
10 a clean-burning diesel alternative. The molecule itself  
11 has no carbon-carbon bond, so when it combusts in an engine,  
12 there's no soot or particulate matter. This makes it easier  
13 to control the Nox. DME can be used in any diesel engine  
14 with very minor modifications to the engine and it can be  
15 used for both onroad and offroad applications, so affecting  
16 emission pollution in both of those sectors.

17 It provides the power and torque of diesel with  
18 the handling properties of propane. There's no cryogenic  
19 or high-pressure storage. It's a liquid at 75 psi and it  
20 can piggyback easily off the propane, existing propane  
21 infrastructure.

22 In the Plan, one of the goals that's talked about  
23 is transforming California's fuel and vehicle types to help  
24 attend the State's climate-change policies. We know that  
25 DME falls very fairly under this objective because it has  
26 the properties that provide no PM, so there's no PM emissions

1 at all. And, additionally, the trucks can be developed to  
2 have low Nox.

3 Another one of the objectives was to develop and  
4 deploy technology in alternative and renewable fuels in the  
5 marketplace without adopting any one fuel technology. So  
6 we've looked at the variety of different technologies out  
7 there that you're looking at and we believe that DME could  
8 be an additional option, adding to the array of fuels. DME  
9 does have attributes that some of the other fuels that are  
10 specifically called out in the Plan do not have. So DME is  
11 very easy to handle: As I mentioned, no cryogenics, no high  
12 compression. There's no venting with DME. It does have  
13 the power and torque of diesel so it can power over the hills.

14 DME has a long range. The testing that has  
15 currently been done by Volvo shows that they can get between  
16 five and six hundred miles on one route. The infrastructure  
17 costs are low: Fueling stations in the tens of thousands  
18 versus millions of dollars because of our ability to use  
19 propane infrastructure.

20 Engine conversion is simple. It's a  
21 diesel-based engine with minor fuel-system modifications.  
22 The engine is very efficient because it's a combustion  
23 engine versus a spark plug engine. It's inexpensive to  
24 maintain. You remove the diesel particulate filter from a  
25 truck, reducing weight and costs and maintain costs.  
26 Additionally, you don't have spark plugs in the engine.

1           When DME is made from biogas it has an extremely  
2 low CI. Chapter 3 of the Plan states that you're looking  
3 at biofuels derived from waste-based feedstocks, and that  
4 is DME. We can produce it from either natural gas or  
5 biogas, and it's also produced from domestic feedstocks, so  
6 we can use landfill gas, waste-water-treatment gas, food  
7 waste, as well as clear gas.

8           We believe that DME does transform the market and  
9 it fills a void that's not currently being offered by other  
10 biofuels that are specified in the Plan.

11           A couple other things I wanted to mention is that  
12 Volvo is developing engines. We'd also like to talk to  
13 other OEMs, and at this point other OEMs are calling to us  
14 to talk about DME. We also just achieved our wins pathway  
15 which shows that DME has a 68-percent reduction of GHG.  
16 We're working with carbon, our Tier 1 report, part of the  
17 multimedia assessment. We're about to complete that.  
18 CDFA has also issued regulations that will legalize DME in  
19 California.

20           So we've made a lot of progress. We currently  
21 have a plant out in Bali that's producing DME for a variety  
22 of different demonstrations with other OEMs, and we hope  
23 that you will consider in adding a section about DME in the  
24 Investment Plan for 2015 to 2016. So thank you very much  
25 for your time. I appreciate it.

26           MR. MCKINNEY: Great. Thank you, Brittany.

1 And, as to clarify, DME is an eligible fuel in the biofuels  
2 category.

3 Our next speaker is Cory Bullis with Clean World.

4 MS. LEVIN: Hi. Sorry. Julie Levin again. I  
5 forgot one comment, which Cory graciously said I could make  
6 when he came up.

7 I just wanted to add that we strongly support the  
8 continued and even increased funding for natural gas  
9 vehicles and infrastructure, because those are the same  
10 vehicles and infrastructure that we need for biomethane.  
11 And I meant to say that earlier, but that's also a really  
12 critical piece of the funding that we support. Thank you.

13 MR. MCKINNEY: Mr. Bullis.

14 MR. BULLIS: Cory Bullis with Clean World. I  
15 just want to quickly thank you all obviously for your ongoing  
16 leadership in this effort and special thanks to Jim for  
17 giving a shout-out to a Clean World Sacramento project in  
18 the presentation.

19 I did want to offer one slight correction that I  
20 believe was a typo in the slide. It says here that the  
21 carbon intensity is 15 grams of carbon dioxide equivalent  
22 per mega joule. I believe that it should be negative 15,  
23 as it is a negative-carbon-intensity fuel, so I just wanted  
24 to quickly offer that correction; as well as called echo the  
25 comments of Tim Carmichael and Julia Levin about the  
26 importance of maximizing investment in biomethane to yield

1 the highest amount of GHG emissions reductions. Thank you.

2 MR. MCKINNEY: Thank you.

3 The next speaker is Raoul Renaud or Paul Renaud

4 MR. RENAUD: Thank you. Jim, you were the right  
5 the first time. Paul is my brother, actually. As some of  
6 you know, I work here at the Energy Commission, but I'm  
7 speaking strictly in my own behalf as an individual and not  
8 in connection with the Energy Commission.

9 I wanted to speak up here because we have two  
10 Nissan Leafs in our family. And between the two cars, we  
11 now have driven almost 40,000 miles, so we have a good deal  
12 of onroad practical experience with what you're all funding  
13 in terms of EV infrastructure.

14 I'm very, very pleased with the progress that's  
15 been made on the installation of quick chargers,  
16 particularly, because those really do make longer trips  
17 possible. I go regularly to the Bay Area and need to use  
18 a quick charger once or twice in order to be able to do that  
19 and have them roughly every -- yes

20 COMMISSIONER SCOTT: Well, I want to -- let's  
21 save the charging comments for when we get to the charging  
22 infrastructure portion of the conversation. Right now  
23 we're on the biofuels part.

24 MR. RENAUD: Oh, okay. I'm sorry.

25 COMMISSIONER SCOTT: We won't forget you when we  
26 get to --

1 MR. RENAUD: I thought you were the general  
2 comments, you're not there.

3 COMMISSIONER SCOTT: No, not yet. Okay.

4 MR. RENAUD: Okay. I will wait and I'm sorry.

5 COMMISSIONER SCOTT: Okay. No, no. No  
6 problem. Thank you.

7 All those on bio?

8 MR. MCKINNEY: Yeah, those are the blue cards I  
9 have for biofuels.

10 And then, Charles, any more luck with Committee  
11 members?

12 MR. HALL: I put in a card.

13 MR. SMITH: We do have another blue card from  
14 Jamie Hall of CALSTART.

15 Jamie, I just wanted to make sure that this was  
16 for biofuel production? Okay. Sorry.

17 MR. HALL: Good morning, everyone. I'm Jamie  
18 Hall, policy director with CALSTART. I'll keep this very  
19 short.

20 You know we're a fuel and technology neutral group  
21 focused on the clean transportation industry. We, like  
22 CEC, take a portfolio approach to California's future, and  
23 I just want to support the biofuels funding in this plan.

24 As Tim Carmichael noted, biofuels, including  
25 renewable natural gas and DME and renewable diesel and  
26 biodiesel and everything, are going to play a huge role in

1 California's future and the LCFS goals really need continued  
2 investment in the sector if we want to achieve these goals.  
3 And our works shows, and I'll come back to this in the medium-  
4 and heavy-duty vehicle portion, that liquid and gaseous  
5 fuels will continue to play a really important role for  
6 medium- and heavy-duty vehicles even out to 2035 and 2050.  
7 So to the extent that those can be renewable instead of  
8 petroleum and fossil-fuel based, we will be in a much better  
9 place.

10 We appreciate your approach. We just want to  
11 support the funding and thank you.

12 MR. MCKINNEY: Okay, thank you, Jamie.

13 Okay. I think this concludes the public comment.  
14 Did we have any public comments on biofuels, specifically  
15 online?

16 (No audible response.)

17 MR. MCKINNEY: No, okay. Why don't we turn to  
18 electric charging infrastructure before we break for lunch.  
19 And also if one of our staff team could get Peter Cooper's  
20 name plate here.

21 Welcome, Peter.

22 So comments from the Advisory Committee present  
23 on the staff recommendation to increase electric charging  
24 infrastructure funding to 18 million.

25 MR. KAFFKA: Well, I guess I would just like to  
26 say that Napa Valley Unified has taken a big step forward

1 as far as charging systems are concerned. We have completed  
2 the solar charging at six of school sites and administration  
3 offices, and we're working on transportation right now.  
4 With each one of the installations that's going on at each  
5 one of the school sites, we have included two chargers that  
6 will be available to the use of public and employees at those  
7 school sites. And so as the numbers go up as far as our  
8 solar charging is concerned, the number of charges are going  
9 to go up at all of the school sites along with the additional  
10 that we put into the first beginning stages. So I just want  
11 to thank the fundings that's there to be able to do that.  
12 I think that's a big deal right now currently. By the end  
13 of December we should have 12 stages up and operational for,  
14 I guess, employee and public use in the town of Napa itself.

15 MR. MCKINNEY: Great. Great to hear that  
16 announcement. Thanks, Ralph.

17 Any other members of the Committee want to speak  
18 to this funding category?

19 I have Jan Sharpless.

20 MS. SHARPLESS: Your analysis of these meanings  
21 and benefits have just improved so much over the last couple  
22 of years, and we can really see the majority of the program.  
23 And obviously there is a need for charging stations as we  
24 continue to build up in California, drivers of plug-in and  
25 all-electric and so forth. There's no denying that. And  
26 the fact that government has stepped in to help establish

1 this network. Because it does raise a question of what is  
2 the break point when we start seeing more commercial  
3 investment for these charging stations.

4 I know you mentioned in your investment report the  
5 fact that utilities might be looking at it as part of their  
6 market portfolio. Is there something happening that wasn't  
7 in the report that's encouraging to those of us who know that  
8 you cannot continue to have public subsidies on some of these  
9 things and would how is that played out?

10 COMMISSIONER SCOTT: I'll invite Leslie Baroody  
11 to come to the table and speak to that a little bit to you.

12 I think so right now the Public Utilities  
13 Commission is considering whether or not to let utilities  
14 build charging infrastructure. And if they do that, that  
15 changes the game a lot. And so we just need to be at the  
16 Energy Commission mindful that there is potential for the  
17 world and the types of people who can invest to be able to  
18 invest in the charging infrastructure. So that's why we  
19 wanted to kind of flag that, I think in the report.

20 I think one other piece that I like a lot about  
21 our funding is the ability to get chargers in places where  
22 they might not necessarily go, like for the state parks, for  
23 example. I don't know if you were a charging business  
24 person, if you would just put one in a state park, because  
25 you might not get enough throughput. But the grants I think  
26 still help enable us to expand in that way. I think there

1 are some places where we have some challenges. So most  
2 Californians live in an apartment building, in multifamily  
3 dwellings. And trying to figure out how do we sort of crack  
4 that nut and solve that issue, and we don't have an answer  
5 to that. Or maybe it's the ability of the Energy Commission  
6 to put some money towards the panel upgrades that you need  
7 to be able to put a bank of ten chargers in a really large  
8 apartment building, or something like that.

9           And so I think that there are opportunities for  
10 us to continue to think strategically about where to invest  
11 this money. And if there are certain challenges or issues  
12 that could be resolved, to target some money towards trying  
13 to resolve those. So that's not quick quite an to your  
14 question, but that's what I'm thinking about with this  
15 charger group.

16           MS. SHARPLESS: So looking through when we first  
17 adopted the zero emission vehicle provision at the Air  
18 Resources Board and then saw the early development of  
19 electric vehicles and then saw charging stations being  
20 placed here and there, which in some cases became stranded  
21 investments. And I am encouraged that the Energy  
22 Commission is thinking in the box, outside the box, looking  
23 at where the needs are, but also hopefully that at some point  
24 in time there is this crossover from public investment to  
25 commercial, because obviously somebody's going to have to  
26 take care of these things in ownership and also a repayment

1 process that's going on. So just as long as that I know that  
2 the Energy Commission is thinking about those things, I feel  
3 comfortable with the amount.

4 MS. BAROODY: I think you answered the question  
5 very well, Commissioner Scott. And we are constantly  
6 evaluating what our role is in the deployment of this  
7 infrastructure. For instance, on the corridors we really  
8 need to provide incentives for fast chargers, especially in  
9 areas where there is not much PEV deployment. For instance,  
10 on some of the I-5 corridors where in order to connect to  
11 orient, for example, it's really hard to build a business  
12 case for fast chargers on the corridor. So that's a great  
13 example of a need for government support.

14 And we're seeing an increasing number of  
15 workplace fast chargers or workplace level 2 chargers going  
16 in that are funded by workplaces, although there is still  
17 a need for government support. So there is great progress  
18 in this area in the private sector with a lot of innovation.  
19 We're constantly of hearing new business models evolving,  
20 but we're keeping a close tab on how much we have to fund.

21 MR. MCKINNEY: Okay. I think if I can add to  
22 that, Jan. You know the business model for some of these  
23 charger types isn't really established yet and whether you  
24 can recoup your investment through the revenue stream on the  
25 electricity or if it's really just with the device itself,  
26 so that's another big part of the assessment that Leslie and

1 her team are doing.

2 MS. BAROODY: And there some cases where there is  
3 a new business model evolving, for instance with multiunit  
4 dwellings. Companies such as Power Tree, they're making  
5 great strides to develop a bid for multiunit dwellings where  
6 it's a win-win situation. However, they still need a little  
7 bit of help. So many of these companies that are on the cusp  
8 of going within the business plan, they still need  
9 assistance. So we're trying to look for those  
10 opportunities.

11 MR. MCKINNEY: Okay. Thank you. I had my head  
12 down, I didn't see whether it was Dr. Ayala or Simon, but,  
13 in the alternative, Dr. Ayala with the Air Resources Board.

14 DR. AYALA: Thank you. Again I'm Dr. Ayala from  
15 the California Air Resources Board. I just had a quick  
16 comment and a question.

17 The comment is to basically establish that the Air  
18 Resources Board supports the increased allocation to  
19 electric charging infrastructure for all the reasons that  
20 we just talked about. We think it's incredibly important  
21 to continue the pace of support.

22 We know that more infrastructure is going to lead  
23 to more zero-emission vehicle uptick. And even though the  
24 progress to date is very encouraging, we realize that we're  
25 not quite there yet, so we fully support the suggested  
26 allocation that CEC has put into the current plan.

1           My question is one of clarification. I think it  
2 gets to some of the points that were just made, and that is  
3 I want to commend the CEC for coming the NREL report on the  
4 infrastructure assessment. I think it is very useful  
5 information. And a question for CEC staff: If I put  
6 together your numbers from the first presentation and the  
7 NREL report, we funded roughly 9400 total charging EVSEs.  
8 In the NREL report it's suggesting that we need about five  
9 times that to meet our goals. Am I reading those two  
10 numbers correctly?

11           MS. BAROODY: Are you looking at the high -- which  
12 slide are you looking at?

13           DR. AYALA: Yes. I was just roughly looking at  
14 whether you look at 2017 or 2018, if I look at the  
15 home-dominant and the public access, I just have those at  
16 roughly 45,000 charge points. So I'm comparing that to the  
17 number in Jim's table. Am I reading those two correctly?

18           MR. SMITH: So, Alberto, this is Charles. So  
19 the number presented by Jim of about 9,000, that's what our  
20 program has funded to date. What we have here is additional  
21 charging needed compared to August 2014. So these are in  
22 addition to ARFVTP investments to date, in addition to other  
23 chargers that were previously available that we didn't fund.  
24 So the -- for example, by 2017, the NREL analysis suggests  
25 that California might need about 13,500 public and private  
26 level 2 chargers under the home-dominant scenario. And

1 then if you look at the high-public access scenario, that's  
2 separate, you would need about another 32,000 public or  
3 private level 2. And this is of course not including  
4 residential. Residential would be a much higher number.

5 DR. AYALA: Thank you, Charles. So a follow-up  
6 question, if I may. So do we know -- I should know this,  
7 but I'll ask you. Do we know if we have a number in terms  
8 of existing charging points beyond what your program has  
9 funded?

10 I'm just trying to get a rough idea --

11 MS. BAROODY: Yeah.

12 DR. AYALA: -- in terms of where I'm going with  
13 this and I think it ties to the previous comments. I'm  
14 trying to just get a rough idea in terms of where we are and  
15 how far more we have to go.

16 MS. BAROODY: Yeah, that's a great question. So  
17 if you look on the Alternate Fuel Data Center site, the  
18 number is growing all the time. So if you look at  
19 California, I don't know what it is today, I think the last  
20 time I looked it was about 5800 level 2 public chargers. So  
21 if you look at what we funded with public, we've actually  
22 funded quite a few, a pretty high percentage of those.

23 MR. MCKINNEY: Simon Mui.

24 MR. MUI: Hi. Simon Mui with NRDC. Thanks for  
25 the synopsis on some of this work around the EV  
26 infrastructure. I have to agree with Alberto about the

1 importance of the work. And I think I differentiate  
2 actually maybe where California was at 10, 15 years ago, the  
3 ability to look more carefully at how much infrastructure  
4 is deployed, including work by NREL, work by U.C. Davis  
5 looking at optimization of funding. I think that's really  
6 important.

7           One of the things that we also think is very  
8 critical going forward is this actually PUC decision or PUC  
9 rulemaking around the Alt Fuel Programs on the utility side,  
10 because that decision is affecting the utility role in the  
11 infrastructure. And I think when you look at the comments,  
12 about 20 out of 21 of the comments are unanimous agree that  
13 the role of the utilities in this case is actually critical  
14 and should be expanded versus an earlier decision.

15           One of the things that I think is important is this  
16 question of what -- that's come before the PUC -- is this  
17 issue of what's an underserved market or what are the market  
18 failures that need to be filled. And similarly I think from  
19 the CEC's sort of grappling with some of these questions  
20 about where do we really need to invest in infrastructure  
21 with a commercial market just doesn't necessarily have a  
22 business case.

23           We do think and support CEC's focus around  
24 multiunit dwellings. That is like a sector that is a very  
25 substantially underserved market, allow infrastructure.  
26 That is very much in keeping with the goals we think the

1 Legislature developed with SB 1275, the center gate beyond,  
2 and going forward expanding that market to that 60 percent  
3 of the population that is living in these multiunit dwelling  
4 is very critical.

5           Also on this question about maintenance and  
6 liability, I had a question for CEC about some of the  
7 infrastructure that has been funded already, whether there  
8 is data being collected around things like operations  
9 statistics or whether these infrastructure are up and  
10 running, to what extent are they reliable. For instance,  
11 is there a maintenance aspect here going forward that will  
12 help build the markets. Users will drive up to stations,  
13 public stations and have some assurance that they're  
14 operating and not down. I think that's been a problem with  
15 some of the EV users, EV community. And I'm just wondering  
16 kind of how that's -- how that could be tackled, or  
17 particularly with the government incentives.

18           MS. BAROODY: Simon, that's a great question and  
19 it's a really important one because if the chargers not  
20 available, obviously they're not very useful. So within  
21 our grant agreements we do have a maintenance requirement.  
22 And at the conclusion of the project we have a report given  
23 by the awardee and they report on everything that they  
24 require in that particular agreement. So I imagine we will  
25 be collecting data on that going forward.

26           MR. MCKINNEY: Are there any comments from the  
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1 Committee members here? Tim.

2 MR. CARMICHAEL: This is not an issue I focused  
3 on in a while, but I do have a question. Feeding off of  
4 Simon's about utilities and the other side of that story,  
5 and some history of them on what they can and can't do  
6 relative to developing infrastructure for transportation,  
7 but it does seem -- I'm not surprised at the numbers in the  
8 summary of what CEC is finding to date in the high number  
9 of residential home charging. And I'm just curious going  
10 forward does it make more sense for CEC to -- for  
11 residential, is it multidwelling only and is there any more  
12 emphasis on nonresidential charging?

13 And where I'm coming from is it seems like the  
14 utilities and the property owner are in a pretty good  
15 position to be able to handle the residential, have the  
16 conditions over time, and the CEC can make the most of this  
17 investment by investing where others aren't.

18 MS. BAROODY: That's a good observation. And we  
19 actually have been pulling back our investments in  
20 residential charging infrastructure. We don't have any  
21 plan going forward right now, but we are focusing on the  
22 multiunit dwelling sector. That's the most important  
23 sector. The cost of the chargers are going down. I think  
24 the cheapest one now is \$395, from the big box store. So  
25 as those costs go down, the need for our funding is much less.

26 MR. MCKINNEY: And if I can add to that, Leslie,  
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1 some of the testimony we heard this spring on the IEPR panel  
2 on this topic was that 80 percent of the charging is still  
3 occurring at home and half of that seems to be level 1  
4 charging. And so consumers are really creative and  
5 adaptive in using their existing home infrastructure for  
6 kind of this initial generation of vehicles.

7           And I think this whole question on the  
8 relationship between charging infrastructure and a  
9 consumer's decision to purchase or not purchase is still  
10 unknown. And that's where the research from U.C. Davis is  
11 critical and from some of the other think tanks and work  
12 groups that are out there. So good questions.

13           MR. KAFFKA: Steve Kaffka again. I just want to  
14 raise again this issue of use of electricity as a  
15 transportation fuel and in particular the need from, for  
16 example, biomass sources. How would that be really  
17 credited as a transportation fuel not only if it's -- I find  
18 myself in an area where this is very unclear to me. And I'm  
19 not really a close follower of PUC policy and how that  
20 interacts with Air Board policies and Energy Commission  
21 policies, but a couple of years ago the Hoover Commission  
22 created a report about how issues around power and  
23 electricity in California and its various roles and policies  
24 regulating were extremely complicated, that there were  
25 constantly new policies being added in an ad hoc manner, and  
26 it wasn't adding to anything except confusion.

1           So it might be actually more efficient to convert  
2 a biomass source into electricity if it had a value as a  
3 transportation fuel than simply as under a fee and tariff  
4 full price. So I mean those are issues that perhaps  
5 aren't -- this may be isn't necessarily the forum or the  
6 policy for that, but it does simply, I think, affect how  
7 these issues go forward and I hope that some additional  
8 agency work can be done in that area.

9           MR. MCKINNEY: Okay. Thank you, Steve.

10           It looks like we're finished with this part of the  
11 Committee discussion. Do we have good communications with  
12 our WebEx folks now?

13           And have we heard from Eileen Tutt? I think this  
14 would be the first time we haven't heard from CalETC.

15           MR. SMITH: So Eileen sends her regrets for this  
16 meeting. She said that Bonnie Holmes-Gen of the American  
17 Lung Association might be able to join us later, so perhaps  
18 if she joins us after lunch, maybe we could cut back to this  
19 category briefly perhaps.

20           As for members online, we haven't received any  
21 texts from them or anything yet.

22           MR. MCKINNEY: Okay. Thank you.

23           I think with that we'd like to go back to public  
24 comment here in the room. And, Raoul, you're up.

25           And if anybody else from the public wishes to  
26 speak on this, please fill out a blue card, get it to Charles

1 or myself.

2 MR. RENAUD: Okay, so I'll just keep going. I  
3 was saying that having a quick charger about every 40 miles  
4 on major corridors seems to be about right, given  
5 the -- except if you've got a Tesla, which we don't -- but  
6 that seems to be about right to give you a good feeling of  
7 assurance that you can get someplace.

8 But to echo what Simon said, it's critical that  
9 those be reliable. There is nothing worse than the sinking  
10 of feeling of driving in and finding it's out of order, and  
11 you don't have enough juice to get to the next place, and  
12 you're faced with either a long session at level 2 or  
13 possibly even the humiliation of putting your Leaf on a tow  
14 truck, which we'd all hate to see.

15 And so I would urge that if it's not already being  
16 done, and I think I heard that it is, responsibility for  
17 ongoing maintenance and repair of these things be included,  
18 perhaps even with some sort of time-related requirement that  
19 it can't be down for more than an hour, or something like  
20 that.

21 Probably the first public quick charger that was  
22 installed on I-80 in this region is the one in Vacaville at  
23 the Bella Vista Road offramp. It's a great one. It's  
24 solar-powered, but it's been out of order since July. And  
25 the parties to it are still kind of fighting back and forth  
26 about who is responsible to fix that.

1 I believe that was actually ARB funding from quite  
2 some time ago, so it's probably not subject to the latest  
3 CEC contractual provisions, but unless these things can be  
4 counted on, it's not going to help promote the role out of  
5 electric vehicles. Thank you.

6 MR. MCKINNEY: Great. Thanks, Raoul. And I'd  
7 just like to suggest you might want to keep your eye open  
8 for job opportunities in our program, --

9 (Laughter.)

10 MR. MCKINNEY: -- about this subject area.

11 MR. RENAUD: Yeah, that would be of interest to  
12 me. So thank you.

13 (Laughter.)

14 MR. MCKINNEY: Okay. Do we have any more  
15 comment on the phone or on the WebEx?

16 MR. SMITH: We do have a raised hand from Paul  
17 Staples.

18 Paul, go ahead.

19 MR. MCKINNEY: And is this going to be on --

20 MR. STAPLES: Yeah. Look, --

21 MR. MCKINNEY: Excuse me, Paul. Is this going  
22 to be on electric or hydrogen?

23 MR. STAPLES: Oh, this is going to be on hydrogen.

24 MR. MCKINNEY: Okay. Can you wait till we --

25 MR. STAPLES: And, I'm sorry, I don't have a  
26 comment on that.

1 MR. MCKINNEY: Can you wait till we get to that  
2 category, please?

3 MR. STAPLES: Absolutely.

4 MR. MCKINNEY: All right, thank you, Mr. Staples.

5 MR. STAPLES: Thank you.

6 MR. MCKINNEY: Okay. With that, any other  
7 public comment on electric drive funding?

8 (No audible response.)

9 MR. MCKINNEY: With that I would propose and I've  
10 been conferring with Commissioner Scott here that we break  
11 for lunch and come back in 60 minutes, so say at 1:25 we will  
12 reconvene. Thank you very much.

13 (Luncheon recess taken from 12:25 to 1:28 p.m.)

14 COMMISSIONER SCOTT: Welcome back, everybody.  
15 This is Commissioner Janea Scott. I am Lead on  
16 Transportation here at the Commission. And we have  
17 finished up our Electric Charging Infrastructure  
18 conversation. We were going to take a comment from Bonnie  
19 Holmes-Gen, who was not here this morning, and then we'll  
20 go onto the Hydrogen Refueling.

21 MS. HOLMES-GEN: You're ready for a comment?  
22 Great. I'm glad to join you. So had to be late. The  
23 reason I was late is I have been involved in a presentation,  
24 which reminded me of some of the important topics we're  
25 discussing. And I was talking about public health and air  
26 quality and the transition we need to make to cleaner,

1 zero-emission technologies.

2           And as I'm thinking about, because I was thinking  
3 about the ZEV piece of this, I wanted to talk a little bit  
4 about how we're measuring our progress and how we are  
5 defining the level of progress we need to make issuing and  
6 how our funding can help that.

7           We had tremendous success with zero-emission  
8 vehicles and many of us have talked about that. We have a  
9 hundred thousand zero-emission vehicles on the road. It is  
10 a great milestone. But I'm thinking again about the fact  
11 that we have these goals out there to get to 1.5 million ZEVs  
12 in the next ten years. And I'm wondering, as we're looking  
13 at this investment plan, if there is a way or if this has  
14 been done for the Energy Commission and CARB together to look  
15 at, well, what are the levels of vehicles that we need to  
16 reach every year to reach that goal.

17           And I understand clearly we have as a mandate the  
18 program, but I think a look at where do we need to be in terms  
19 of numbers of vehicles on the ground to get to that 1.5  
20 million and it would help us to better understand whether  
21 we have enough funding directed toward that category. So  
22 I guess my question is: Is there enough funding between the  
23 infrastructure and the potential for any incentives money?  
24 Is there enough funding going from 118 to make sure that we  
25 are making the kind of progress we need towards the massive  
26 transformation that we need?

1           And clearly because of the goals we have ahead of  
2 us in air quality, we need a very rapid transition. And  
3 I've been focusing again on the fact that we need 80-percent  
4 reduction in nitrogen oxide emissions just in the South  
5 Coast to meet the federal ozone standard -- one of the ozone  
6 standards by 2022, but we need a 90-percent reduction in Nox,  
7 in nitrogen oxide to meet the eight-hour, 75-parts-per-gram  
8 standard.

9           And given this tremendous air quality challenge  
10 that we have ahead of us and the need for transformation,  
11 I just want to make sure there is a very strong connection  
12 between this plan and the investments that we're putting in  
13 this plan and the milestones we need to reach.

14           So I wanted to put those comments out there. I  
15 know I have checked in with Eileen Tutt, and she had a similar  
16 question and concern about tracking the progress here and  
17 raising the issue of the numbers. And so I wanted to put  
18 that out there and see if there was any thoughts or response  
19 about how we could address that.

20           MR. MCKINNEY: Thank you, Bonnie, for your  
21 observations and comments. And we did have part of that  
22 discussion in the staff presentation and then a follow-up  
23 with Dr. Alaya and some other staff. But in the NREL  
24 Statewide Infrastructure Assessment we're starting to do  
25 that work. So counting backwards from the number of  
26 chargers needed to support 1.5 million vehicles to where we

1 are now, and again we had a good discussions because the  
2 number of chargers outlined in the Plan both for the  
3 home-dominant and the high-public-accesses scenarios are  
4 quite a bit larger than what is funded to date, and part of  
5 the discussion --

6 MS. HOLMES-GEN: Right.

7 MR. MCKINNEY: -- again was how -- what do we want  
8 to make of those numbers in those recommendations and is it  
9 a question of more money or is it a question of really trying  
10 to reach some frontier, say with multiunit dwellings, to get  
11 at any parts of the consumer market for electric vehicles  
12 that we're not getting through the residential market. So  
13 that was part of the discussion we had this morning.

14 And I don't know if others would like to add that  
15 to or not, but -- so that work is starting on the charger  
16 side. And Dr. Ayala is not quite back yet, but I think the  
17 ARB staff is working on similar things. I can look. I'm  
18 getting nods from Andy Panson over there, so on the vehicle  
19 side too.

20 Andy, can I put you on the spot? Do you want to  
21 speak to this a little bit? No thanks. Maybe we can put  
22 Alberto on the spot.

23 (Laughter.)

24 MR. CARMICHAEL: He's asking about the Giant's  
25 World Series win.

26 DR. AYALA: I could step up to that.

1 MS. HOLMES-GEN: You know I don't want to go over  
2 old ground on a discussion you've already had, but, Hi,  
3 Albert. It's good to see you. And I was talking about the  
4 1.5 million goal for zero-emission vehicles and the length  
5 between this Investment Plan and where we are in the progress  
6 to move that goal. And I guess the question here, a  
7 question is maybe we need a pretty significant increase in  
8 the funding directed toward infrastructure in funding if  
9 we're going to meet that goal. Clearly we know we need a  
10 lot of near term progress in this sector for both our federal  
11 Air Clean standards and all our climate goals. And a  
12 hundred thousand EVs is great, but we need a lot more  
13 progress.

14 And I'm just -- I don't know what the ARB's  
15 recommendation is on this piece of it, but there is a  
16 question hanging out there maybe we should step things up  
17 more to get some more jobs in cars in the next couple of  
18 years.

19 DR. AYALA: Thank you. I think I can jump right  
20 in. I get the gist of it. We commented that obviously  
21 we're supporting an increase in infrastructure funding in  
22 this Plan relative to the previous plans. But I also agree  
23 with you because I think one thing we know is the more  
24 infrastructure we have and the more infrastructure we can  
25 deploy, the more uptick we're going to see in the ZEV market.  
26 I think history proves that.

1 I think part of the challenge is, and we had some  
2 of this discussion earlier that you missed, part of the  
3 challenge is where do you draw the line. Like where do we  
4 say how much do we increase it to, but I certainly would  
5 support an increase to the extent that the Committee and the  
6 CEC would agree to that. The question again is how much.

7 I mean when you look at the market trend uptake  
8 for ZEVs it's a really good news story because clearly we're  
9 on track to meet and maybe even exceed by a couple of years  
10 the target. one can only wonder what we could accomplish if  
11 we had a similar uptake on infrastructure.

12 MS. HOLMES-GEN: And then I don't want to  
13 belabor, I know we need to move on, but it would be helpful  
14 to get some response at some point about when we would have  
15 some clear information about the numbers of vehicles, the  
16 number of EVs that were expected with the current incentives  
17 and the current efforts in place. Are we on track to meet  
18 that 1.5 vehicles on the ground goal and how quickly.

19 MR. MCKINNEY: Okay. Thank you, Bonnie.

20 So I think this kind of wraps up the Committee on  
21 public discussion on EVC. So we're going to turn now to  
22 Hydrogen Fueling Infrastructure. So again we will start  
23 with comments from Committee members present and then  
24 Committee members on the WebEx and then go to public comment.  
25 And I have no blue cards yet for public comment.

26 COMMISSIONER SCOTT: We do have Paul.

1 MR. MCKINNEY: Oh, I'm sorry. Yeah, but we do  
2 have Paul Staples. Thank you, Commissioner.

3 So Committee members present.

4 MS. SHARPLESS: This again is tied to the  
5 expected number of vehicles that are going to be coming in  
6 in the near term, right. And what I see from the analysis  
7 is that they are placing the infrastructure stations in  
8 areas where they feel that they're going to have the  
9 clusters. Now it looks as though it's going to be one here  
10 and one there and one here and one there. And I know that  
11 whatever Bonnie said about electric vehicles funding  
12 applies here to, but even with the stations that we have now,  
13 I don't know what the through-put capacity is of those  
14 stations, but I'm guessing that they're probably not maxed  
15 out, that there's not much through-put going through the  
16 stations to meet this economic yet --

17 DR. AYALA: That's exactly right.

18 MS. SHARPLESS: So it's a chicken and egg thing.  
19 I've seen an analysis and other than using a dart board and  
20 figuring out what the right number is, I think your analysis  
21 has been looking at that and trying to figure out what the  
22 balance should be. So my comment is you and I might have  
23 to sort of go with what you have here and judge as these  
24 vehicles come in in the market what we do next, because I  
25 don't think we can really, really -- other than given the  
26 decision that we're not going to do hydrogen because it

1 doesn't make sense and throw it into something else, but I  
2 think we're invested on that. And there is legislation,  
3 right, that requires what, so much money to be spent --

4 COMMISSIONER SCOTT: Twenty -- twenty million --

5 MS. SHARPLESS: Okay. So I think you already  
6 are being supported.

7 COMMISSIONER SCOTT: Let me just add to that.  
8 Maybe, Charles, or Andrew, if you could put slide 13 back  
9 up, it kind of shows just this question that you're asking  
10 about, kind of the number of cars versus the number of  
11 stations and what that looks like. And then you are  
12 correct, AB 8 directs us to put \$29 towards the  
13 hydrogen-funding infrastructure, but it also asks the Air  
14 Resources Board and the Energy Commission to put together  
15 reports like this to kind of look and see where we are each  
16 year. And so we will of course be doing that. And this  
17 information here is from the first version of that report.

18 Alberto.

19 DR. AYALA: Thank you. I just wanted to make a  
20 couple of brief comments on this. First of all, I want to  
21 say that the Air Resources Board really supports the  
22 allocation as proposed. As we see here, we are absolutely  
23 at a critical time where we need to continue our significant  
24 investment and get those stations open so that they can get  
25 supporting the vehicles that we know are coming. And it is  
26 a bit of -- as we -- as we develop critical mass in the OEM

1 offerings, rest assured that others are going to come to the  
2 market as well.

3 I mean the L.A. Auto Show is happening in a couple  
4 of weeks and as of very recently I'm hearing that we're going  
5 to hear a number of additional OEMs talking about fuel cells.  
6 So, again, I think it's all a great momentum that we're  
7 having, and fully support the allocation from CEC's Plan.

8 Obviously the ARB -- the part of that ARB produced  
9 in consultation with CEC is an important data point. And  
10 I wanted to alert the Committee that there is a second data  
11 point that is complimentary to what we did. And that is the  
12 fuel cell partnership updated its roadmap and that it's out  
13 there as well. And I think when you put the two and two  
14 together, I think you do get a clearer story in terms of the  
15 path that we're on to get to 6TA (phonetic) on the way to  
16 a hundred stations, so we can support the self-sustaining  
17 launch of this technology. Thank you.

18 MR. MCKINNEY: Any other members of the Committee  
19 here today to discuss? Bonnie and Simon.

20 MS. HOLMES-GEN: Yeah, and I fully support this  
21 allocation and I'm glad we're moving forward in allocating  
22 20 million per year to get a core of hydrogen-fueling  
23 stations out there that can support vehicles that are coming  
24 out now or sending out now and coming out next year.

25 I wanted to also raise just the question of -- I  
26 don't know where it's most appropriately addressed, but what

1 we are the CEC doing together with the ARB to make these  
2 stations as visible as possible to the public. There has  
3 been a lot of discussion about people out there not really  
4 seeing the change, the transition that's happening, these  
5 new stations rolling out. This applies to the  
6 electric-vehicle charging stations and the hydrogen  
7 stations. It's exciting.

8           What is happening is the public needs to see that  
9 this is a change that's happening to help them feel confident  
10 in going out and making purchases. So we've talked about  
11 the need to get the word out and there's also need to get the  
12 word out about these stations so that people who go to  
13 shopping centers and see a big sign that says, hey, there's  
14 EV charging here or a hydrogen station down the block, and  
15 start to get the idea that this is just a normal part of their  
16 communities, and they should jump onboard and take advantage  
17 of it. So I just wanted to put that comment out there also.

18           MR. MUI: Simon Mui with NRDC. Yeah, just some  
19 follow-up on -- I'm going to echo some of the comments. We  
20 see this being a very important milestone getting  
21 that -- stepping in to basically solve the chicken and egg,  
22 one has to go forward first. And I think what we are hearing  
23 is that the infrastructure needs to be in place. Automakers  
24 are onboard and take the second step. And so I think a lot  
25 of eyes will be watching kind of the rollout of both the  
26 infrastructure and vehicle play, and having this sort of

1 innovatives, as well as data about real world use and how  
2 that can grow the market, I think is a very important  
3 narrative and that should be backed by data.

4           Also singling on my comments on the EV  
5 infrastructure side, just making sure as well visibility,  
6 maintenance, all of those factors that are important to a  
7 good public experience with these first initial launches is  
8 very critical. To the extent that the public knows where  
9 these stations are located and fuel cell owners know  
10 obviously is an important part.

11           I did want to have a question in terms of some of  
12 the discussion about innovative financing around  
13 infrastructure more broadly. I think it was mentioned in  
14 the document as well, perhaps by you, Commissioner Scott,  
15 about the loan loss reserve programs. And it is an area  
16 that we're very interested in, very supportive of innovative  
17 financing to leverage ways, all amounts of the funding the  
18 pot to leverage that. And I just wanted to hear a little  
19 bit more about CEC's thinking around that and whether there  
20 are some opportunities there.

21           COMMISSIONER SCOTT: Well, on the loan loss  
22 reserve I'd like to call on Randy, if I could, to come up  
23 and just tell us a little bit about it, because he has a great  
24 set of talking points -- come on up -- that he will talk  
25 through on that for us.

26           I think for the loan loss reserve right now, we're

1 looking just -- not just at -- but at the EV infrastructure.  
2 And the idea there is to capture sort of that set of folks  
3 who might want to put a charger in place and they're used  
4 to going to the banks -- like a smaller business -- and  
5 they're used to going to the bank to get loans for different  
6 types of capital improvements, and this would just be  
7 another one. Those are folks who would not necessarily come  
8 to the Commission right during a big solicitation and put  
9 in a full-blown application just for maybe one at  
10 their -- and so we're trying to capture that niche. But let  
11 me have Randy talk about that just a little bit.

12 MR. ROESSER: Good afternoon. I'm Randy Roesser  
13 with the California Energy Commission. And, just to  
14 backtrack to early this morning, this may be my first and  
15 only chance to ever correct Commissioner Scott, but I am not  
16 retired yet, so --

17 (Laughter.)

18 MR. ROESSER: -- I'm on my way, but it's not yet,  
19 so I apologize for that correction. But I had to take that  
20 shot when I had it.

21 This topic area, and I talked to Jan Sharpless at  
22 the lunch break for just a moment in response to her  
23 question, which I think was a good one, which I can tell you  
24 that staff in this building and the Commissioner talk about  
25 frequently, about where is the point where government  
26 funding can back away and markets take over. Because we're

1 not here to run markets, we're not here to sustain markets  
2 forever. And I think this is a good example of where we've  
3 tried to make some changes and adjustments to our program  
4 to meet changing market growth conditions.

5           So we are -- and the Plan talks about it a little  
6 bit -- we are working with the State Treasurer's office on  
7 a loan loss reserve program for EV infrastructure funding.  
8 And the idea behind that is is that if we put a small amount  
9 of money in reserve in a loan loss situation, and then we're  
10 kind of in the shadows, though, we're kind of backed away,  
11 and then the customers who are actually putting the  
12 infrastructure in place and the commercial lenders who fund  
13 those types of projects are working together where there is  
14 support and encourage that endeavor and make it worthwhile  
15 for the banks. And then hopefully, the goal here is that  
16 our money is rarely used and the banks and the customers who  
17 are putting that infrastructure in place start having  
18 successes where the business sees their revenue pick up.  
19 Their customers are happy. They get new customers. More  
20 customers.

21           The banks lend them the money at competitive  
22 rates. They pay back. Janea talked earlier about some of  
23 the discussions about whether the revenue streams for  
24 chargers actually support their rollout here, and I think  
25 that's what this is -- this type of endeavor is going to lead  
26 to. And the goal here really again is not to just put grant

1 money out there and forever sustain that, but to encourage  
2 the market to work on its own.

3           And then if we're working in the shadows and we're  
4 actually leading to the rollout of additional  
5 infrastructure, it's going to be a lot easier for us to back  
6 away if we're not actually one of the signing partners in  
7 this endeavor. We're -- again, we're there as the support  
8 mechanism to encourage lenders to do this. And, as that  
9 succeeds, then, you know, banks will say, there's a market  
10 here. Businesses customers are out there. Existing  
11 customers they already have business relationships with or  
12 maybe new customer opportunities that banks can go to, and  
13 then the market takes over. And then we can back away and  
14 our money can go to other areas where it's needed to support  
15 the market long term.

16           So I think that's a real good step for this program  
17 and the California Energy Commission in trying to put the  
18 funding that we have available and the expertise of the staff  
19 here and the customers that we work with in trying to move  
20 this forward. So I don't know if that -- you kind of caught  
21 me off guard there. I wasn't prepared.

22           COMMISSIONER SCOTT: Sorry about that. That's  
23 perfect.

24           Jan.

25           MS. SHARPLESS: Yes, Randy and I did have this  
26 conversation. And I really do support that effort of loan

1 loss. But in our conversation I mentioned to him, and I  
2 think it's because of the relationship that the Energy  
3 Commission has had with the Treasurer's Office with some  
4 programs, perhaps in other areas that you have sort of  
5 focused on the loan loss, and loan loss is a good mechanism.  
6 But there is another mechanism out there called loan  
7 guaranties. And there are many corporations that do and  
8 have received State funding which exists in the State of  
9 California.

10           And the difference between the two programs is the  
11 loan loss is you have to set up that fund to help cover  
12 whatever losses may occur. That's an eligibility program.  
13 You look at the proposal and you see if it's eligible, then  
14 work it off, and you pay your fees, administrative fees.

15           And a loan guaranty program is more of an  
16 underwriting program, so there is a greater sort of analysis  
17 of the proposal. And I just throw it out there because I'm  
18 not sure that the Energy Commission has ever had any  
19 experience doing loan guaranty programs. But I thought  
20 that not to make, not to say don't do loan loss, but to say  
21 look at the possibility of loan guaranty.

22           COMMISSIONER SCOTT: I think that's a terrific  
23 point, and we actually had an IEPR workshop on not that  
24 specific question but the different types of financial  
25 mechanisms that we might be able to use with this program.  
26 And we wrote up quite a bit of that in the draft chapter that

1 just came out on Monday, so it's a good place to look at that.  
2 But we are trying to think about a broad range of different  
3 types of financial mechanisms that we might be able to use  
4 to make the money that we do have go further, so it's a great  
5 suggestion.

6 MS. SHARPLESS: Well, I think to say that banks  
7 are very familiar with the loan guaranty program, and the  
8 funds are already established.

9 COMMISSIONER SCOTT: Yup.

10 MS. SHARPLESS: They're covered in any loss, so  
11 they have a very low default rate because they do the  
12 underwriting analysis.

13 COMMISSIONER SCOTT: Thank you.

14 Thanks, Andy.

15 MR. MCKINNEY: I think we have Tim, then Bonnie.

16 MR. CARMICHAEL: So just a quick comment.  
17 Eileen was quite involved in discussions in the renewal of  
18 funding for this program and this specific piece, and  
19 supported the 21 year, but those discussions included an  
20 agreement that after three years, and this would be this Plan  
21 that we're talking about, would be that third year of 21  
22 year, CEC needs to take a serious look at their investment  
23 and the progress on the vehicle side. We're not there yet.  
24 We're at least 18 months away, but I just want to remind  
25 people.

26 And the vehicle projections on this chart are

1 significantly lower than they were just two years ago. And  
2 I understand there is a lot of different reasons for that,  
3 but this CEC staff and Commission should not be assuming that  
4 this is a 20-million-a-year program for as long as this  
5 program exists if the vehicles don't materialize as hoped  
6 for. And it's after this Plan that first significant  
7 evaluation needs to be undertaken, and look at the progress  
8 on the vehicle side and determines whether there needs to  
9 be any adjustment to the infrastructure the CEC is making.

10           And, again, I supported the 20 million a year, I  
11 believe in the potential for this fuel technology, but I also  
12 want us to be responsible with this. I want CEC to be  
13 responsible.

14           MR. MCKINNEY: All right, thank you.

15           Bonnie Holmes-Gen.

16           MS. HOLMES-GEN: I just wanted to underscore the  
17 interest for myself and the American Lung Association of  
18 California in promoting renewable sources of hydrogen. And  
19 I see that under -- I was trying to quickly read through this  
20 because I haven't had all the time I wanted to review, but  
21 I see that there have been six stations, I guess, approved  
22 that will provide a hundred percent of hydrogen from  
23 renewable sources. I just wanted to underscore how  
24 important it is to keep moving forward and to promote those  
25 renewable sources. And I'm wondering what the Plans are for  
26 the next -- I mean how many stations do you expect we might

1 be able to fund in this next round that would be  
2 hundred-percent renewable?

3 MR. MCKINNEY: Oh, a minor correction. I think  
4 we're at eight hundred-percent renewable stations.

5 MS. HOLMES-GEN: Oh, okay, great.

6 MR. MCKINNEY: Some of those are onsite  
7 electrolysis. And I think Paul Staples, when he makes his  
8 comment will speak to that. And the other format is central  
9 station steam, reformation with 100-percent biogas as the  
10 feedstock. That also gets you a hundred-percent renewable  
11 product. And right now that's quite a bit cheaper than  
12 onsite electrolysis.

13 So to the second part of your question, we have  
14 had \$3 million set-asides for 100-percent renewable  
15 hydrogen because we also recognize the carbon significance  
16 and policy significance of that. They tend to be  
17 smaller-capacity stations. And this is an experiment to  
18 see how they do, because they do need a lot more funding at  
19 this point in time. But everybody has to make the revenues  
20 match the expenses at some point in time. That's just the  
21 bottom line.

22 So does that answer your question?

23 MS. HOLMES-GEN: Yeah. And I know there is a  
24 33-percent requirement. Will the solicitations together  
25 exceed that requirement or basically just on track to meet  
26 it?

1           MR. MCKINNEY: Yes. We are now at -- and I'm  
2 looking at Jean -- a 38-percent system capacity for us.  
3 Thank you, Jean. So we're slightly ahead of the 33-percent  
4 minimum standard there. So we hope to continue to grow that  
5 over time and we're confident that we will.

6           And we are covering the 1505 policy measure in all  
7 of our solicitations for hydrogen. So that's a given, that  
8 your system -- whatever fleet a developer proposes, that  
9 fleet has to have the 33-percent minimum renewable energy.

10           Any other comments from the Committee?

11           We have comments from Committee members on the  
12 phone or WebEx?

13           No? Okay. Mr. Staples, thank you for your  
14 patience. We'd love to go to you first.

15           MR. STAPLES: Yeah, yeah. Thank you very much.  
16 I appreciate that.

17           First of all, just a comment on something else  
18 real quickly, that the subject is related. The whole idea  
19 of getting the word out about hydrogen, one of the things  
20 that we're going to be doing is as soon as we start breaking  
21 ground we're going to have big signs saying: Hydrogen  
22 coming soon. Okay, so that kind of when people drive by,  
23 they start to see that.

24           And one of the other reasons I think we've got a  
25 better way is that we're actually going to be putting the  
26 dispenses in with the other dispenses, so when people see

1 it they will see hydrogen being there. That's what you can  
2 do a one-off level.

3 The rest of it probably needs to be a public  
4 education campaign and the sort that we all need to  
5 participate in. And so that's one of the things that we  
6 plan to implement once we start breaking ground, I believe,  
7 and that's probably going to be within the next couple  
8 months. So it could be that, or at least the permitting  
9 will be, anyway.

10 So that's kind of one way of at least getting the  
11 word out that hydrogen's coming. And there's no better when  
12 than when people drive up to the pump, they see signs saying  
13 hydrogen coming and that sort of thing, and they see the  
14 construction, and that puts the idea in their mind, okay.  
15 So, at any rate, but that's just one thing.

16 And another thing, the biogas thing, then it's not  
17 cheaper with the 700 bar. The 700 bar is going to cost and  
18 raise the price of everything through the roof. We need to  
19 deal with that and we need to get rid of the 700-bar  
20 requirement, okay. It's just as simple as that. You could  
21 do 50 percent more stations with the money that you have if  
22 you did.

23 I mean my dispenses are costing ten times what a  
24 350 bar dispenser cost. A 350 bar dispenser, I could put  
25 in for about 40 grand. It's costing 400 grand with the  
26 chiller and everything else. So it's very, very expense,

1 that 700 bar. It add significant cost in infrastructure and  
2 electricity is just going to go through the roof,  
3 so -- because you have to in order to chill it down to the  
4 40 degrees -- minus 40 degrees that they're requiring, and  
5 there's no need for that. There's no need whatsoever. The  
6 Honda Clarity gets about a 275-mile range with -- at least  
7 my partner is saying that -- with the 350 bar. He doesn't  
8 want to give it up because he doesn't want to have to pay  
9 the price for 700 bar because it's going to be a lot more  
10 expensive. You're going to be seeing about a 50- to a  
11 75-percent increase in the cost of hydrogen due to that 700  
12 bar. It's as simple as that.

13 I can sell a 700 bar with electrolysis from the  
14 \$10 a kilogram if it will cost 15 to 20 with the 700 bar,  
15 and that's just clearly fate. And there is plenty of  
16 research by DOE labs and everything that basically says that  
17 the engineers that are doing the vehicle work for the  
18 automobile company, even their own engineers don't see a  
19 reason for doing the 700 bar and adding that additional cost  
20 to it. So what the State needs to do is say: You want 700  
21 bar, then you pay for it, okay. You want the 700 bar, we're  
22 going to fund the 350, and if you want the 700 bar, you could  
23 kick in the extra money with the automobile manufacturers  
24 and do it, and pay the additional cost that it's going to  
25 cost in business, because that's what we're talking about  
26 here.

1           We start getting cost per kilogram in those price  
2 ranges even with the efficiencies, and it's still more  
3 expensive than gasoline, and that is something that's going  
4 to hurt the business. So we need to consider that in the  
5 whole process.

6           Now having said that, I wanted to basically ask  
7 a couple questions about how the process is going. Now I  
8 know that AB 8 came out and it provided with one billion and  
9 1.5 billion for infrastructure. Is it just for hydrogen  
10 infrastructure or was it for all the infrastructures?  
11 That's what I'm --

12           MR. MCKINNEY: Yeah. So the hydrogen set-said  
13 is up to 22 million a year through the end of 2023.

14           MR. STAPLES: Is that in the legislation or is  
15 that just what people decided to allocate?

16           MR. MCKINNEY: That is this statutory period.

17           MR. STAPLES: Okay. But I mean does the  
18 legislation basically say \$20 million for hydrogen  
19 infrastructure per year or does it say an x amount of dollar  
20 signs for infrastructure, or does it say that's up to you  
21 guys to decide? Because, really, we were getting \$20  
22 million year before that bill passed, okay, going into that,  
23 and I would have thought that that extra 20 million would  
24 have added to, could have brought us back up to a by the 40  
25 million a year, which would have been really great because  
26 at that point you can get a lot of these stations out in a

1 relatively short period of time if -- if we were to do that.  
2 And so that's kind of what my question is, is which way was  
3 it? Was it someone that basically made it, well, we'll  
4 allocate it 20 million a year, but there's no increase in  
5 the amount of funding from the previous pile, okay?

6 MR. MCKINNEY: So our -- I can answer your  
7 question, Paul.

8 MR. STAPLES: Okay.

9 MR. MCKINNEY: So historically our funding  
10 levels have been low in the seven to ten million dollar  
11 range. Commissioner Peterman's last year here, she upped  
12 that to 20 in advance of AB 8. AB 8 allows us to spend up  
13 to \$20 million or up to 20 percent of the available funds,  
14 given the checks that Tim Carmichael reminded us of. So  
15 every year ARB does the AB 8 analysis report. Beginning in  
16 June of -- sorry -- December of 2015, the Energy Commission  
17 begins to collaborate on that report.

18 And I know, just to summarize again what Tim said,  
19 it's a legislative check, so it's to ensure that the  
20 infrastructure funding is not too far out ahead of the  
21 vehicle deployment, because then you'd have the risk of  
22 stranded assets. So none of us want that. We need to keep  
23 these two parts of the system rising equally. So  
24 that's -- that's the way that part of the program is  
25 designed. And nobody thought that it would result in the  
26 doubling of the funds. It's more an assurance for the

1 funding. And we --

2 MR. STAPLES: Okay.

3 MR. CARMICHAEL: If I could just add? This is  
4 Tim Carmichael. If I could just add. There was a debate  
5 about whether or not to maintain that 20 million. And, to  
6 Commissioner Peterman's credit, she was able to maintain  
7 that level with these checks as part of the deal, and it was  
8 a deal that a lot of people were in support of, but  
9 nobody -- with the possible exception of some people from  
10 ARB -- nobody was really pushing for more than 20 million  
11 because there's so many people wanting funding to go to other  
12 fuels and technologies. So it was a great compromise with  
13 a lot of debate.

14 MR. STAPLES: Okay. I do understand that. I  
15 would probably like to have been in that on that debate,  
16 although it was probably available to me and I just missed  
17 it. The point being is, is that the stranded-assets issues,  
18 I think that's kind of a red herring, okay.

19 The automobile manufacturers are coming out with  
20 it. The more fueling stations you have, the more demand for  
21 the vehicles there will be. They will put out more. They  
22 will meet any demand that they get requested, because that's  
23 what they do, okay. So these are some very low numbers that  
24 you see, were not numbers that they were talking about  
25 before. They were asked to put it in writing, okay, that  
26 they would commit to that much. As soon as you put them in

1 writing, then their names' on the line, they have to meet  
2 whatever projections they make. So they low-balled the  
3 numbers so that they can -- that would be the minimum they  
4 would want to put out, okay, or minimum -- the maximum they  
5 want to commit to, or they will meet whatever demand comes  
6 out. The more stations you have, the more demand you're  
7 going to have for the vehicles. It's as simple as that.

8           So I would say stranded assets is not an issue.  
9 Stranded assets happens when you do something before they  
10 are even willing to put it out. That would be stranded  
11 assets. But if they're putting them out, then there's going  
12 to be demand for the vehicles, the more fueling that you  
13 have. So, yeah, it's a chicken and egg, but you can tweak  
14 that a little bit by basically having them come out at the  
15 same time.

16           MR. MCKINNEY: So I'm going to ask you --

17           MR. STAPLES: It's not a problem --

18           MR. MCKINNEY: Excuse me. I'm going to ask you  
19 to wrap this into a completion.

20           MR. STAPLES: Okay.

21           MR. MCKINNEY: We do have other speakers here.

22           MR. STAPLES: Okay.

23           MR. MCKINNEY: And we could use some extra time.

24 And I was hoping you just commented, how is it going with  
25 your permitting? You've got three new --

26           MR. STAPLES: Well, the --

1           MR. MCKINNEY: -- station grants from us, so how  
2 is it going?

3           MR. STAPLES: Well, it's going. What we're  
4 doing is we're meeting with the permitting officials. The  
5 whole thing is the 700-bar thing. That is your biggest  
6 impediment to permitting, because you have Sandia come out  
7 with a report saying that the setback from the property line  
8 should be 24 feet for 700 bar. And so therefore, I mean  
9 that's in the middle of most parking lots, unless you have  
10 a football field-sized station, which are few and far  
11 between, especially in urban areas, that's going to be  
12 completely negative. So our 700 bar, or the way we're  
13 approaching it, will not have that problem so much, but the  
14 footprint is significantly increased by about 40 percent  
15 because of the 700-bar requirement. And that's a problem,  
16 okay.

17           MR. MCKINNEY: So that --

18           MR. STAPLES: So that's what I'm saying, we need  
19 to get rid of the 700-bar requirement. We're naked on these  
20 three stations, but on future ones it's definitely going to  
21 be a problem, okay. And you need to be able to deal with  
22 that and you need to get rid of the 700 bar. That's all I  
23 got to say.

24           There isn't anyone from a scientific point of view  
25 that won't disagree with me on that, okay.

26           MR. MCKINNEY: Thank you.

1 MR. STAPLES: Other than those who are working  
2 for the automobile manufacturers.

3 MR. MCKINNEY: Thank you, Mr. Staples.

4 MR. STAPLES: Okay.

5 MR. MCKINNEY: I'm going to ask you to conclude  
6 your remarks --

7 MR. STAPLES: Thank you. I'm sorry for  
8 bothering.

9 MR. MCKINNEY: Okay.

10 MR. STAPLES: Thank you very much. I'm sorry  
11 for taking so long.

12 MR. MCKINNEY: So just a friendly reminder, that  
13 is the agreed-upon industry standard, the technical  
14 standard, so 350 and 700 bar.

15 I have a --

16 MR. STAPLES: Well, --

17 MR. MCKINNEY: -- card from Chris White -- I'm  
18 sorry, Paul. We're going to move onto the next speaker.

19 Chris White, California Fuel Cell Partnership.

20 MS. WHITE: Good afternoon, everybody. First  
21 let me explain why I'm the only person from fuel cell here  
22 today. This week is the big technical conference for fuel  
23 cells and hydrogen in Los Angeles, and so many folks are down  
24 there. And then early next week starts the preview days of  
25 the L.A. Auto Show and a number of automaker partners are  
26 very involved with what we hope are going to be really

1 exciting announcements.

2           So I do want to thank the Energy Commission too.  
3 We've worked closely together over the last few years. I  
4 think you've done an awesome job in taking all of this input  
5 and really thinking through the best way to deploy these  
6 stations.

7           Hydrogen stations are a little different from  
8 other alternative fuels because we are going into existing  
9 gas stations that are owned by small businesses. And, as  
10 you all have discussed, we have to find a way for this to  
11 make sense for those small businesses without it becoming  
12 something we have to support forever. And I really think  
13 the Energy Commission has listened to lots of feedback and  
14 public workshops to understand how to do that in a logical  
15 way and learning every time as we go.

16           This morning I was at a meeting with the  
17 Yolo-Solano AQMD. And I was -- I didn't know this, but they  
18 don't have a mobile source division. Instead, they rely on  
19 Sacramento. But as we talked about hydrogen and fuel cells,  
20 they mentioned that the most important to them was workforce  
21 development.

22           And a component of workforce development in all  
23 of the Alternative Fuel Vehicle Technology Program is an  
24 important piece to go along. I heard people talk this  
25 morning too about reliability of stations and getting people  
26 out to work on them very quickly. We do that now with gas

1 stations. If something goes wrong, then there's someone  
2 there to fix it in about 30 minutes. With all of these  
3 alternative fuels, I heard the charger was out since July,  
4 hydrogen stations sometimes go for weeks, and that's just  
5 because there aren't enough trained technicians. So the  
6 more investment we put in those, we're also guaranteeing  
7 good, well-paying jobs moving forward.

8 I also appreciate the look at fleets and knowing  
9 that alternative fuels go beyond personal transportation,  
10 that they need to go into heavy-duty vehicles and  
11 medium-duty vehicles and into government fleets and private  
12 fleets. And I see the recommendation of \$20 million in  
13 investment for that next year, and fully as a person support  
14 that in looking at how we can expand beyond just our  
15 passenger vehicles.

16 And, lastly, I want to tell you some good news.  
17 On December 10th we will be having the grand opening ceremony  
18 for our new station in West Sacramento. It is replacing the  
19 station that was, 15 years ago, an awesome, state-of-  
20 the-art, gorgeous, coolest-thing-you've-ever-seen station  
21 and also the first in the United States, but by about 2013  
22 it had become kind of old fashioned and a little  
23 embarrassing, to be honest, because the technology had moved  
24 so far forward.

25 Well, now we'll be opening up again the coolest,  
26 most awesome hydrogen station in the United States, using

1 state of the art technology. It's going into a station that  
2 was formerly a cardlock station. It served only trucks.  
3 That station has made a change into being a retail station.  
4 They've added ethanol and natural gas. And they're all  
5 solar-paneled and they have put hydrogen in. So it will be  
6 an exciting step forward.

7           And it will be the first time that we make a really  
8 big splash about a station. We hope it will attract  
9 national media attention and start getting the word out of  
10 there. And it will be the first of 40 stations opening up  
11 over the next 16 to 18 months. So what better way to get  
12 the word out than to actually get stations running, cool  
13 stations that people want to use, and small businesses that  
14 are operating them are excited about.

15           And I really thank the Energy Commission for your  
16 ongoing support in making that happen.

17           MR. MCKINNEY: Thanks for your enthusiasm,  
18 Chris.

19           Okay. I think that concludes the Committee and  
20 public discussion on hydrogen. So I would like us to move  
21 onto Natural Gas Fueling Infrastructure, where the staff  
22 recommendation is to increase funding levels to five million  
23 now, earmarked primarily for school districts and municipal  
24 fleet operations.

25           Any comment from the Committee?

26           I see Chris Shimoda, then Ralph, then Tim.

1           MR. SHIMODA: I just wanted to say that if I don't  
2 know if you guys have taken a look at the needs of medium-size  
3 trucking fleets as far as what the attitudes are on whether  
4 or not they're going to need incentives to install a fuel  
5 infrastructure. Because I know some of the fleets that are  
6 done onsite so far are fairly large, whereas if you look at  
7 onsite fueling for diesel, a lot of medium- and mid-size  
8 fleets fuel onsite.

9           And we've done a little bit of analysis on the  
10 attitudes about where fleets want to fuel up. The vast  
11 majority want a fueling facility within five miles or  
12 onsite. So I think some of the same needs that you have in  
13 school bus fleets and municipal fleets are similar for a  
14 trucking fleet. There's really nothing but a cost center  
15 for installing a different fuel and infrastructure.

16           MR. MCKINNEY: Yeah. And thank you. And I mean  
17 the information that you've brought to our IEPR record in  
18 this regard, helping us to understand California trucking  
19 fleets has been really important, so thanks for that.

20           Let's see, I'm sorry, what did I say, Tim -- no,  
21 Ralph and then Tim.

22           MR. KNIGHT: Go ahead, Tim.

23           MR. CARMICHAEL: Tim Carmichael, the California  
24 Natural Gas Vehicle Coalition. I have not received -- well,  
25 my first point is Jim touched on this in his presentations,  
26 warning, but I want to emphasize it, and it may not be the

1 last time I mention it.

2           The same fueling infrastructure handles  
3 compressed natural gas and renewable natural gas. And so  
4 fossil fuel natural gas and renewable natural gas, there's  
5 no difference in the refueling infrastructure. So you're  
6 building a station or supporting a station that can pump out  
7 fossil fuel natural gas, it can also pump out renewable  
8 natural gas with no modifications. And it can be a hundred  
9 percent natural gas or it can be a blend. And that's an  
10 important detail as you're thinking to the future and supply  
11 for renewable fuel.

12           The second page is I had not received feedback  
13 from my members yet on your proposed increase to five  
14 million. I understand the scope you're proposing and I  
15 understand the arguments for it, and I will be soliciting  
16 input from my members before next Friday.

17           MR. CARMICHAEL: Great. Thank you, Tim.

18           Ralph Knight.

19           MR. KNIGHT: Again, I think as in everything,  
20 we've increased that funding. We're seeing more and more  
21 natural gas school buses in the fuels today. And I think  
22 what we're seeing is we're seeing a big return on the first  
23 people who were out there with tank replacements, because  
24 we're all in the middle of tank replacements now starting  
25 out. Those were 15 years ago and more. We're in our second  
26 stage of tank replacement.

1           We can't beat them price with diesel fuel, so it's  
2 a great thing for us to be able to replace the tanks, keep  
3 the buses up. You're seeing an increase going on as far as  
4 the number of the natural gas buses. We're seeing a big  
5 increase in what's going on with the trucking association  
6 with natural gas. I think that probably there is an insight  
7 there that could be partnered between trucking and school  
8 districts because a lot of school districts are putting in  
9 their own fuel stations out there. And I think that there's  
10 some good talk that could open up between them because it  
11 would help both people on both sides.

12           MR. CARMICHAEL: Thank you, Ralph.

13           Any comments from Committee members here? Jan.

14           MS. SHARPLESS: I was just looking at AB 18 where  
15 it shows -- I guess these are the words that were already  
16 made, right? Maintaining school districts, the status  
17 is --

18           MR. MCKINNEY: What page is that on, Jan?

19           MS. SHARPLESS: 40. So this is the --

20           MR. KNIGHT: 2012 solicitation?

21           MS. SHARPLESS: Right. It looks like the last  
22 time they did a solicitation. Okay. So these would be the  
23 same category as the -- except...

24           MR. MCKINNEY: The staff proposal is to limit  
25 hydrogen and station funding or --

26           MS. SHARPLESS: Natural gas.

1 COMMISSIONER SCOTT: Natural gas.

2 MR. MCKINNEY: Natural gas. Excuse me. Thank  
3 you.

4 -- natural gas to school districts and  
5 municipalities.

6 MS. SHARPLESS: Okay.

7 MR. MCKINNEY: With the assumption that the  
8 private sector is taking care of private fleet markets.

9 MS. SHARPLESS: Okay. So municipal solid waste  
10 is in private sector, but it won't be included?

11 MR. MCKINNEY: I'll look to Andre to clarify  
12 that, or Charles.

13 MR. SMITH: Say my understanding is that the MSW  
14 would not be included under the scope of the school districts  
15 and municipalities.

16 MS. SHARPLESS: Is there a reason way?

17 MR. SMITH: Part of it goes to where you can make  
18 the quickest return on investment. Municipal solid waste  
19 companies, to their credit, have done a very good job of  
20 building a great case for natural gas vehicles and can make  
21 up the cost of the infrastructure by siding it over the fuel  
22 savings --

23 MS. SHARPLESS: So essentially they make their  
24 own stuff and they have their own refueling station?

25 MR. SMITH: Well, yeah, some -- literally some of  
26 them do make their own stuff if you're talking about the

1 biomethane producers.

2 MS. SHARPLESS: Um-hum.

3 MR. SMITH: But, yeah, what I'm more referring to  
4 is that the municipal solid waste entities have an easier  
5 time of recouping their higher station costs through the  
6 fuel savings that --

7 MS. SHARPLESS: Okay. So they can all make  
8 their business plan to fund it?

9 MR. SMITH: In general.

10 MS. SHARPLESS: Okay.

11 MR. MCKINNEY: And do we have any -- oh, Simon.

12 MR. MUI: Yes. I'm Simon Mui with NRDC. I'm  
13 going to echo some of Bonnie's comments on the hydrogen, but  
14 for the natural gas side in terms of supporting sort of -- we  
15 think of page 41 of the report. If you have permission, you  
16 may want to prioritize the use of biomethane as a means to  
17 lower carbon intensity. We certainly support that  
18 prioritization or encouragement of biomethane use in the  
19 natural gas.

20 I do have a question about whether similar to the  
21 hydrogen side, whether CEC or the ARB is tracking the amount  
22 of biomethane being used. We're very happy and encouraged  
23 to see the Low Carbon Fuel Standard actually incorporating  
24 or encouraging the perfect use of biomethane.

25 One question, though, is anyone tracking that on  
26 either CEC or ARB side about the potential mix or the mix

1 as we're going forward?

2 And also we do see this as a way of at least  
3 mitigating the concerns around leakage as the data and  
4 lifecycle get resolved over the coming year or so in terms  
5 of a natural gas leak issue, but biomethane obviously has  
6 a much low carbon intensity, so even if you incorporate  
7 leakage, it should be a very -- large enough savings.

8 MR. MCKINNEY: Do you want to respond to that?

9 MR. CARMICHAEL: Yeah. Just on the question of  
10 tracking, ARB through the LCFS program is tracking. If they  
11 only track the sale of the fuel that generates credits, but  
12 the belief in the marketplace is virtually if not all of the  
13 real natural gas usage for transportation in California  
14 right now is being used to generate credit, so it is in part  
15 being funded through the sale of credits. They think in  
16 general that's the best program. So we think the numbers  
17 in the reports are close to a hundred percent of what's  
18 (distorted audio signal) in California with (distortion)  
19 for transportation today. And it's expected to be a hundred  
20 million dollars this year dollar equivalents.

21 MR. MUI: That would be amazing to see that. I  
22 heard a little bit about that from Clean Energy, but I wasn't  
23 sure if that -- we're talking the entire market or not.

24 MR. CARMICHAEL: Not a hundred percent are close.  
25 They definitely don't (distortion).

26 MR. MCKINNEY: Bonnie Holmes-Gen.

1 MS. HOLMES-GEN: Yeah. I also wanted to express  
2 support for the recommendation to prioritize funding for  
3 renewable natural gas or biomethane. And, in fact, it seems  
4 like for these investment plans that there should be a trend  
5 toward increasing the amount of funding, especially in  
6 natural gas and hydrogen, increasing the amount of funding  
7 going toward renewable sources.

8 And I don't know if we've ever talked about that  
9 as a goal, but it just certainly seems like that we should  
10 always be going in that direction, especially because the  
11 concerns about the fuel cycle and methane leakage. And I'm  
12 wondering, for example, I mean could all the funding go to  
13 renewable and natural gas? I mean if there's tremendous  
14 success in increase in that area, is that possible that all  
15 of them could use renewable sources? Is that something the  
16 Energy Commission has looked into?

17 MR. MCKINNEY: So the current market challenge  
18 with RNG is that it has to be approximate to the production  
19 source. And by that I mean I think five or six of our  
20 grantees, four municipals all waste and urban digestion,  
21 have RNG fueling stations at their facilities, so Clean  
22 World is a good example of that in Sacramento.

23 To get it into the pipeline you have to made the  
24 AB 1900 standards, and that proceeding is still -- the cost  
25 portion of that proceeding isn't complete yet at the CPUC.  
26 So we have a distribution challenge. So we try to create

1 linkages between renewable fuels and infrastructure where  
2 we can, but this is one where it's just not possible again  
3 until people get pipeline quality biogas to get that blended  
4 in with the natural gas fuel supply.

5 MS. HOLMES-GEN: So how much were you going to put  
6 aside for biomethane, or does that depend on -- is that a  
7 process where you have to look and see what's out there? I  
8 didn't see a specific number in here and how much of the  
9 infrastructure could be dedicated.

10 COMMISSIONER SCOTT: I mean that's a great  
11 question. That's part of a development that we will be  
12 doing when we put together the Plan opportunity notice.  
13 Oftentimes we workshop those, and so that's a great place  
14 to come in and raise this point again to make sure that we're  
15 thinking about it as we develop a program opportunity  
16 notice, but that's why you won't see it here. This is kind  
17 of an investment level. Here's overall where the dollars  
18 are going to go, but as we get to the program opportunity  
19 notices, a lot of the nitty-gritty details of the questions  
20 and how we're going to tailor things, that's where we do that  
21 part.

22 MR. CARMICHAEL: Can I? This is Tim Carmichael.

23 COMMISSIONER SCOTT: Yeah.

24 MR. CARMICHAEL: Can I just add one comment for  
25 the Committee's education? The LCFS today provides such a  
26 significant incentive through generating credits that

1 virtually everyone that can figure out a way to sell  
2 renewable natural gas through their stations or through  
3 their pumps is trying to do it. And there are the issues  
4 that you mentioned, with the pipeline access, but the market  
5 is motivated to sell renewable natural gas wherever they can  
6 because they can actually do well economically with the LCFS  
7 program. That incentive is in the marketplace and is  
8 working well. So I'm not saying that all these other  
9 stations are going to run natural gas, but there is a  
10 significant incentive to do that in the marketplace.

11 MR. MCKINNEY: Okay. I'm not seeing any more  
12 comments from the Committee. Do we have Committee comments  
13 on the phone?

14 I don't have any blue cards for public comment  
15 here. Do we have any public comment on the phone?

16 No. Thank you, gentlemen.

17 Okay. Let's turn now to our Natural Gas Vehicle  
18 Incentive. So the staff recommendation is \$10 million.

19 All right, who was up first?

20 MR. SHIMODA: I guess I am.

21 MR. MCKINNEY: Okay, Chris was quicker on the  
22 draw.

23 MR. SHIMODA: Yeah. So just a quick comment  
24 since the Low Carbon Fuel Standards have come up so many  
25 times today. The current projections the ARB staff has for  
26 the Low Carbon Fuel Standard on the low scenario for natural

1 gas is 600 million diesel gallon equivalents. The high  
2 scenario was 1.2 billion. And just a note about that. If  
3 we're going to get to even the low scenario, and this  
4 obviously depends on the assumed the miles traveled per year  
5 of the fleet, the miles-per-gallon assumptions, but my rough  
6 estimate is that we need somewhere between 24,- and 48,000  
7 natural gas vehicles.

8           And so just looking at the number of vehicles on  
9 the road today, I know in the four-higher fleet sector  
10 further growth is going to be very incentive dependent.  
11 Just look at the numbers that you guys can do with ten million  
12 and then you have to do the math, I don't think we're going  
13 to get anywhere near those goals unless we started doing  
14 higher incentive numbers for natural gas. And, as you guys  
15 know, you're the only game in town right now with ten  
16 million.

17           MR. MCKINNEY: Okay. Chris, then Tim  
18 Carmichael.

19           MR. CARMICHAEL: Thank you. Just to echo Chris'  
20 comment there, I do think there is a lot of value in both  
21 the ARB and the CEC getting down to the level of details.  
22 I think this is where we need to be with X fuel and  
23 technology, and this is where we are, and this is what we  
24 need to help incentivize in the marketplace, down to how many  
25 tens of thousands. There's thousands of vehicles. And  
26 it's a level of detail and I don't think the agencies have

1 gotten to it yet, but you need to start thinking about that  
2 because we're coming up on 2020 milestones much quicker than  
3 any of us want to believe.

4 I very much appreciate the ten million in funding  
5 and the historical support from the CEC and that it is echoed  
6 by all of my members.

7 I want to raise a few issues, and let me start with  
8 a few questions. I think it was in Jim's presentation we  
9 talked about the potential near term solicitations, slide  
10 30 this morning. We talked about the ten million that's in  
11 the CEC bank that will be in the next solicitation, not the  
12 one that we're talking about, but before that plan. You  
13 mention U.C. Irvine as a potential administrator. I  
14 underline potential. Does that mean a contract has not been  
15 signed yet, you're still negotiating it? And, if yes,  
16 what's the timeframe on that?

17 MR. MCKINNEY: Mr. Freeman.

18 MR. FREEMAN: So I think I talked about this a  
19 little bit when we had our last natural gas vehicle incentive  
20 solicitation, but to kind of help expedite the process of  
21 getting incentives, getting requests into us, and sent the  
22 funding back out to vehicle purchasers, we're looking at  
23 bringing an outside administrator on. So we've been talking  
24 to U.C. Irvine about the dynamics of doing that. There's  
25 quite the process of stepping up tracks between two state  
26 agencies that we're currently going through.

1           Ideally what we'd like to see happen is a contract  
2 being executed in the next month or two, taking some time  
3 to run a workshop, get stakeholders to come in like usual,  
4 talk about the slightly different method that we'll be  
5 running for this incentive program, get feedback. Then  
6 formally roll it out some time during the second or third  
7 quarter of next year. And that will coincide with the  
8 timing of when the existing programs' incentives will be  
9 winding up. Again, we're closely watching how quickly  
10 those incentives are going out. A majority of the OEMs have  
11 not utilized all their incentives, so we're expecting those  
12 to start being fully utilized to come the beginning of '15,  
13 so.

14           MR. CARMICHAEL: So you answered my question on  
15 timing. As far as the customer-based incentive, my  
16 question was: Is this different than what we've been doing?  
17 And it sounds like it is, but when we will know more about  
18 what you're considering?

19           MR. FREEMAN: So early next year again we'll  
20 definitely -- since we are considering making changes to the  
21 program, to basically remove the dealerships and the OEMs  
22 from being the go-between for the incentives and going  
23 directly to the end-user. We'll put something out there for  
24 yourself and other stakeholders to give us feedback on.  
25 Because it's a new concept, we want to make sure that we don't  
26 put something out there that looks good on paper, but in

1 reality may not work so well. And based on that feedback,  
2 we'll make the necessary revisions and then hopefully be,  
3 you know, running a very smooth program here in the future.

4 MR. CARMICHAEL: Thank you.

5 A few other issues I want to mention. I know we  
6 have more time to talk about these, but I want to share them  
7 today because I really want the Advisory Committee to be  
8 aware that there are some issues that we're having with the  
9 Natural Gas Fleet Alliance. And the staff is already aware  
10 of these, but I just wanted to mention a couple of them.

11 In our most recent natural gas vehicle, there was  
12 a limitation on how OEM was defined, and it's different from  
13 previous solicitations. The significance of that was at  
14 least in the natural gas vehicle market there is a segment  
15 of vehicles that's really not produced by the OEMs, it's  
16 produced by the outfitters. They're companies that take an  
17 OEM chassis and they put the specific fuel system or engine  
18 on it and then a cab or a box truck, and that's how that  
19 marketplace works today. Whether or not CEC existed,  
20 that's how it's happening in the national market, it's how  
21 it's happening in California.

22 And in the past those companies were able to get  
23 incentive money from the CEC, but they were not able to in  
24 the most recent round, the one that's underway right now.  
25 And the shortcoming of that approach is -- well, first of  
26 all, I believe CEC staff made that change with the assumption

1 that more than one of the OEMs would step up and fill the  
2 void and provide those vehicles. I don't believe that's  
3 happened.

4           And the segment of the market that's seriously  
5 impacted as far as vehicle availability and price point is  
6 the airports. And shout out when you think of shuttle buses  
7 and municipal department of transportation type shuttles,  
8 not your transit buses, but the medium-size shuttles. And  
9 it's an important part of the fuel segment, transportation  
10 segment at airports and around cities.

11           The second issue is right now CEC is not providing  
12 any sort of incentive funding for bifuel vehicles, and yet  
13 that's a growing segment of the marketplace in the medium-  
14 and heavy-duty -- even in some of the light-duty pickup  
15 trucks, but more in the medium- and heavy-duty marketplace  
16 there's significant potential for bifuel vehicles and want  
17 to encourage CEC to consider that fuel type or vehicle type  
18 as eligible for funding in the future.

19           There's an issue in this current round with the  
20 incentives for light-duty vehicles were reduced to a  
21 thousand dollars per vehicle. And I think what we're seeing  
22 is the CEC staff has a different perspective, but what I'm  
23 hearing is we're not having the impact with this program that  
24 we've had in the past in the light-duty market, where the  
25 incentive was 3,000 per vehicle, in this round it's only  
26 1,000. And I think they're not -- the OEMs that are working

1 in that marketplace are not over subscribed like they have  
2 been in the past. And it's something that I encourage CEC  
3 to take a look at it not only in this Plan but in the next  
4 solicitation for NGV funding.

5 The final issue is the ability to use this program  
6 in conjunction with other incentive programs. And one  
7 example is the Prop. 1b funding and there's been limits on  
8 the ability to combine those two. And we think those should  
9 not been in place. We think there should be an ability to  
10 combine Prop. 1b funding to get the equivalent of a new  
11 diesel truck, if you will, and then the AB 118 funding to  
12 make that new diesel truck an alternative fuel truck.

13 So the permits are working in conjunction, but  
14 they're not really a double dip. You need both to get the  
15 level of natural gas trucks in the marketplace that we want  
16 in the timeframe that we need it.

17 Thanks very much. I know that was a lot. And  
18 all of this will be coming in face-to-face discussions and  
19 written comments, but I just wanted to mention them today.  
20 Thank you.

21 MR. MCKINNEY: Great. Thanks very much, Tim.

22 Andre, did you have any responses to any of Tim's  
23 questions or points?

24 MR. FREEMAN: Well, I was just going to say that  
25 these are some of the issues that were also brought up during  
26 the development of our last solicitation and that we'll

1 definitely be talking about in the future.

2 I know as far as the shuttle bus issues goes, that  
3 there have been entities working with both Ford and GM. And  
4 I know a lot of the issues have been more along who actually  
5 controls the incentives, whether it's the Ford or GM  
6 dealership or if it's the outfitter, which is causing  
7 difficulties there. But it's things like that that we're  
8 really going to be bringing up again during our next  
9 solicitation process to make sure everybody has an equal  
10 chance at everything and not any unintended side-effects of,  
11 you know, something that we put into the solicitation.

12 On the note about bifuel vehicles, I think that's  
13 something that we're really going to have to look at the  
14 original statute for the AB 119 program because I know that  
15 this is an alternative fuels program. So if you have the  
16 option to switch it from a diesel vehicle to a CNG vehicle,  
17 if they actually have that switch in the cab, how do we ensure  
18 that the driver isn't just using the diesel side. Of course  
19 you know that really doesn't make sense if they have the  
20 bifuel vehicle, but you have to have some kind of mechanism  
21 that ensures that's not operating on the petroleum fuel side  
22 and that it's actually one of the eligible funding criterias  
23 for our program. So I know we discussed this in the past,  
24 developed bifuel vehicles, and hybrid vehicles as well, that  
25 there are certain thresholds for alternative fuel or hybrid  
26 electricity being used for the vehicle. So I have to look

1 into that again before we could put any funding into that  
2 kind of vehicle purchase.

3 MR. CARMICHAEL: Thank you for all that.

4 One quick follow-up on bifuels, and this is the  
5 way the industry thinks about it. There's a financial  
6 incentive to use the alternative fuel because it's cheaper  
7 in this case. And so the assumption is that they're going  
8 to use it whenever they can. And CEC would not need to give  
9 the same level as incentive funding for a dedicated  
10 vehicle -- for a bifuel vehicle as a dedicated vehicle. So  
11 I think there is a way to tailor it where you are providing  
12 an incentive that's meaningful, but you're also recognizing  
13 what's happening in the marketplace with the development of  
14 these new vehicles.

15 MR. MCKINNEY: Okay. Thank you, Tim.

16 Comments from any other Committee members?

17 All right.

18 MS. HOLMES-GEN: Actually I forgot to put down,  
19 but I do have a question.

20 MR. MCKINNEY: Yeah, don't pull the mic cord too  
21 much harder, Bonnie.

22 MS. HOLMES-GEN: Okay. I'm going to break the  
23 whole thing, I'm sorry.

24 Just again, I appreciate that you have a lot of  
25 really good information in here and particularly about the  
26 issue of methane leakage, which is continuing to be a big

1 question that we all have in terms of what are the impacts.  
2 And I'm just wondering when do you think that we'll have  
3 information from the studies that you mentioned to factor  
4 into this discussion of the investments and help us better  
5 understand the focus that we need to have on renewable versus  
6 conventional natural gas?

7 COMMISSIONER SCOTT: I think that's -- I'm not on  
8 that page that you're on, so I don't know the exact study,  
9 but we have been I think very diligent in -- we got a lot  
10 of great information during our IEPR workshops that we have  
11 additionally used as the basis for this. And we continually  
12 inform ourselves as new information comes up. I had to kind  
13 of write it up.

14 And so when you get in our Plan, it's really more  
15 of a summary.

16 MS. HOLMES-GEN: Right.

17 COMMISSIONER SCOTT: We don't have all of the  
18 studies and this one said that and this one said that.

19 MS. HOLMES-GEN: Maybe you could just give us a  
20 quick thumbnail where -- what's the status of the research  
21 from your perspective and how --

22 COMMISSIONER SCOTT: Is it a specific study?  
23 I'm sorry I missed the --

24 MR. CARMICHAEL: Let me jump in, --

25 COMMISSIONER SCOTT: Yes.

26 MR. CARMICHAEL: -- if I could. This has been an

1 active conversation with my members and the Air Resources  
2 Board over the last week or two. There is a California  
3 remodel update underway and there is a very good information  
4 exchange happening between the natural gas industry and the  
5 ARB, and adjustments to some of the assumptions in that model  
6 and inputs.

7           And part of that picture is, you know, what's  
8 happening upstream methane. There are about a dozen  
9 studies underway right now looking upstream methane. I  
10 think six of those are expected to be released in reports  
11 in the next four to five months. So I was thinking about  
12 this earlier, and it will be part of my written comments,  
13 that we have significant additional information before this  
14 Plan is finalized. And I think we're going to have quite  
15 a bit of that information right at the same time that ARB  
16 is having its LCFS updates in February, but because the  
17 carbon intensities adjustments that ARB is proposing won't  
18 take effect until January of 2016, we effectively have most  
19 of 2015 to take in data and make appropriate adjustments to  
20 carbon intensities for renewable natural gas, compressed  
21 natural gas, and liquified natural gas.

22           MS. HOLMES-GEN: That's helpful. Thank you.

23           COMMISSIONER SCOTT: I missed those specific  
24 studies that you --

25           MS. HOLMES-GEN: Yeah. And, I'm sorry, I put  
26 you on the spot there.

1 MR. MCKINNEY: Yeah. And, I think as  
2 Commissioner Scott mentioned earlier, we have a whole  
3 chapter in the IEPR, I believe it's chapter 6 or 7, that  
4 covers this, as long as a portion of chapter 5 on natural  
5 gas vehicles. So it's a much more extensive treatment than  
6 we have here in the Investment Plan.

7 MS. HOLMES-GEN: And, I'm sorry, I know you're  
8 treating this topic in either proceedings and other  
9 analyses, but it is helpful I think just to always include  
10 a discussion of where we're at on that issue in this  
11 discussion, because it's important to this Investment Plan.  
12 So thanks.

13 MR. MCKINNEY: So do we have Committee members on  
14 the phone, Charles or Andre?

15 MR. FREEMAN: (Shaking head.)

16 MR. MCKINNEY: Okay. I have no blue cards, or is  
17 there anybody from the public that wants to comment on this?

18 Any public on the phone?

19 Okay. Let me turn to the next funding category  
20 which is an innovation for assist year, so it's to merge  
21 medium- and heavy-duty advanced vehicle technology  
22 demonstrations and scale-ups with the manufacturing grant,  
23 and the staff recommendation is \$20 million.

24 Is there any comment from the Committee? Chris.

25 MR. SHIMODA: Yeah. I just want to put a plug-in  
26 for the NQP (phonetic) program with the recent infusion of

1 GGRF funds is moving more toward what you consider  
2 demonstration, pilot project type vehicles in this  
3 particular category. And I guess this is a somewhat a  
4 question for CEC staff, are you guys looking at the  
5 ramifications of -- I mean it's \$85 million -- whether or  
6 not there is maybe a need to shift at least a portion of those  
7 funds to something like -- I think we'd like to see the  
8 natural gas vehicle incentives upped. Just knowing that  
9 there's a much larger pot of money being dedicated toward  
10 much the same purpose.

11           And then just the second part would be I just  
12 wanted to put a good word in for nonvehicle-based technology  
13 demonstrations that you guys could be looking at here.  
14 There are some relatively near term projects, advanced  
15 intelligent transportation system demonstrations that are  
16 ongoing that we've had conversation with the CEC staff  
17 about, that I was reading through the at least draft document  
18 and didn't see any mention of or place where those type of  
19 technologies might be put in, so I just wanted to put a  
20 plug-in before the specifically advanced ITS category,  
21 again in a little bit more consideration.

22           MR. MCKINNEY: Okay. Thanks for that.

23           Tim.

24           MR. CARMICHAEL: Let me first echo Chris' point  
25 about the importance to coordinate with ARB on this and  
26 ensure you're not doubling up on the same sort of projects,

1 and is there really a need for this much funding coming from  
2 CEC, given the scope of ARB's investments.

3           To the extent -- and I should have prefaced that  
4 by saying from the get-go I've been supportive of this  
5 category as one of the priorities, but I do think it's very  
6 important to coordinate with the ARB to make sure that the  
7 investments aren't -- they're distinct and there's value for  
8 both pots.

9           The second question is in the hybrid truck make  
10 there's been two significant events recently in my mind.  
11 One, ARB, the South Coast AQMD, and some of the research labs  
12 did some truck emission -- end-use emission testing. And  
13 one of the findings was some applications were higher than  
14 expected emissions from heavy-duty hybrid trucks. There's  
15 some questions about the testing protocols and the cycles,  
16 et cetera, but the quality lapsed and obviously the agencies  
17 were funding the work.

18           My point is to the extent that CEC does fund in  
19 this area, I think it's important to pay attention to new  
20 bits of information like that and potentially target some  
21 of your R and D money towards addressing problems that are  
22 identified in that sort of testing program.

23           And, similarly, there was an announcement this  
24 summer that Eaton, which is one of the -- there are four or  
25 five major players in the hybrid truck market -- was pulling  
26 out of the North American hybrid market. And they're

1 continuing to produce hybrids in other parts of the world,  
2 but not in North America. They cite -- the press release  
3 probably doesn't tell the whole story, but it talked about  
4 cost competitiveness with diesel and natural gas. I would  
5 encourage CEC to even talk to -- talk to the other hybrid  
6 truck manufacturers. To the extent you're going to find R  
7 and D in this area, is there a way -- is there something that  
8 you learned from a major player pulling out of the market,  
9 shouldn't there be some new emphasis in the  
10 cost-effectiveness of the systems more than has already been  
11 part of the picture.

12           Those are just two examples of things that are  
13 happening that are very relevant to investments that CEC is  
14 considering making. And it's at least worth a phone call  
15 to see what you might learn and might tailor some of your  
16 investments based on that information.

17           MR. MCKINNEY: Great. Thank you, Tim.

18           Ralph.

19           MR. KNIGHT: Tim, you are right on track. Eaton  
20 had pulled out of the system. We tried to get some more  
21 hybrid school buses, and they would not build those buses  
22 for us because they had stopped the production of them. And  
23 that's a shame because we saw some great expectations out  
24 of the five that we got. There are only five in California,  
25 and we have all five of them operating in our territory.  
26 And I think that we would love to have those hybrids back

1 into the system again.

2           And I think the other thing we need to really be  
3 focusing on is at least in the school bus world. School  
4 districts don't have money to buy buses. Buses stay around  
5 for years. The CEC is probably aware of the project that  
6 we're involved with, but the Clinton Initiative on six buses  
7 being built in California, two of those happen to be ours.  
8 So we're excited about that. They're 29-year-old buses,  
9 but they're buses that still have life in them. They're  
10 still a usable bus. And I think that the repower thing is  
11 here. We're finding electric bus people pulling out of the  
12 bus of building school buses, especially, because sales are  
13 not there. Who's going to go out and buy that \$250,000  
14 electric bus.

15           Sure, you -- you finance one or two for a couple  
16 districts, or whatever, in the state, but there's nowhere  
17 else in the country going to buy them. They can't afford  
18 it. It doesn't pan out the way that it should.

19           And I think the best way for us to be able to get  
20 involved, most especially in electric, because electric is  
21 going to take my cost per mile, from 76 cents a mile to  
22 functioning up a natural gas or diesel bus -- those would  
23 be higher than 76 -- down to 17 cents a mile. And what I  
24 save in servicing, oil changes, filters, things of those  
25 sort, brakes because of the region, operation, it's big  
26 dollars to me to build and to have an electric bus.

1           And when we start talking about winter V2G and  
2 V2B, where is the best place to be. The school bus. The  
3 school bus sits 90 percent of the day. It's out for two  
4 hours in the morning and it's out for two hours in the  
5 afternoon. What better can you have in emergency response.  
6 That school bus could be part of the police department or  
7 fire department, or whatever, as the B2B, and give lots of  
8 power during that timeframe.

9           So when you got to plead the 50-60 bus is in town,  
10 we've got plenty of power out in the earthquake, because we  
11 had a couple months to go into there, but those buses could  
12 have been park supply and PowerStar.

13           And I think that -- I know the intention is always  
14 the new looks good, but used looks good. I can make my used  
15 bus -- when those two Clinton buses come back to service,  
16 they're going to look like brand new. And I know that a lot  
17 of the skepticism has been Highway Patrol, is Highway  
18 Patrol, is it going to be safe, is Highway Patrol going to  
19 do and, you know, roll you out with that. I think that we  
20 got Highway Patrol working with us and talking with us now.  
21 They have explained. I think ARB was the project down in  
22 Southern California with the bus that was converted down  
23 there and a little diesel bus was converted to electric.  
24 Sad to say, I think only three districts got to try it, and  
25 it's sitting now. I think we had an offer to buy that from  
26 Transcopper to get it up to Napa so we can run it. I don't

1 know whether they're going to talk to me or not.

2 But that bus needs to be on the road. I have been  
3 trying to get funds to convert one of my Bluebird buses, a  
4 natural gas bus, so that I don't have to replace the tanks  
5 on it, convert it to electric, again knocking my cost per  
6 mile down in leaps and bounds, but again giving me a cleaner  
7 bus, even the natural gas. to put on the road out there today.

8 And I think everybody keeps saying pilot project,  
9 pilot project. Well, I think ARB's project was a pilot  
10 project with that bus down there. So you know everybody  
11 kind of keeps scooching me away saying, no, we don't want  
12 to do this because it needs to be a pilot project. So now  
13 we're going to be looking at putting it out as a pilot  
14 project.

15 But we've got three companies, two sold companies  
16 here in the state that does repilots for city transit. That  
17 city transit bus is harder to function than a school bus is  
18 on a daily basis because that city transit bus wants hours,  
19 wants miles, and a lot more to keep that thing on the road  
20 as an electric vehicle than what a school bus does.

21 And those two companies, Transpower and Complete  
22 Coachworks, has done an excellent job in repower systems.

23 And I think that manufacturers are here one day.  
24 I think there's one electric bus left right now that's still  
25 doing a four-chassis type A special needs vehicle that's  
26 still out there. I think with Transtech, but it's going to

1 be like this fifth electric bus. It isn't going to be here  
2 very long. You can sell one or two of them and expect the  
3 company to keep making them. But I think that we need to  
4 seriously look at it. It's a way to do it, it's a way to  
5 do business. It's a way to get the best bang for our buck  
6 at least in the school bus industry.

7 Thank you.

8 MR. MCKINNEY: Great, thanks very much.

9 Let's see, Joe and then Simon, then Alberto.

10 MR. GERSHEN: Yeah. Joe Gershen with CVA. I  
11 just had one question about this. I'm wondering, and maybe  
12 I just missed it, why I haven't seen the offer of project.  
13 It seems like there is a lot of construction equipment could  
14 be utilized in this way. And there certainly is some detail  
15 equipment and we're looking at using biodiesel and the other  
16 diesel in some of those vehicles but also in some of these  
17 tests within discussing some of the other modalities, at  
18 least if there is some room for offer of project.

19 MR. MCKINNEY: They are eligible projects.

20 MR. GERSHEN: Okay, great.

21 MR. MUI: Simon Mui with NRDC. Just to echo some  
22 of the comments before. I would like some new suggestion  
23 that you were around the medium- and heavy-duty side. There  
24 is a pillow, an administrative effort around GHG emission  
25 tailpipe standards for medium- and heavy-duty trucks. And  
26 in terms of incentive funding there will be sort of this push

1 for an industry to basically improve the fuel efficiency and  
2 probably adopt some of the new technologies as a matter of  
3 course with compliance with the standard. And at the same  
4 time, how the incentive fundings play into that, whether you  
5 focus it on technologies to get it out the door, rapid, more  
6 rapid deployment versus longer-term technology, which I  
7 think is -- and you already have that probably with Indian  
8 standards should be considered maybe more formally in the  
9 document.

10 One thing just in terms of joe's comment on  
11 offroad, we do see the category, "Emerging Opportunities,"  
12 very good synergies with the sort of medium-, heavy-duty in  
13 terms of the five being did in terms of drainage, in terms  
14 of some of the construction equipment and construction  
15 offroad equipment, potentially working to find places where  
16 maybe HVIP doesn't necessarily cover, having that  
17 understanding very important as well so that we're not  
18 duplicating efforts, and then that would be essentially  
19 our -- our working in synergy with the other program.

20 Finally, on this repowering question, we actually  
21 have ways as through the Charge Ahead campaign in the past  
22 without school busses . A lot of the electric drive  
23 technologies, some of the companies actually when they have  
24 an engine or when they basically overhaul the truck, that  
25 there's a challenge there in terms of for current incentive  
26 funding stream not necessarily being always available. And

1 I know that there are some concerns in terms of guaranteeing,  
2 for example, the battery life or when you do the system when  
3 it isn't from the ground up. But hopefully those can be  
4 overcome as long as the solicitations for performance  
5 are -- are recognized so that you can kind of get a category  
6 there that's actually happening, which is companies in  
7 California and locally that are doing this sort of thing,  
8 conversion of existing busing and trucks. And so to the  
9 extent we can get it off of that, I think that's a good way  
10 to utilize funds.

11 And with that I actually have to run, in fact, pick  
12 up my son, but thank you for the hearing.

13 COMMISSIONER SCOTT: Thank you very much, Simon,  
14 for lending your expertise to our discussion.

15 DR. AYALA: Safe driving, Simon. We all  
16 appreciate having to run to get kids.

17 I wanted to follow up specifically on the comment  
18 that Chris and Tim made with respect to our two programs.  
19 And I just want to reemphasize that I think the CEC staff  
20 and page 45 does a pretty good job of stating that our  
21 agencies are well coordinated. And given the importance of  
22 this sector, the medium- and heavy-duty sector, and given  
23 the scale of investment that is going to be needed to enable  
24 the transformation we're after, I guess I have a different  
25 view, and I don't see that there is a problem by both agencies  
26 having investment lines in this sector.

1           Again I think for the Air Resources Board, we  
2 benefit from the history that CEC has had in this sector.  
3 We benefit from learning about the success stories that you  
4 have. You've been working at this for a while. So I say  
5 this to be quite complimentary. In one way we can continue  
6 to collaborate is if we have programs that are investing in  
7 these technologies. So from our perspective I do support  
8 the recommendation, and we very much look forward to and  
9 remain committed to working and coordinating with the CEC  
10 so we can make the best of the joint investment.

11           COMMISSIONER SCOTT: I appreciate that. And I  
12 know that our staffs and I have been working really well  
13 together, and so I appreciate that too. And we look forward  
14 to continuing the good partnership as well.

15           MR. MCKINNEY: Yeah, thank you, Alberto. If I  
16 can just add to what you're saying, we've had extensive  
17 consultation with ARB staff on your pending solicitation.  
18 And one of the agreements that we made is that we recognize  
19 the need for ongoing funding for kind of early-stage  
20 technology development in this space, so really just a  
21 handful of companies that are doing drivetrains for  
22 medium-duty and heavy-duty trucks. And some of those, we  
23 had Mike Simon kind of stepped in here a little earlier, this  
24 morning represents one that's been successful . and I think  
25 we've talked a little bit about Boulder Electric, which was  
26 up and running and is no longer successful.

1           So there's clearly development work that's needed  
2 in the marketplace for these things.

3           And just one of the other side agreements with had  
4 with the Air Board is that we're really going to focus on  
5 smaller projects, up to three million. They're going to  
6 focus on larger-scale field trucks, a demonstration,  
7 starting at five million and up. So we're really going  
8 after two different parts of the commercialization chain or  
9 phase 4 for this technology class. And we think that's a  
10 good approach. We'll see how it goes. This influx of GGRF  
11 money was a really important opportunity for the State.  
12 And, from what I've seen so far, ARB uses it quite wisely,  
13 and we'll see what the response is to their solicitation.

14           And also wanted to say, back to your point, Ralph,  
15 on retrofits, we see the value of retrofits, so that was the  
16 impetus for us funding the medium-duty, heavy-duty-package  
17 delivery truck trials to get fuel data that arbitrate may  
18 want to consider than how it views retrofits versus new  
19 vehicles.

20           And on the school bus thing, it really is safety  
21 that has slowed us down a little bit. So we're quite  
22 concerned about making sure that we put modern drivetrains  
23 into modern buses that need current safety standards. And  
24 we've learned that that's a bit of a moving target, depending  
25 on CHP works at it. But that's somebody we've looked at a  
26 lot and we look forward to your input as well.

1           MR. KNIGHT: I hear what you're saying. I think  
2 that we've worked well with CHP on some of the vehicles that  
3 had been retrofitted now. We know what CHP wants. I think  
4 that the individual districts take care of their buses. I  
5 can't have a 29-year-old bus that I'm going to put back on  
6 the road as an electric and not have taken care of it over  
7 the last 29 years. I think it's the stability of the  
8 districts to take care of their equipment and keep their  
9 equipment in good running order. And I think that CHP can  
10 also determine what's being put into that vehicle is safe  
11 equipment too. Now we've climbed that hurdle, the Gilroy  
12 bus was inspected the same day the officer arrived. It was  
13 not four or five different times he had to come back. And  
14 you know we've made good friends with Cullen, we'll say that.  
15 We climbed that hurdle and got over that. And now we know  
16 what to do to make everybody happy with that. So the  
17 inspector came out, inspected that ADOMANI bus in Gilroy.  
18 Everything was clear to go. They wanted more to see  
19 engineer drawings of the retrofit and things of that sort,  
20 not so much of they wanted to look underneath the bus and  
21 see for themselves as it was the engineering information.

22           So once we climbed that hurdle, and especially  
23 with the San Diego bus down there, that was the one that was  
24 back and forth quite a big as far as CHP was concerned, but  
25 once we got over that hurdle, made the ADOMANI bus much  
26 simpler to get through the inspection, and every one that

1 we do now, no matter who it is, we know what CHP wants and  
2 how they want it done. And I'm not going to put a bus out  
3 there to be retrofitted with that kind of equipment, that  
4 I know that won't do the job for me. I want the best piece  
5 of equipment on the road out there to do the job for me.

6           So I think that between everybody working  
7 together, we're going to put that safe bus out there and  
8 we're going to put a bus out there that works and hopefully  
9 have a vendor that's going to stay behind us forever. I got  
10 three hybrid Azure buses sitting out there that -- everybody  
11 knows Azure is not around anymore, and we're fighting with  
12 those things on a daily basis now and ready to dismantle  
13 those drive systems out there so we can get them back to just  
14 a gas-operating bus. That's not what we want to do. We  
15 want to keep them out there as an alternative fuel bus.

16           MR. MCKINNEY: Okay. And thanks again, Ralph,  
17 for lending your expertise in this subject area to our  
18 Committee. It's much appreciated.

19           Any other comments from Committee members? Joe  
20 was here to sign up, or is that something else done -- okay.

21           Any Committee -- oh, Bonnie.

22           MS. HOLMES-GEN: Sorry if I missed it earlier,  
23 but is it possible to just give a quick background on the  
24 PEV readiness, regional readiness projects? It sounds  
25 like -- and I understand that you can't, the funding means  
26 in perpetuity, but it seems like we're still getting ready,

1 so I'm just wondering how you're looking at those projects  
2 and how do we decide if we need to keep putting money into  
3 the readiness?

4 MR. MCKINNEY: Yes. So if you'll look back to  
5 the presentation that I gave on slide 11, so we are now up  
6 to 17 regional readiness grants for a total of \$12 million.  
7 And we view that as a sound investment. It's great work.  
8 And we are taking a pause -- we haven't actually got to that  
9 part, but we're taking a pause now just to let people  
10 complete their work and kind of catch up with the funding  
11 that's been made available. So, and I think we'll talk a  
12 little bit more about that.

13 MS. HOLMES-GEN: Oh, today?

14 MR. MCKINNEY: Yeah.

15 MS. HOLMES-GEN: Okay, great. Great. Okay.

16 MR. MCKINNEY: So staying on this topic, medium-  
17 to heavy-duty, were there any Committee comments from the  
18 WebEx or the phone?

19 No.

20 MS. SHARPLESS: I'm sorry.

21 MR. MCKINNEY: Yeah, Jan.

22 MS. SHARPLESS: Since you were taking a slight  
23 innovation here by combining the medium- and heavy-duty with  
24 manufacturing, again the rationale for that was? If you  
25 would refresh my memory, because you did state it in the  
26 presentation.

1           MR. MCKINNEY: Yes. So the idea here is that  
2 there's a lot of synergy between these two funding  
3 categories and that oftentimes somebody has won a grant to,  
4 say, retool an assembly line or create a new assembly line,  
5 but then there hasn't been funding to actually do the  
6 development and kind of the trials of the trucks that they  
7 can create from that new assembly line platform.

8           And, conversely, there have been people that have  
9 won awards for technology-development grants, but then they  
10 realize they don't have the funding to tool up the  
11 manufacturing line they need to development those trucks.  
12 So this is -- again it's an innovation this year based on  
13 the comments of several stakeholders to try a combined  
14 approach.

15           And, Charles and Andre, this was your brainstorm,  
16 so if you want to add anything to what I've said here,...

17           MS. SHARPLESS: So this doesn't have so much to  
18 do with the retrofitting --

19           MR. MCKINNEY: No.

20           MS. SHARPLESS: -- and things, like retrofitting  
21 classes to --

22           MR. MCKINNEY: No. That was a separate  
23 conversation.

24           MS. SHARPLESS: But would it be part of the  
25 manufacturing, does that fit within manufacturing, or is  
26 that just part of a grant to do retrofitting and fit in the

1 heavy-duty, medium-duty vehicle technology demonstration  
2 and scale up.

3 MR. MCKINNEY: Do you want to take that, Charles?

4 MR. SMITH: So this -- the combination of these  
5 isn't to say that -- it isn't to say that if you want to come  
6 to us and do a demonstration project that you therefore have  
7 to be a manufacturer or that you have to have a manufacturing  
8 element. It's just to sort of open the door to applicants  
9 who might be interested in that combination.

10 Does that answer your question?

11 MS. SHARPLESS: I think what you're doing is you  
12 found a gap and you're now addressing the gap in combining  
13 these two categories?

14 MR. SMITH: That's the intent.

15 MR. MCKINNEY: Okay. I want out recognize Urvi  
16 Nagrani with Motiv Power Systems, and thanks for your  
17 patience, Urvi. When you put in your first card, we weren't  
18 on that category yet.

19 MS. NAGRANI: Hi. As he said, I'm Urvi Nagrani  
20 from Motiv Power Systems. So I wanted to applaud the  
21 shifting to bridge manufacturing and demonstration, because  
22 I do believe that is a gap that we have experienced  
23 personally in the company, where pilot demonstration  
24 projects take a very different type of engineering work in  
25 the manufacturing. And by creating a bridge for that and  
26 funding, I do believe it will help companies such as

1 ourselves scale up.

2 I also wanted to say in this sort of tangent that  
3 we went on in terms of retrofitting and this sort of  
4 assessment that was implied there of the people that entered  
5 this space are kind of coming and going. I think one of the  
6 reasons people in the space have come and gone has been that  
7 gap historically where they will come out with a promising  
8 pilot and they are unable to manufacture, but I also think  
9 that's not where we are today.

10 And, as part of evidence to that point, I'm  
11 standing here today instead of our CEO Jim Castelaz because  
12 he's at an NAPT, which is the National Association for People  
13 Transport, where Transtech is presenting our all-electric  
14 school bus. So there is a market for new school buses.  
15 Transtech manufactures 600 school buses a year. They're  
16 trying to do more electric with us. And we see that sort  
17 of scaling up. It's a very important challenge in terms of  
18 manufacturing.

19 And I think we talked a little bit about the  
20 interests and how OEMs are classified during the natural gas  
21 fueling infrastructure discussion point. And I think  
22 that's something which in this medium-, heavy-duty stake is  
23 very similar, where we're using the exact same drive train  
24 system on a school bus as we used in the City of Chicago on  
25 an all-electric refuse truck, the difference is the  
26 application, and that's going in on the OEM side. However,

1 as a grant applicant you're often finding the incentive  
2 structures aren't equivalent there. So, for example, with  
3 the HVIP program, you get the same amount for a 10,000-pound  
4 vehicle as you do for a 62,000-pound vehicle, however the  
5 expenses and differential there are significantly more once  
6 you look into the cost of additional batteries and  
7 additional power converters to manage those batteries.

8 So I think there is still room for improvement in  
9 terms of how do we separate out the cost differential of a  
10 medium-duty vehicle versus a heavy-duty vehicle, and maybe  
11 that's going to be going into how the individual  
12 solicitations are released, but I think the way this overall  
13 funding bucket has been reallocated looks very promising.

14 MR. MCKINNEY: All right. Thanks for your  
15 comments, Urvi.

16 Jamie Hall with CALSTART.

17 MR. HALL: Good afternoon again and thank you.  
18 I'm Jamie Hall, policy director for CALSTART. I want to  
19 start by agreeing with Alberto that both CARB and CEC  
20 investments are definitely needed and important here.

21 The challenges in the medium- and heavy-duty  
22 sector are enormous, especially when you realize it's not  
23 just truck, it's offroad equipment, it's marine, it's real.  
24 There's a lot that we need to do, and these manufacturers  
25 don't have the R and D budgets that some of the light-duty  
26 vehicle companies have.

1 CALSTART's been active in identifying needs and  
2 opportunities in this area for several years. We had our  
3 CEC-funded CalHEAT Truck Research Center that laid out a  
4 roadmap for meeting long term emissions reduction for the  
5 truck sector, and we also did a separate analysis on what's  
6 needed to deploy zero emission drainage trucks around the  
7 710 corridor. The total change that we need is huge, and  
8 again that's just the truck piece.

9 It's important to note that particularly for  
10 medium- and heavy-duty vehicles, we really need a portfolio  
11 of technologies. There is no silver bullet. The  
12 battery-electric options are really important and a lot of  
13 the companies that have been here today, like Transpower and  
14 Motiv, are doing good things in that area.

15 On the bus side there are also a lot of companies,  
16 many of whom are here in California, putting out good,  
17 zero-emission bus products. And this is all good and it's  
18 important, but we don't see battery, electric, and fuel cell  
19 meeting all the needs of the sector.

20 Looking out to 2035, we think according to our  
21 CalHEAT work that nearly 75 percent of trucks are still going  
22 to be using gaseous or liquid fuels. And even in 2050 it's  
23 30 to 40 percent would be running on these fuels. And we  
24 really hope there are low-carbon options available for those  
25 fuels, but it's not going to be in our mind all battery  
26 electric and fuel cell even out in those out years. So

1 dramatic reductions are possible, but we need a lot of  
2 investment, and there are a lot of different vehicle classes  
3 here, and so it's a big complicated problem.

4           The CEC's got a real role to play, and it sounds  
5 like there has been increased coordination and you're  
6 zeroing in on something where you -- my understanding is look  
7 at the earlier-stage, smaller projects, and then ARB sort  
8 of picks it up, larger projects, and brings things to market,  
9 and that makes a lot of sense. So those are sort of  
10 overarching comments on both of these programs, how we see  
11 they're fitting together and why they're both needed.

12           I'm going to quickly walk through a couple of  
13 specific things on this bucket at the Energy Commission. We  
14 definitely support this allocation and think that this  
15 dollar amount is warranted. And, in concept, we like the  
16 idea of at least opening it up to combining manufacturing  
17 with the demonstrations. The devil will definitely be in  
18 the details there. It make your job even more difficult in  
19 terms of comparing projects applications. So I do not envy  
20 you on that, but I think for some of these companies this  
21 really could be helpful in having to do only one application.

22           We recommend that CEC maintain its broad focus on  
23 buses and offroad in addition to trucks. There have been  
24 successful projects in this area. I think as many of you  
25 know, San Joaquin RTD bought a zero-emission transit bus to  
26 use in a highly-impacted region, and they're now looking to

1 hopefully expand on that.

2           And to Joe Gershen's point about offroad  
3 projects, there have been some, and we were involved in a  
4 Caterpillar project demonstrating a hybrid excavator that  
5 gets 40 percent fuel savings. So this is a real success.  
6 It becomes something that they're selling in the market. We  
7 think there is a potential to do a lot more here with people  
8 like Caterpillar and Volvo is also involved in offroad  
9 projects. So there is huge potential, and that is -- it has  
10 only been a couple of projects. There's a lot more that  
11 could be done there. And that's why there is definitely an  
12 appetite for all of this funding.

13           And, finally, we recommend that CEC and CARB  
14 continue to use the existing CalHEAT and I-710 work in  
15 guiding funding decisions for the truck sector. They  
16 really were pretty comprehensive pieces of analysis. They  
17 lay out all the investments that are needed. A lot of these  
18 have been hit so far, but there are still some gaps. We  
19 think -- while CEC's investments have been focusing earlier  
20 in the commercialization process than CARB's, there may be  
21 an advantage in looking even earlier stage than many of CEC's  
22 investments to date, and some basic research and  
23 development, particularly projects that are focused on  
24 bringing down costs.

25           You can make some smaller investments early on in  
26 the process and bring down the cost of things like hybrid

1 truck. You can hopefully avoid the situation where Eaton  
2 pulls out of the North American model. And we also see an  
3 increase needed to occur to focus on long haul solutions and  
4 enabling technology, as there has been somewhat of a bias  
5 towards electric. We think all of that is needed, but  
6 especially given the additional funding available now at the  
7 Air Resources Board. We think you also need to look at some  
8 of the long haul truck technologies, low Nox engines which  
9 are December some of -- and other things that will work for  
10 over the road.

11 So sorry those were somewhat long comments, but  
12 doing a lot of good work here. We think both are needed.  
13 We think you're doing a great job of coordinating, and we  
14 look forward to continuing to work with you.

15 MR. MCKINNEY: Now, Jamie, if you could stay up  
16 there, I had kind of a follow-up question. When you refer  
17 to earlier-phase funding, did you have something specific  
18 in mind?

19 MR. HALL: My understanding of the first medium-  
20 and heavy-duty solicitation that you put out and not  
21 specific requirements about there already had to be a  
22 prototype of this vehicle and not sort of put it into a  
23 certain part of the commercialization process. And what's  
24 missing and what a lot of the OEMs we have talked to have  
25 said funding for projects that come before that, before the  
26 first prototype are some basic research around some abling

1 technologies that can really improve these technologies and  
2 bring down costs. And that could be basic work around  
3 cheaper and more effective storage tanks for natural gas and  
4 hydrogen, and things like that, where maybe there is not yet  
5 a prototype and it is more in the R and D phase than in the  
6 dental phase.

7 MR. MCKINNEY: Okay, thanks.

8 MR. HALL: Maybe some of that is more appropriate  
9 for EPIC and for other programs here, but, generally  
10 speaking, we see needs across the whole spectrum, and a lot  
11 of the funding is sort of focused on the latter half.

12 MR. MCKINNEY: Okay. Thank you.

13 Is there any other public comment under this  
14 funding category.

15 Anything on the phone, guys?

16 MS. HOLMES-GEN: Just very quickly. Bonnie  
17 Holmes-Gen. I just wanted to -- sorry for the diversion on  
18 the -- focusing on the readiness. But we do support this  
19 category and are extremely concerned about the communities  
20 near ports and on freight corridors. And I think it's very  
21 important to pursue this category of funding in these  
22 demonstration projects to reduce the pollution and air  
23 pollution or toxic hazards.

24 MR. MCKINNEY: All right, thank you.

25 MR. SCHUPARRA: Kurt Schuparra with the Labor and  
26 Workforce Development Agency. Unfortunately, I have to

1 take off, and we haven't gotten to workforce training and  
2 development, but I just want to say --

3 MR. MCKINNEY: Way don't we -- Kurt, why don't you  
4 go ahead and make your statement on that, and we'll --

5 MR. SCHUPARRA: Okay. Well, my colleague, Peter  
6 Copper, who is at one of my agency's entities, the Employment  
7 Training Panel, obviously provided some edifying comments  
8 this morning on what's going --

9 MR. MCKINNEY: He didn't.

10 MR. SCHUPARRA: He didn't, okay.

11 MR. MCKINNEY: No, we hadn't gotten him to that  
12 part of the program.

13 MR. SCHUPARRA: Okay. Well, he is much better  
14 prepared to do that than I. And given that I'm pressed for  
15 time, I will cut to the chase and say that we certainly  
16 support the staff recommendation for the \$3 million.  
17 You're facing a couple of challenges in terms of workforce  
18 training right now. Well, a couple might be an  
19 understatement, but for purposes of this discussion, I would  
20 bifurcate it in this way.

21 On the one hand, we have a lot of the babyboomers  
22 who are retiring from something akin to what we're talking  
23 about here, like the utilities. And we get the utilities  
24 saying, well, we need people who got work transmission wise,  
25 and is therefore like that. Those are more traditional  
26 jobs.

1           At the same time we do need to prepare workers for  
2 job of the sort that will be needed to accommodate the goals  
3 that not only AB 118 but many other endeavors that have  
4 gotten underway over the past decade and certainly have been  
5 in place by this administration.

6           So and I would also mention that President Obama  
7 signed a workforce investment and opportunity act over the  
8 summer. This is the first -- and this was a bipartisan  
9 accident. It was something in itself to make note of, but  
10 it was just kind of a commitment to workforce training in  
11 a way that when we try to -- I forget who it was who was up  
12 before me in public comment about somebody saying we can't  
13 find the skilled workers for some of these alternative fuel  
14 projects and so forth.

15           Well, not that this will ever happen but I'd like  
16 to get to a point where we don't hear that anymore. And of  
17 course we will, but I mean we don't at least hear it very  
18 often. And so we are really focusing now on trying to train  
19 workers for skills that are in demand. And even putting  
20 them kind of on halfway with prospective employers, because  
21 we have had some problems in the past with training vast lots  
22 of people and then there is maybe one in every eight get a  
23 job, or something. And now part of that is due to changes  
24 in the economy, the new normal, whatever you want to call  
25 it.

26           But one thing is quite clear that my father's

1 employment world coming out of high school, being able to  
2 get a job in a factory, so that's a bygone era. And so you  
3 need more education more training now to tackle the jobs that  
4 are the most promising and potentially the most pay, and of  
5 course we want to prepare people not only to get jobs but  
6 to get well-paying jobs because one of the major problems  
7 we're facing right now is wage stagnation.

8           Now, granted, that's a matter of economic  
9 discussion we can go off on.

10           Many different tangents, and we could be here till  
11 the cows come home, anyway, I guess I will just conclusion  
12 by saying I appreciate the staff recommendation. At some  
13 point when we probably could talk about getting more money,  
14 but then that would mean pricing everybody else who would  
15 like to see more funds, I'm sure. And I think -- are we  
16 capped at three million for workforce in the statute?

17           MR. MCKINNEY: Not at all. And, Kurt, you know  
18 we welcome those ongoing discussions. And the concern  
19 we've had on our end is just the capacity of ETP and others  
20 to update this money.

21           MR. SCHUPARRA: Right, right. And actually I  
22 put an email into Judith -- hi. There are you. Nice to met  
23 you.

24           And to sit down with an ADTP director,  
25 Stewart -- again I put myself on the spot as I'm inclined  
26 to do. Somebody, an old guy, I can't remember his last

1 name. But he liked to come in and talk with you about  
2 utilizing of these funds. And, see, I've talked with  
3 Director Oglesby, a longtime friend of mine, going back to  
4 his ARB days, and so forth. A fellow jazz aficionado. He  
5 might tell you that some time. But so if we could arrange  
6 that.

7 MS. HOLMES-GEN: That sounds great.

8 MR. HALL: Okay, great. So, having said that, I  
9 don't understand the concerns he points that they have and  
10 provided to me and the secretary and others, so we would like  
11 to -- and Director Oglesby said let -- you've got a lot more  
12 money sitting around, we'd like to get it on the door. So  
13 I guess I will make that my closing comment. And, if  
14 anybody has anything quick, nothing will be but my answer,  
15 I'll let you ask it.

16 COMMISSIONER SCOTT: Well, thank you, Kurt, so  
17 much for also lending your expertise to the discussion. I'm  
18 sorry we got to yours right at the end, but thank you for  
19 being here.

20 Why don't we stay on the workforce training,  
21 finish that discussion, and then we'll jump back to emerging  
22 opportunities.

23 Go ahead.

24 MR. CARMICHAEL: Thank you. Tim Carmichael on  
25 the workforce training. I'm a big fan of this category. I  
26 think the projects that you fund to date are great.

1           I want to share with the Advisory Committee a  
2 story I heard this summer from a professor at American River  
3 College. It turns out that they have advanced vehicle  
4 maintenance training program where they train students  
5 about advanced vehicles and how to maintain them, how to work  
6 on them. A great program.

7           They had their natural gas portion of that program  
8 since 2002 and 2004, so a decade. They have staff. They  
9 have a lot of interest from students. What he shared with  
10 me was they are working on a 2002 CNG van a 2004 Honda Civic  
11 natural gas, his point being that they had not been able to  
12 secure funding for more modern alternative fuel vehicles to  
13 work on with their students.

14           And I know that the focus of this line item has  
15 been actual funding the specific training, but I want to  
16 encourage the CEC if you're not already able to consider a  
17 proposal for either a piece of equipment or a vehicle in this  
18 case, to enable a training program that's underway, I want  
19 to encourage you to tweak your plan to enable that, because  
20 to me that's not a big investment that could have a  
21 potentially big impact. And it seems like it's very much  
22 in line with what we're trying to accomplish with this  
23 program. It would be rather than creating a new program,  
24 supporting something that's existing.

25           And I should say that I reached out to some of my  
26 members that are automakers to see if we can secure vehicles

1 that way also, but I just want to flag that. I imagine in  
2 American River College and the story I heard this summer is  
3 not the only community college in the state that's got a  
4 similar struggle or that type of struggle.

5 MR. MCKINNEY: Great. Thank you, Tim. And I  
6 think we'd be happy to work on this category and also our  
7 natural gas funding category to get these two dots to  
8 connect.

9 Let's see, any other comments from the Committee  
10 on our Workforce Training and Development staff  
11 recommendation?

12 Any comments from the Committee members on the  
13 phone?

14 No. Anybody here in the room wish to speak to  
15 this point?

16 Okay. Let me go back to our Emerging  
17 Opportunities category. And, if I might, when I was going  
18 through my program summary presentation this morning, I  
19 don't think I mentioned some of the new awards that we've  
20 made in this, but some really innovative fuel cell truck  
21 technology demonstrations, especially in the heavy-duty  
22 sector.

23 So what we did with this fund for the most part  
24 is have State matching funds available to federal DOE awards  
25 that California firms or air districts have been able to win.  
26 So South Coast won an interesting one and we were able to

1 match that, so that's an example of the way we use this  
2 particular funding category.

3 Are there any Committee comments on this one?

4 Yeah.

5 MS. HOLMES-GEN: Isn't this where the question is  
6 appropriate on the readiness? Is that -- no, it's not here.

7 MR. MCKINNEY: No.

8 MS. HOLMES-GEN: Okay. I don't know where it is  
9 then. You tell me.

10 MR. MCKINNEY: That's because it's not on the  
11 chart anymore. No, we'll come back to that. I promise  
12 you, Bonnie, we'll --

13 MS. HOLMES-GEN: I don't know where it is.

14 MR. MCKINNEY: It's a great question. We get --

15 (Laughter.)

16 MR. MCKINNEY: We tricked you there.

17 MS. HOLMES-GEN: Oh, okay.

18 MR. MCKINNEY: Yeah. Anybody -- oh, Chris.

19 MR. SHIMODA: Yeah. This is more just a  
20 question. When is the next Emerging Opportunities  
21 solicitation going to be coming out for any of the existing  
22 funds?

23 MR. MCKINNEY: Andre?

24 MR. FREEMAN: So we're currently trying to figure  
25 that out. It's probably going to be early next year. Some  
26 of it was going to be based off of the discussion that we

1 heard today about the funding category, how much money is  
2 available. With the solicitations that we will be running  
3 early next year in a lot of these categories, we'd like to  
4 plan to have the option to utilize some of the funding that  
5 will be available if the budget passes in a timely fashion  
6 in July as well.

7           So since we do have these two different parts of  
8 the Emerging Opportunities category that we could either  
9 fund those projects that don't cleanly fit into one of the  
10 other categories or use it as a federal cost-share money,  
11 that we'll be talking about that in the next more or so to  
12 determine specifically what will be going into that  
13 solicitation.

14           I know that you come in with a couple of concepts,  
15 and we've heard from maybe a handful of other folks over the  
16 last three or so years about those type of projects that  
17 don't cleanly fit into our other categories, so we'll be  
18 requesting more information from those specific projects to  
19 see what the entire world of projects is, how much funding  
20 they're looking for, because the last thing we want to do  
21 is go out with a solicitation and really find out that it's  
22 really under subscribed, there wasn't as much interest as  
23 we thought before, so we missed an opportunity to put funding  
24 somewhere else. So we will be gathering a lot of  
25 information on that in addition to what we've already  
26 received to kind of develop the next solicitation for early

1 next year.

2 MR. MCKINNEY: Any other comments on this one,  
3 comments on the phone, comments from the public?

4 Okay, let's answer Bonnie's question. So can  
5 you -- can you put slide 28 up there, please?

6 Bye, Chris. Thank you.

7 Yeah, perfect. So if you go down to  
8 second-from-the-bottom row, that shows the funding  
9 allocations for the regional readiness plans. So this is  
10 the last two fiscal years that we funded and the proposed  
11 fiscal year in '15-'16. And the reason we are not proposing  
12 funding for that is that we had a large backlog of funding  
13 that was taking time to work through. And it seemed that  
14 we had reached capacity with the local planning entities  
15 that wanted this money and could use it.

16 We have an open solicitation right now. And kind  
17 of the last I heard is that we may be getting over subscribed,  
18 which means that the demand exceeds the funding allocation.  
19 So we are -- if that continues, we are open to revisiting  
20 this category for the next draft, but that would depend on  
21 comments from the Committee and demand or comments from  
22 possible stakeholders.

23 So does that satisfy your question?

24 MS. HOLMES-GEN: Well, no, that's -- it's  
25 helpful. It sounds like it's still open for discussion, and  
26 I'd like to find out a little more about the progress. And

1 it seems like it would be an important area to continue some  
2 funding, but obviously we also want to make sure that we have  
3 time for the projects to unfold. We don't want to push more  
4 money out that can be effectively used. So I guess it's on  
5 me and others, and we need to take a look at what's happening  
6 and see if there is additional funding, but just that seems  
7 to be a key component.

8           You know we have the vehicle incentives, we have  
9 the infrastructure funding, and then having the readiness  
10 planning still seems to be an important component to me. So  
11 I just want to make sure that we have enough help to make  
12 sure that communities keep looking on all the different  
13 aspects, whether the permit streamlining, the outreach, and  
14 communications aspects, and local leadership, engagement,  
15 local elected official, and community engagement in  
16 bringing these vehicles online, and informing their  
17 communities about the importance of this transition. So I  
18 just wanted to make sure that that project does continue  
19 forward.

20           MR. MCKINNEY: Yeah. And I think we'd be happy  
21 to sit down with you, with Leslie and Jennifer, people from  
22 the EV team, and John and myself and have this conversation  
23 with you.

24           MS. HOLMES-GEN: Okay, great.

25           MR. MCKINNEY: Thanks for raising the issue.

26           So are there any last remarks from the Committee

1 or the public on anything that we've covered today?

2 Alberto.

3 DR. AYALA: Maybe not specifically what we  
4 covered, but if I may I wanted to take a couple of minutes  
5 and invite a -- I'll call it -- a moment of reflection. And  
6 what I mean by that is over the last 24, 48 hours there's  
7 been a lot of media attention focusing on the U.S.-China  
8 announcement of an understanding, a deal on greenhouse gas  
9 emissions reductions, all leading up to an expected  
10 international commitment next year as part of the UN  
11 framework.

12 And the reason I wanted to mention this is because  
13 I think it's important for us to pause and really think about  
14 the world that we collectively play, because there are some  
15 people that want to start asking so how is this going to be  
16 done. And I think quoting our Governor, and I'm glad that  
17 you use the quote in your Plan, the place to look is  
18 California. So people are going to look to us and our  
19 collective efforts to essentially fill in the blanks in  
20 terms of how it can be done in a way that supports economic  
21 development.

22 And the reason I wanted to mention it and share  
23 it with my commitment members is because again I think your  
24 program to me is the perfect example of the type of policy  
25 innovation that I think we as a state have become known for.  
26 And this is really what people are going to be interested

1 in. And I know that California has got a standing agreement  
2 with China to collaborate on climate and the environment,  
3 but I think the announcement that just occurred, I think it's  
4 only going to highlight and put more of a spotlight on our  
5 collective efforts.

6 And, again, I wanted to just underline that  
7 because I think your program to me is a kind of perfect  
8 example that will come to mind when people start asking for  
9 details in terms of how this is going to be -- how this is  
10 going to be done. And hopefully -- we're hoping for more  
11 and an international agreement at the international level  
12 next year. But, anyway, I just wanted to make that point  
13 for you all to ponder on.

14 COMMISSIONER SCOTT: That's excellent. Thank  
15 you for those remarks. And I actually won't add too much  
16 more -- oh, do we have one on the phone? Sorry, we've got  
17 a comment on the phone.

18 MR. FREEMAN: Greg, go ahead.

19 MR. JONES: Yes. Hi. My name is Greg Jones  
20 with Pearson Fuels. We focus primarily on E85 and bulk  
21 ethanol. And this is geared toward the alternative fuel  
22 infrastructure that's not included in the proposed  
23 Investment Plan.

24 We definitely appreciate the CEC coming forward  
25 with E85 infrastructure, but we're concerned that there is  
26 almost no mention of retail E85 infrastructure in the Plan

1 and no funds allocated to support the development of the E85  
2 infrastructure. Our fear, I guess, is that the Commission  
3 may be operating with the understanding that the  
4 previously-allocated 14.6 million to build 161 E85 sites was  
5 enough to support the industry through its infancy stage.

6 And since that's a substantial number of  
7 stations, the Commission may be ready to move onto less  
8 commercially-viable fuels, since it appears E85 will be fine  
9 on its own. We have concerns and we understand that your  
10 staff also may have concerns, but at least 101 of those 161  
11 sites will never be built. This is due to a particular  
12 applicant promising large match commitments that they  
13 cannot meet and, as a result, the agreements may not have  
14 been signed by the applicant and the CEC, and they probably  
15 will never be signed.

16 If these agreements aren't signed, then we  
17 believe the E85 infrastructure category should be revisited  
18 and reinstated with the funding that was previously  
19 committed for at least 101 stations that may not be built.  
20 The CEC and ARB's research show that in the early years a  
21 substantial amount of the State's projected GHG reductions  
22 may come from biofuels, including E85.

23 And one other point that I'd like to make is due  
24 to the reasons mentioned earlier, we believe that the amount  
25 of match brought to a project should not be so heavily  
26 weighted. There are just simply too many ways to increase

1 the scope of your project that really gives the taxpayers  
2 no real benefit.

3           And, as described earlier, it motivates companies  
4 to promise match than they have in order to win, and they  
5 just figure out a way where they're going to get that match  
6 later on. It seems that this happened not only with this  
7 E85 supplier I've described but also with the projects and  
8 most likely others as well, so I just wanted to make those  
9 comments. I appreciate your time and everything you guys  
10 do.

11           COMMISSIONER SCOTT: Thanks, Greg.

12           Do we have anyone else on the phone?

13           All right. Well, so I just want to say thank you  
14 again to everyone, especially those of you who stayed for  
15 the whole meeting. I really appreciate that. All of your  
16 expertise and insight and knowledge is really helpful to us.  
17 And as we put together these plans, as we think about what  
18 we need to tweak and why, and so I really do value and  
19 appreciate the insights that you bring.

20           I heard the metrics theme. I just want folks to  
21 know, you know, I've been hearing that since I started, and  
22 we worked hard to take that on as part of the IEPR  
23 conversation. I think we've really advanced the ball from  
24 where we were on that last year. That's not to say that  
25 there might not be more that we want to consider and think  
26 about and do, but we will certainly do that.

1           And the other thing that I think the IEPR  
2 has -- the Integrated Energy Policy Report -- has given us,  
3 because we had detailed workshops on a lot of the key issues  
4 that have been raised at the Advisory Committee, we've got  
5 a lot more data, a lot more studies. We've brought in  
6 experts, many of you as well at the table to come and talk  
7 to us as well, and so we've just -- we've got a wealth of  
8 knowledge I think to continue to build on, and that's  
9 something that we want to continue to do with and for this  
10 program. And so I wanted to thank you all for that and just  
11 put in one more plug for you to take a look at that report.  
12 But do this first because this is due first. And then take  
13 a look at the IEPER and give us your thoughts and comments  
14 on that as well.

15           So thank you again. Thank you to everyone, all  
16 of our Committee members, both at the table and on the phone,  
17 and all of our interested members of the public, we really  
18 appreciate it, and onward and upward on the Alternative  
19 Renewable Fuel and Vehicle Technology Program. Thank you.

20           (The meeting was adjourned at 3:39 p.m.)

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**REPORTER'S CERTIFICATE**

I do hereby certify that the testimony in the foregoing hearing was taken at the time and place therein stated; that the testimony of said witnesses were reported by me, a certified electronic court reporter and a disinterested person, and was under my supervision thereafter transcribed into typewriting.

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A handwritten signature in black ink that reads "Susan Palmer". The signature is written in a cursive, flowing style.

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