

DOCKETED

Docket Number:	15-ALT-01
Project Title:	2016-2017 Investment Plan Update for the Alternative and Renewable Fuel and Vehicle Technology Program
TN #:	210117
Document Title:	Transcript of 01/21/16 Advisory Committee Meeting and Public Workshop
Description:	2016-2017 ARFVTP Investment Plan Update
Filer:	Cody Goldthrite
Organization:	California Energy Commission
Submitter Role:	Commission Staff
Submission Date:	2/1/2016 2:42:57 PM
Docketed Date:	2/1/2016

ADVISORY COMMITTEE MEETING AND PUBLIC WORKSHOP
BEFORE THE CALIFORNIA ENERGY COMMISSION

In the Matter of:)
) Docket No. 15-ALT-01
2016-2017 Investment Plan Update)
)

LONG BEACH CITY HALL
COUNCIL CHAMBER
333 WEST OCEAN BOULEVARD
LOS BEACH, CALIFORNIA

THURSDAY, JANUARY 21, 2016

9:30 P.M.

Reported by:
Martha Nelson

APPEARANCESCOMMISSIONERS

Janea Scott, Lead Commissioner for Transportation

COMMITTEE MEMBERS

Peter Christensen, California Air Resources Board, on behalf
of Deputy Executive Officer Alberto Ayala

Justin Ward, California Fuel Cell Partnership

Brian Goldstein, Energy Independence Now

Tyson Eckerle, Governor's Office of Business and Economic
Development (via WebEx)

Tim Carmichael, California Natural Gas Vehicle Coalition
(via WebEx)

Joy Alafia, Western Propane Gas Association (Via WebEx)

John Shears, Center for Energy Efficiency Renewable
Technologies (via WebEx)

Sekita Grant, Greenlining Institute (via WebEx)

STAFF

Jim McKinney, ARFVTP Program Manager, CEC

Jacob Orenberg, Zero-Emission Vehicle and Infrastructure
Office, CEC

John Kato, Fuels and Transportation Division, CEC

John Butler, Zero-Emission Vehicle and Infrastructure
Office, CEC

Al Estrada, Zero-Emission Vehicle and Infrastructure
Office, CEC

PUBLIC ADVISER

Alana Mathews

APPEARANCES

PUBLIC COMMENT

Woodrow Clark, Clark Strategic Partners

Mike Lewis, Pearson Fuels

Bob Therkelsen, ACE Cogeneration Company (via WebEx)

Bill Leighty (via WebEx)

Mike Levin, Fuel Cell Energy

Andy Bartosh, ABB (via WebEx)

James Halloran, Caterpillar, Inc.

James Holtz, BYD

Dedrick Roper, ChargePoint, Inc.

Mike Harrigan, Prospect Silicon Valley

Nina Babiarz, Southern California Regional Transit Training Consortium

Naveen Berry, South Coast Air Quality Management District

Michael Ippoliti, CALSTART

INDEX

PAGE

Introductions and Opening Remarks	1
Program Status Update	5
Development of 2016-2017 Investment Plan Update	32
Advisory Committee Comments and Discussion	56
Public Comments	54
Adjourn	145

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25

P R O C E E D I N G S

9:00 A.M.

LONG BEACH, CALIFORNIA, THURSDAY, JANUARY 21, 2016

(The meeting commenced at 9:41 a.m.)

COMMITTEE MEMBER SCOTT: Good morning, everyone.

This is Commissioner Janea Scott. Thank you so much for your patience. We just wanted to make sure we had everyone properly connected in and we do now, so we will get going this morning.

We are a little bit behind so I won't make too many remarks, but I do want to say thanks so much to all of our Committee Members who made it here to Long Beach. And for those of you who are participating by phone, we're glad to have you here to continue our discussion. And also to our stakeholders who have joined here in the City Hall of Long Beach.

Let's go ahead and do our introductions, and then we will go from there.

So why don't we start with you, Peter?

COMMITTEE MEMBER CHRISTENSEN: Good morning.

Peter Christensen with the Air Resources Board. I'm here on behalf of Deputy Executive Officer Alberto Ayala.

COMMITTEE MEMBER WARD: Hello. My name is Justin Ward. I'm the Chair of the California Fuel Cell

1 Partnership, and General Manager within Toyota's Advanced
2 Powertrain.

3 COMMITTEE MEMBER GOLDSTEIN: Good morning. This
4 is Brian Goldstein. I'm Executive Director of Energy
5 Independence Now.

6 MR. MCKINNEY: Jim McKinney, Program Manager for
7 the Alternative Renewable Fuel and Vehicle Funding Program
8 with the California Energy Commission.

9 MR. ORENBERG: Good morning. Jacob Orenberg,
10 Project Manager for the ARFVTP Investment Plan Update.

11 COMMITTEE MEMBER SCOTT: Yeah. Let's -- let's --
12 I didn't look far enough down the table. Let's have our new
13 Deputy Director introduce himself.

14 DEPUTY DIRECTOR KATO: It's a pleasure to be here
15 as the -- the new Deputy Director for the Fuels and
16 Transportation Division. John Kato at your service.

17 MR. BUTLER: And good morning. My name is John
18 Butler. I'm the Implementation Manager for ARFVTP.

19 MR. ESTRADA: I'm Al Estrada. I'm the Supervisor
20 of the Program Implementation Unit at Transportation
21 Division.

22 COMMITTEE MEMBER SCOTT: We've got a lot of noise
23 coming through from the background. So I'd just like to
24 remind folks if you can, please mute your phones. And we'll
25 also mute folks from this end, as well.

1 But let's -- we're going to -- right after I say
2 that, we're going to open it up so we can hear from the
3 Committee Members who are on the phone. So Advisory
4 Committee Members who are participating by phone, would you
5 please introduce yourselves? Oh, Al has asked if you would
6 please put your hand up on the WebEx. Okay.

7 Why don't we -- we will do a couple more things,
8 and then we'll come back to try to catch the Advisory
9 Committee Members who are participating by phone.

10 I would like to turn it over for just a moment to
11 our Public Adviser, Alana Matthews.

12 MS. MATTHEWS: Can everyone hear me okay? Okay.

13 Good morning. My name is Alana Matthews. I'm the
14 Public Adviser for the California Energy Commission. And
15 one of my many responsibilities, obviously, is to increase
16 the participation of the public, but it is also to lead up
17 the Diversity Initiative that we have recently started at
18 the Energy Commission, which includes the implementation of
19 a recent bill, Assembly Bill 865 that was passed into law.
20 And that bill requires the Energy Commission to establish an
21 outreach plan to increase the number of diverse business
22 enterprises, which includes disabled veteran, women-owned,
23 minority-owned businesses, LGBT-owned businesses in our
24 funding opportunities, as well as to maximize the benefits
25 of our programs in disadvantaged communities.

1 So moving forward I wanted to take this
2 opportunity to check in and share this information so that
3 the Advisory Committee Members, and then members of the
4 public who are here who are interested in participating, to
5 let me know. We want to see who we can call on as we move
6 forward with workshops. And the bill also authorizes us to
7 establish a task force to make recommendations in the energy
8 industry, which obviously includes fuels and transportation
9 areas.

10 So if anyone is interested in moving forward, we'd
11 like to see who we can partner with and talk to as we
12 prepare to implement this program. Thank you.

13 COMMITTEE MEMBER SCOTT: Great. Thank you very
14 much, Alana.

15 I will -- I'll underscore what she said. We are
16 very much looking to make sure that all Californians have an
17 opportunity to participate in transportation and the
18 transformation that we're trying to make. So we would very
19 much value your thoughts and opinions as we move forward
20 with the task force. And if you know of folks who are
21 interested, we would very much like you to recommend it to
22 them, as well.

23 I will also, since our Public Adviser has just
24 spoken, remind you that we have the blue cards. I'm sorry
25 for the folks, if you came all the way down the stairs and

1 forgot to get one, they're up at the -- at the top of the
2 room. But if you'd like to speak or to make a comment,
3 please make sure that you pick up a blue card. Alana might
4 be going to get them for you. And make sure that she gets
5 it, and that's how we'll know that you would like to make
6 public comment.

7 Let me -- it looks like they're still working on
8 the phone just a little bit. So let me turn it over to Jim
9 McKinney to -- to get us going.

10 And maybe, Jim, once you get a couple slides in
11 we'll pause and see if we can get the Committee Members to
12 introduce themselves from the phone.

13 MR. MCKINNEY: So good morning, everybody. So
14 again, Jim McKinney, Program Manager for the Alternative and
15 Renewable Fuel and Vehicle Technology Program. This is the
16 second Advisory Committee workshop, public meeting for the
17 2016-17 Investment Plan. Thanks to all of you who have come
18 here to Long Beach today. And thanks to our Committee
19 Members and stakeholders on the phone.

20 So here is our meeting agenda. So we've had our
21 Commissioner's introduction and opening remarks. And we'll
22 pause again, as the Commissioner stated, to be sure that our
23 Committee Members on the phone have a chance to introduce
24 themselves.

25 So I will do the program status report. So this

1 is a summary of what we've achieved to date with our program
2 investments. My colleague Jacob Orenberg will then walk us
3 through changes in the '16-17 Investment Plan. So we had
4 our first public draft and meeting in November. We took
5 public comments. And it's Jacob's job to incorporate those
6 and make any possible adjustments in funding.

7 Then we'll turn to the -- what we call the line-
8 by-line discussion of our funding -- recommended funding
9 allocations, and it usually starts with biofuels. The way
10 we do that is we'll have comments from Committee Members
11 present, Committee Members on the phone, public members
12 present, and then public members on the phone. And the
13 Commissioner has advised you on how to get the blue cards to
14 our -- are they going to the Public Adviser or are they
15 going to Jacob, do we know, or to Alana?

16 We'll take a lunch break and then just continue
17 going down through the funding allocations until we are
18 complete. And then if there are any last general public
19 comments, we will take those at the end of the session.

20 Let me turn now to our program status update. So
21 just a sense of scale \$100 million seems like a lot of
22 money, and then you look at the scale of our state, our
23 transportation system, the emissions and the fuel
24 consumption and it turns out not to be that much money after
25 all.

1 So a \$2 trillion-economy, eighth largest in the
2 world, severe air quality issues in the San Joaquin Air
3 Basin and South Coast Air Basin, severe nonattainment for
4 ozone, a vehicle fleet that includes over 28 million
5 passenger vehicles and 1 million trucks, and we cycle 18
6 billion gallons of fuel annually.

7 AB 8 was reauthorized, most recently in 2013. So
8 this picks up the funding program from the original bill,
9 AB118, with Pereira at the helm there -- I'm sorry, with
10 Assemblyman Nunez who sponsored and carried that through.

11 So this -- these revenues come from a small
12 surcharge on everybody's vehicle registration fee. It's
13 \$3.00 to \$4.00 depending on the value of your vehicle. One
14 hundred -- up to \$100 million comes to us at the California
15 Energy Commission. Another \$30 million, sometimes \$40
16 million goes to our colleagues at the Air Resources Board.
17 So Peter Christensen is here representing the Air Board.
18 And that is used for AQIP, or the Air Quality Improvement
19 Program suite of incentive programs that they manage.

20 And the -- the directions from the legislature
21 were broad, they didn't give us an instruction manual,
22 transform California's market to meet our climate policy
23 goals.

24 So here are the key policies and regulations that
25 guide our programs. So first and foremost, we are a carbon

1 reduction program, in contrast to the Air Board's AQIP where
2 they really have an air quality improvement focus.

3 AB 32 set the initial targets, so about 30 percent
4 reduction by 2020, the 80 percent by 2050. And Governor
5 Brown has introduced an interim goal of 40 percent by 2030.
6 Reduce petroleum. Help with the Low Carbon Fuel Standard.
7 Contribute to Federal Renewable Fuel Policy.

8 Air quality; this is becoming an increasingly
9 important driver for our program, as well. So to meet
10 the -- the current Federal Clean Air Act NOx levels, we're
11 looking at up to an 80 percent reduction from today's
12 current baseline in NOx reductions from the transportation
13 sector. So this is why the work that we all do here is so,
14 so very important.

15 Governor Brown's ZEV mandates action plan targets
16 support 1 million EVs by 2020, and then 1-and-a-half million
17 by 2025. And most recently the Sustainable Freight
18 Initiative to improve freight efficiency and transition to
19 the ZEV technologies, and increase economic competitiveness
20 in California's ports and freight transport systems.

21 So this slide shows how we implement the program.
22 So again, we are now, as the Advisory Committee Investment
23 Plan level, this is how we set the funding allocations.
24 Those then go to the solicitation level where Commission
25 Staff write the detailed solicitations or General Fund

1 offers that we do now.

2 You can see here the recent AB 8 criteria for
3 benefit cost score for greenhouse gases. That is tied in at
4 the solicitation level.

5 We receive proposals. We review, rank, score
6 them, and then offer awards. Those then go -- are
7 translated to specific agreements or contracts with each
8 individual technology provider. We then go through our --

9 MR. BUTLER: Sorry. Just a little closer to the
10 microphone.

11 MR. MCKINNEY: Oh, thanks.

12 MR. BUTLER: They can't hear you.

13 MR. MCKINNEY: Okay. Thank you, John.

14 Check, check; is that better? Can people here me
15 better? Okay.

16 Let's see, so then we go through the agreement
17 management phase. That typically is about a four-year
18 process. We monitor that with surveys and data collection,
19 and that rolls into the benefits report. So this is an
20 annual tabulation of the reductions, benefit reductions and
21 greenhouse gases criteria emissions, job creation, public
22 health benefits, and some other factors.

23 Is that better, guys? Thank you.

24 So since our last meeting we continue to allocate
25 money in the awards program. We are now past the \$600

1 million for total investments over nearly 550 projects. And
2 this year is a general categorization by fuel category. So
3 biofuels is getting about a quarter of the funding.
4 Electric drive is about one-third of our funding. Natural
5 gas, 16 percent. Hydrogen, 19 percent. Workforce
6 development at four percent. And then what we call market
7 and program development or technology support activities at
8 about two percent.

9 This bar chart shows our funding allocations in
10 more detail. So you can see for fuel production, on the
11 left, the red part of that is biodiesel production, the
12 light blue is biomethane, and then the yellow or gold is
13 ethanol E85, so that's for fuel production.

14 Fueling infrastructure; you can see that electric
15 drive is in green, E85 ethanol retail is in the yellow. The
16 blue area there is the hydrogen fueling allocations. And
17 the purple is natural gas fueling stations.

18 On the vehicle side, electric drive investments
19 predominate, that again is in green, a little bit in
20 hydrogen, primarily in the truck and bus sector, and then
21 natural gas trucks.

22 The manufacturing tends to all go to electric
23 drive technologies, and those range from component
24 development to -- now, I can hear myself. Okay.

25 So are we getting an echo all through the system?

1 So again, manufacturing, that all tends to
2 electric drive, and now vehicles and key components in the
3 ZEV truck sector.

4 This slide shows the geographic distribution of
5 our funds by air district. So we you can see we have the
6 key air districts here, Bay Area, Monterey, Sacramento,
7 Santa Barbara, San Diego, San Joaquin, South Coast, Ventura,
8 Yolo-Solano. Then the smaller districts are in other
9 Northern California. Southern California, the same. And
10 then we have a series of grants at the statewide level where
11 they're literally spread across the state. So those are
12 some of the earlier, say charge point grants for electric
13 vehicles, supply equipment or chargers, the E85 Ethanol
14 Grants.

15 The two columns on the right show the percent
16 total of funding distribution compared to the percentage of
17 state population. So we'd like optimally for those to match
18 up. But as my friend and colleague at the South Coast Air
19 Quality District, Dr. Matt Miyasato, likes to say, "Jim
20 we've got 44 percent of the population and we ain't getting
21 that much money." So everybody else is more or less on
22 track.

23 I want to turn now to kind of the program-specific
24 sectors. I'm going to start with electric vehicle
25 infrastructure support.

1 So we've crossed the \$40 million threshold now in
2 our charger funding. You can see here on the chart we
3 started out with a focus on single-family residential
4 dwellings. We've since discontinued that because we think
5 the private market is picking that up. And many consumers
6 are really using level-one chargers at home as they get
7 started with their vehicles.

8 Multi-unit dwelling is a serious challenge for us.
9 And we're putting a lot of effort and money into trying to
10 make this an affordable and attractive investment
11 opportunity for building owners and the charger companies.
12 So we've almost got 240 of those.

13 Commercial denotes the public chargers, you know,
14 so at the malls and things such as that, 2,800 funded to
15 date.

16 Workplace charging; we're finding we get a very
17 good return on investment for our workplace investments.
18 Silicon Valley and some of the bigger Southern California
19 companies have really demonstrated their commitment to
20 electric vehicles. They're putting in really large numbers
21 of chargers. And the data show a nice little blip in the
22 local sales data when big banks of workplace chargers go in.

23 Then DC fast chargers, so these are the level 3,
24 480-volt chargers that can top off a battery in 20 to 30
25 minutes. So we are up to 120. So in total, about 7,500

1 chargers that we've co-funded.

2 We've now done 34 Regional Readiness Plans. And
3 this is a governance building support function to regional
4 governments. And we really believe from the Sacramento
5 perspective, it makes a lot of sense to tap the local
6 expertise and wisdom of the regional metropolitan transit
7 agencies and others that work in this field. So we've done
8 34 of those thus far.

9 And then last, our CPCFA Loan Loss Reserve
10 Program, this was a pilot program. We get a lot of
11 encouragement to do alternative financing. So this is --
12 we're putting up the money for loan loss reserves. And this
13 program has just gotten going in the last year.

14 For EV sales through December of last year, we hit
15 the 170,000 mark. So we now are accounting for 42 percent
16 of all the EV and plug-in sales at the national level. So
17 we continue our leadership role in encouraging consumers to
18 adopt electric vehicles. And that accounts or equates to
19 about 2.8 percent of new car sales. I think the goal is
20 six -- six percent of new car sales.

21 This map shows the current and planned fast
22 charger arrays that we have in California. So obviously you
23 start with clusters around the major urban areas, San Diego
24 and Los Angeles, San Francisco, Bay Area, a little bit in
25 Sacramento, and San Luis. Most recently we did the North-

1 South Fast Charger Corridors. So we want to complete the
2 West Coast Electric Highway. And then we'll be
3 complementing that with an east-west corridor so we can
4 enable people to up 50, 80 in Southern California, across
5 the 10 and the 15 into Arizona.

6 Following are a couple pictures of some recent
7 installations. So these are level 2 NDC (phonetic) fast
8 chargers at the Cal State University of Fresno campus.

9 This is a series of eight chargers we did
10 curbside. So this is a new innovation. We'll see how the
11 public reacts to these curbside chargers. There, that was
12 \$163,000 grant.

13 With the Kaiser Foundation we did a grant for 50
14 chargers across ten campuses -- no, five campuses. And this
15 was the grand opening at the Woodland Hills Area.

16 And in terms of solicitations, so the DC fast
17 charger was released -- that solicitation was release in
18 July, and proposal review continues now.

19 Upcoming solicitations; so we have \$15 million to
20 allocate. So we'll have the East-West DC Fast Charger
21 solicitation that I mentioned, and then also our general EV
22 installations.

23 Regional readiness and planning; so \$1.2 million
24 for seven awards, and then we've got about \$2 million coming
25 up.

1 Turning now to hydrogen, and I'm very pleased to
2 have Justin Ward here from Toyota. He's been spending a lot
3 of time in Japan. So it's good to have him here back on our
4 Advisory Committee.

5 So to date we passed the \$100 million mark
6 recently on our investments, so about almost \$80 million for
7 stations, so 49 total stations that we've funded. This
8 includes a grant to the South Coast AQMD to manage four
9 station upgrades down there, and that's what that refers to,
10 a \$6.7 million grant.

11 We're now up to 44 grants for our operation and
12 maintenance. And as I'll talk a little bit later, this is a
13 critical funding support as these stations get up and
14 running but are still really waiting for the cars to come to
15 California.

16 We have a mobile refueler that we've done as well.
17 And then other funding activities, I'll let you read those
18 for yourself. But these are actually really important
19 support activities. So especially the work that the
20 California Department of Food and Agriculture is doing,
21 Division of Weights and Measures, so they're setting the
22 regulatory standards to allow us to sell hydrogen as a motor
23 fuel in California. And they were really leading the -- the
24 nation with that body of work.

25 High Step is device developed -- it was jointly

1 funded with California and department -- U.S. Department of
2 Energy. And this is going to confirm hydrogen station
3 operations to meet the SAE standards that they have to
4 comply with.

5 So here's the current status of the 49 stations
6 that we've funded. So this is a little different from what
7 you'll see from Tyson Eckerle and some others who talk about
8 this in more detail.

9 So our -- our benchmark goal is to get the
10 stations operational. And it turns out there are another
11 series of steps you have to do to make it go from
12 operational to open for retail business. But on the
13 operational front, we're now at 13 that are operational, 12
14 in construction. Nine have approvals to build or planning
15 approval. Another six are in the permitting queue. And
16 then another nine, sadly, because some of these are old
17 money grants, are still earlier in the planning process.

18 So this map here shows the funded stations in
19 Northern California around the San Francisco Bay Area. The
20 yellow dots denote stations that are in development phase.
21 Green are the ones that are open. So we now have three in
22 Northern California, South San Francisco, Emeryville, and
23 then West Sacramento -- I'm sorry, and then San Jose just
24 opened very recently. So a lot of focus in the Silicon
25 Valley Area. We think that will be a very strong early

1 adopter market, as well as the East Bay, and then San
2 Francisco Proper.

3 In Los Angeles, the Greater Los Angeles Area, this
4 has been the initial focus for hydrogen station development,
5 so again, quite a few more green dots there, I think
6 including -- I think the Long Beach -- yeah, the Long Beach
7 station is open. And then you can see the yellow dots. So
8 we're focusing really on the L.A., Santa Monica, kind of
9 Long Beach corridors along the 405, Orange County, and then
10 some sprinklings throughout the rest of the basin.

11 Here is Commissioner Scott at the grand opening of
12 the South Coast AQMD station earlier this spring. And then
13 several of us were there yesterday as the High Step device
14 was used to test that particular dispenser.

15 This is a series of photographs from First
16 Element. So First Element represents a new business model
17 with hydrogen station development. They're an aggregator as
18 opposed to an industrial gas company, and they have
19 investment from Toyota, so it's a very new way of doing
20 business. And they literally work around the clock. They
21 have a grant for 19 stations. And you can see these, Long
22 Beach, Costa Mesa, and then Coalinga.

23 And people are working actively now. The Hyundai
24 Tucson has been available in California for over a year.
25 The Murah (phonetic) was just released late November,

1 December. And so we are working to support that deployment
2 though, again, getting the stations that are operational to
3 the open-for-retail business status, and then fuel quality,
4 making sure the credit card readers work and other minor
5 things that turn out to be really, really important.

6 The next hydrogen solicitation we're expecting the
7 first quarter of this year. We held a workshop in the
8 summer. We'll have 17 million available for that. And the
9 Staff activities includes ongoing support for local
10 government as projects go through the permitting process.

11 So before I go to ZEV and near-ZEV trucks,
12 Commissioner, is this a good time to have the rest of our
13 Committee Members introduce themselves?

14 COMMITTEE MEMBER SCOTT: Sure. That would be
15 terrific.

16 So I think we are ready for the Advisory Committee
17 Members who are on the WebEx to please introduce themselves.

18 MR. BUTLER: So we're going to go one at a time.

19 And Eileen Tutt?

20 COMMITTEE MEMBER TUTT: Hi. Yeah, this is Eileen
21 Tutt. I'm with the California Electric Transportation
22 Coalition.

23 MR. BUTLER: Thank you.

24 Tyson?

25 COMMITTEE MEMBER ECKERLE: Yeah. This is Tyson

1 Eckerle with the Governor's Office of Business and Economic
2 Development.

3 MR. BUTLER: Thank you, Tyson.

4 Now we're going to go ahead and unmute the lines.
5 Go ahead and unmute all please.

6 (Loud WebEx background noise.)

7 MR. BUTLER: If we can get everybody on WebEx to
8 go ahead and mute their side, we have a couple of Committee
9 Members that have called in that we can't identify on the
10 WebEx. So we're trying -- if you can mute your end we can
11 unmute everybody, have them speak and we'll be able to
12 identify them this one time. So if you can mute your lines
13 on the WebEx right now, it would be appreciated. Thank you.

14 MR. BUTLER: So if we can get Tim Carmichael
15 perhaps to speak?

16 (Loud WebEx background noise.)

17 COMMITTEE MEMBER CARMICHAEL: This is Tim
18 Carmichael. (Indiscernible.)

19 MR. BUTLER: Thank you, Tim. We have -- now have
20 you identified as a user. So thank you, Tim.

21 Go ahead and unmute User 30. Okay.

22 Go ahead, Tim. We can hear you now.

23 COMMITTEE MEMBER CARMICHAEL: Thank you very much.

24 Tim Carmichael with the California Natural Gas Vehicle
25 Coalition. Sorry I wasn't able to be there in person today.

1 MR. BUTLER: No problem. Thank you, Tim.

2 And then we have one more Committee Member that
3 we've identified online, and that's Joy. And again, we're
4 going to have to unmute all.

5 So, Joy, if -- once we unmute everybody if you can
6 go ahead and speak, hopefully we can identify you through
7 the WebEx. So --

8 (Loud WebEx background noise.)

9 COMMITTEE MEMBER ALAFIA: Good morning, everyone.
10 Joy Alafio with the Western Propane Gas Association. And I
11 regret not being there (indiscernible).

12 Can you hear me okay?

13 MR. BUTLER: And then unmute Counsel, please.

14 Thank you, Joy. We now have you identified.

15 So if you can go ahead and unmute Joy one more
16 time, because there was a lot of background noise for us,
17 we'll let you introduce yourself again.

18 COMMITTEE MEMBER ALAFIA: Appreciate being able to
19 participate through the WebEx.

20 MR. BUTLER: Sure. We can hear you now, Joy.
21 Thank you. Did you want to go ahead and introduce yourself
22 again, Joy?

23 COMMITTEE MEMBER ALAFIA: Oh, sorry. Can you hear
24 me okay?

25 MR. BUTLER: Yes, we can. Thank you.

1 COMMITTEE MEMBER ALAFIA: Okay. Third time is a
2 charm. Joy Alafio with the Western Propane Gas Association.
3 I regret not being able to be there in person but appreciate
4 being able to participate through WebEx.

5 MR. BUTLER: Fantastic. Thank you.

6 So those are all the Committee Members that we can
7 identify that are online. If there are any other Committee
8 Members that are online, if you can raise your hand, that
9 would be great. That would help us identify you. And I
10 appreciate everybody's patience through this.

11 COMMITTEE MEMBER SCOTT: Thank you very much. And
12 I'd like to say hello and welcome to all of our Committee
13 Members who are joining us by WebEx or by phone. And to
14 underscore one more time what John said, if you could raise
15 your hand so that instead of User 1, User 2, User 3, User 4,
16 we can -- we can -- we'll know which -- which person you are
17 and that way we can pull you up so that we can hear you
18 above the -- the background noise.

19 And let's see, let me turn it back over to Jim
20 McKinney.

21 MR. MCKINNEY: Great. Thank you, Commissioner.

22 I want to turn now to ZEV and the near-ZEV trucks
23 or zero-emission and near zero-emission trucks. So this is
24 an increasingly important part of our funding program. And I
25 talked about the Sustainable Freight Initiative earlier. So

1 a little over a third, about almost \$250 million is going to
2 this.

3 First here, commercial natural gas trucks. So
4 traditionally ARB through CVRP and HFIP (phonetic) handles
5 Commercial Deployment Incentive Grants. They don't cover
6 natural gas, so we cover that. We've put 2,400 trucks on
7 the road thus far. Please don't divide 67 by 2,400, it will
8 be a gross number. This indicates the number we have
9 allocated to UC Irvine for the next couple of rounds of
10 deployment opportunities.

11 Natural gas fueling infrastructure; we're now up
12 to 65 stations, and I think 5 of those are dedicated
13 renewable natural gas stations.

14 Commercial propane trucks, we used to fund. But
15 given the relatively low carbon reduction performance, we've
16 discontinued that.

17 Commercial ZEV trucks, again this was from earlier
18 in our program, we were quite pleased to co-fund the EVI UPS
19 100 Truck Deployment Project. We're not in Sacramento, but
20 that nice brown electric truck continues to make the rounds
21 in front of our building every day. It's working quite
22 well. And that was a joint funding initiative with South
23 Coast-San Joaquin Air Districts, and then ARB and ourselves,
24 and USEPA.

25 And as you can see, the bulk of our money, nearly

1 \$150 million, is in technology development. And there is so
2 much technology development work that has to be done in this
3 space to continue to prove the technologies, get them field
4 tested, get them into production, and then finally to push
5 the costs the down so we can have the commercial fleets
6 start to pick those trucks up.

7 So we just released a \$17-million solicitation
8 with the focus on transportation projects at California
9 seaports. That also includes technology demonstrations,
10 intelligent transportation systems, and then natural gas
11 vehicle incentives. Natural gas truck vouchers; so
12 University of California Irvine is our contract
13 administrator for that. And then we'll have another
14 solicitation for natural gas fueling stations in the second
15 or third quarter of this year.

16 Here are a few examples of projects that we've
17 funded that have now come into completion. So EPRI and
18 Valley Power, so these are five utility work trucks that
19 have been retrofit to plug-in electric drive.

20 TransPower is one of California's leading
21 technology developers for Class 8 electrification. And you
22 can see here the South Coast catenary truck with the
23 pantograph. This was kind of early in the demonstration
24 phase. And this is another example of the very strong
25 collaborative working relationship we have with the South

1 Coast Air Quality Management District.

2 Motive is a Silicon Valley startup company and
3 they do electric drivetrains and controllers that they can
4 put in pretty much anything. This is an electric school bus
5 demonstration in the Kings Canyon Unified School District.

6 More recently at the Lompoc Unified School
7 District, here's a recent CNG station. And you can see a
8 relatively modest \$300,000 grant from the state is
9 supporting a new station that can support 15 CNG school
10 buses. So interestingly, the California school bus fleet is
11 one of the older and dirtiest fleets in the country. So
12 when we enable the fuel switch to natural gas we're really
13 getting a lot of particulates and NOx emissions away from
14 the young lungs there and the sensitive receptors. So this
15 just came online in November of this year.

16 Our last Advisory Committee meeting in Sacramento
17 we had an exciting presentation from Cummins Westport. This
18 is the -- what we call the low-NOx natural gas engine, co-
19 funded with our research division, South Coast AQMD, and I
20 think the Air Resources Board. This is the first truck-
21 scale natural gas motor that can meet the new optional
22 regulatory standards of .02 grams per brake horsepower hour,
23 NOx PM at .01. This is -- this is quite -- quite an
24 achievement. When you hook an engine like this up and you
25 blend renewable natural gas you get carbon and environmental

1 performance that is on par with electric diver and fuel cell
2 electric drive trucks.

3 So we -- we need a lot more biogas in the system
4 to make that -- that reality for carbon emissions. But
5 we're very excited that this company has put this engine
6 into the market.

7 I'm going to turn now to biofuels. So about \$50
8 million in dedicated biogas funding, about half of that, \$25
9 million for ethanol, a little bit in cellulosic and
10 renewable gasoline. And you can see biodiesel is another
11 kind of large element of our funding program, and then
12 renewable diesel.

13 Most recently we had a notice of proposed award
14 for four early and pre-commercial projects. These were two
15 green gasoline and then two algae feedstock demonstration
16 projects. And we have another large solicitation coming up
17 later this quarter.

18 Again, a series of photographs highlighting
19 projects that have been completed. So North State Rendering
20 up in Oroville, one of the first companies to introduce
21 anaerobic digestion for larger animals and body parts. So a
22 half-a-million dollar grant, 370,000 diesel-equivalent
23 outputs. And they're going to use this RNG for their truck
24 fleet.

25 Springboard Biodiesel in Chico, \$750,000 grant,

1 350,000 in annual diesel gallon equivalents. One thing I
2 learned about this company is that this technology has
3 actually been introduced into Afghanistan to support the
4 non-tactical part of the fleet for the U.S. and coalition
5 forces there. So it's really good to see how technology
6 development in California can be disseminated through the
7 military into other parts of the world.

8 New Leaf Biodiesel [sic] in San Diego, so you
9 know, San Diego is a big tourist restaurant, lots of great
10 restaurants, so lots of used cooking oil. So New Leaf is
11 one of the companies that has figured out how to convert
12 that to biodiesel with 100 percent renewable feed stock
13 there in San Diego. So they've been a good job creator and
14 that's a good project. So 5 million gallons per year
15 production -- production level for that. So we got a very
16 good return on our state investment.

17 Then Pixley Biogas in the southern San Joaquin
18 Valley, they use a lot of natural gas to fire their boilers
19 for the corn ethanol. So by introducing biogas from a dairy
20 digester they were able to back out some of the natural gas
21 that you need for that fuel and push down the carbon
22 intensity. So they now have the lowest carbon intensity
23 ethanol. It's still corn -- corn-based feedstock, but it's
24 the lowest of the big three companies here in California.

25 Turning to workforce development and training,

1 this is a very important part of our program. So as you can
2 see we provided funding for almost 15,000 technicians and
3 workers. So as, you know, as the demographics shift and the
4 baby boomers start to retire, we need a whole new generation
5 of technicians and mechanics that can operate and maintain
6 these technologies.

7 I'm going to give you a little summary of our
8 recent program activities. So one, program diversity, so
9 this reflects, I think recent legislation and an initiative
10 from our -- our Commissioners, fairness, diversity of ideas,
11 inclusion, job creation, and diversity in needs. And I
12 think we're going to hear more about that from our Public
13 Adviser.

14 In 2014, John Butler, my colleague and co-manager,
15 led a series of outreach workshops up and down California.
16 And I imagine we'll see more -- more efforts like that.

17 Now a brief summary of our other program
18 activities. So the benefits report, this is something the
19 legislature requires of us. So this was updated this year
20 and included in our 2015 Integrated Energy Policy Report.

21 3103 is the funding restrictions for our program,
22 program eligibility. So Tim Olson of our team led a
23 rulemaking and revision of those regulations. That was
24 completed in October.

25 Tim and others on our Staff are also leading the

1 Technology Merit Review. We've think of this as an AMR or
2 Annual Merit Review as conducted by U.S. Department of
3 Energy, AMR lite. So we're doing a series of in-depth
4 technology assessments and market assessments in
5 collaboration with the University of California at Davis.
6 So we've done them for biofuels and medium- and heavy-duty
7 vehicles. And we have one more coming up on EV chargers.

8 The Sustainable Freight Initiative, Andre Freeman
9 of our Staff is our lead Staff for that. I think Rhetta
10 DeMesa is leading the Commissioner's effort on that project.
11 So a big, big policy focus for all of us right now.

12 And then last, AB 8. And I'm going to -- got a
13 few slides talking about this. So in the very end of
14 December we released the AB 8 Joint Agency Report which is
15 an assessment of time and costs needed to attain 100
16 hydrogen refueling stations in California. This is required
17 by the AB 8 legislation. The California Air Resources Board
18 has done two reports thus far. And then we were tasked with
19 looking at the economics and the timing on this. National
20 Renewable Energy Laboratory, Dr. Marc Melaina was our lead
21 technology support team on this.

22 So some of the key findings, we are anticipating
23 that 50 stations will be open by the end of 2016 with enough
24 fueling capacity for 10,000 fuel cell electric vehicles. In
25 the 2021 -- yeah, 2020-2021 timeframe the ARB survey

1 indicates we could have up to 34,000 fuel cell vehicles in
2 that time period. At the current rate at which we're
3 funding stations we would not keep up with that fuel demand,
4 so ongoing -- demonstrating the critical need for ongoing
5 state financial support.

6 NREL did a series of scenarios. So as expected,
7 this tracks with what the Air Board did with their survey.
8 Robust; we accelerated vehicle deployment by one year. And
9 then delayed; this is kind of the worst case scenario, we
10 retarded vehicle deployment by four years to see what would
11 happen. For the expected we think it will take \$160 million
12 in total ARFVTP funding to hit the 100 station mark in 2020.

13 That would be nearly a 20,000 kilogram capacity system.
14 Market value of the hydrogen could range from \$80 million to
15 \$400 million in the 2021-2025 timeframe.

16 The robust scenario, again, accelerating
17 deployment by a year. Again, 100 stations by 2020 but a
18 much larger system, 26,000 kilogram system level. The
19 market value of those sales could range from 100 million to
20 800 million in fuel sales by 2025. And we think this is a
21 really important quantification of the potential size of the
22 California market, because at some point we need to begin
23 this transition from very robust public and state support to
24 more aggressive private investment.

25 The delayed scenario, we would hit 120 stations in

1 2024. It would take \$170 million in ARFVTP funding. I
2 think most significantly, this would be a much smaller
3 system. And it's questionable whether those station
4 developers would ever recoup their initial investments.

5 Current costs for hydrogen refueling stations
6 range from \$2.1 million to over \$3 million per station, but
7 these could decline by up to 50 percent in 2025 if global
8 development in Asia and Europe continues. A lot of people
9 like to say that's a heck of a lot of money for a station,
10 and they're right because it is. Let's just remember that a
11 hydrogen fueling station, 180 kilogram station can service
12 about 200 cars a day. And a 350 kilogram station can cover
13 almost twice that. So it's not quite an apples-to-apples
14 comparison with EV charging infrastructure.

15 It's hard to see. The figure in the lower right
16 shows what we call station utilization rates. This is the
17 sobering slide because we're going to be at the 10 and 20
18 percent use level for the early years, and we're not going
19 to hit 75 percent for another ten years. So this means that
20 station developers are not going to have a lot of throughput
21 volume, a lot of, you know, hydrogen sales to recoup those
22 initial investments early on, so again demonstrating the
23 need for ongoing public support.

24 Station development time, this is the good news
25 part of the story, it has decreased radically from 2009, so

1 it was averaging nearly five years to develop a station
2 then. And for the six stations that are operational the
3 development time is 1.6 years. And First Element, again,
4 has been the -- kind of the rabbit out of the gate, and
5 they've even done it more quickly than that.

6 That concludes my presentation. I'm going to turn
7 it over to my colleague Jacob Orenberg.

8 Before I do that I want to ask Advisory Committee
9 Members if they have any clarifying questions on the
10 presentation I've given. We'll have, you know, more comment
11 or substantive comments during the Committee discussion of
12 the Investment Plan.

13 COMMITTEE MEMBER SCOTT: Can we just double check
14 on our phone line whether there's any clarifying questions
15 for Jim from Eileen, Tyson, Tim or Joy? Okay.

16 We're not seeing any hands raised, so we will
17 continue on with Jacob.

18 If there are other Advisory Committee Members on
19 the phone that we weren't able to find or identify, if you
20 would shoot maybe an email to me or to Jim or to Jacob, we
21 can work again with the phone lines to try and identify you
22 and make sure that you are properly recognized.

23 Before Jacob gets going I'll just remind folks, if
24 you'd like to make a public comment we've got the blue
25 cards. I think the Adviser brought some down here with her,

1 but that's the -- that how you let us know that you'd like
2 to make a comment.

3 And for the folks on the phone, if you could
4 send -- raise your hand or send a little note in the chat
5 box so that our WebEx operators know, that would be very
6 helpful.

7 Go ahead, Jacob.

8 MR. ORENBERG: Great. Thank you. Good morning,
9 everyone. My name is Jacob Orenberg and I am the project
10 manager for the 2016-2017 Investment Plan Update for the
11 Alternative and Renewable Fuel and Vehicle Technology
12 Program. I want to thank you all for participating in our
13 workshop today, both in person and remotely, to provide your
14 input to guide the development of this program.

15 I do have one announcement. We do need to vacate
16 this room by 3:30 p.m. So we will have a hard end time of
17 3:20 p.m. for this workshop.

18 Also, for those of you joining us through WebEx or
19 phone, we do ask that you mute your phone or computer
20 microphone because we are getting quite a bit of
21 interference when we open up the phone lines for comment.
22 We will announce when we are accepting public comments, and
23 at that time you can unmute if you have a comment. Thank
24 you.

25 This Annual Investment Plan Update serves as the

1 basis for all ARFVTP solicitations, agreements and other
2 funding opportunities for each fiscal year. The plan we are
3 discussing today covers Fiscal Year 2016-2017 which begins
4 on July 1st. When developing this year's Investment Plan we
5 assume that the ARFVTP will receive the full allocation of
6 \$100 million to support a broad portfolio of fuels and
7 technologies that help meet the policy goals of the program.

8 I do want to note that the allocations described
9 in the Investment Plan and during this workshop are for
10 general project categories, not individual projects. And we
11 won't be considering individual projects or solicitations in
12 this workshop.

13 This schedule summarizes the major milestones in
14 the development of the 2016-2017 Investment Plan Update. We
15 released the Draft Staff Report on October 22nd, and held
16 the first Advisory Committee workshop on November 6th. On
17 January 7th we released the Revised Staff Report. And today
18 we're holding our second and final Advisory Committee
19 workshop for this Investment Plan cycle. Next we expect to
20 release the Lead Commission Report in March 2016. And
21 finally, we anticipate business meeting approval of the
22 final document in April.

23 There are a few key considerations worth
24 mentioning which are new for this Investment Plan Update
25 which I will briefly summarize now.

1 The first is the upcoming California Sustainable
2 Freight Action Plan which is a joint effort among several
3 state agencies to improve the California freight system. We
4 expect that this program will have a significant role in
5 carrying out the action plan.

6 The Low Carbon Fuel Standard was also readopted in
7 September and this updated many of the carbon intensity
8 values for fuels we deal with. One of the most notable
9 updates was to the carbon intensity of fossil natural gas
10 which is now quite a bit higher than previously assumed. In
11 addition, the first low-NOx engine for natural gas trucks
12 was certified by ARB in September. These engines reduce
13 emissions of nitric oxides by 90 percent below the current
14 standard for diesel engines and are expected to contribute
15 toward achieving ambient air quality standards in
16 nonattainment areas once deployed.

17 Finally, the 2015 Annual Evaluation of Fuel Cell,
18 Electric Vehicle Deployment and Hydrogen Fuel Station
19 Network Development Report was released earlier in 2015 by
20 ARB. And the Joint Agency Staff Report on Assembly Bill 8
21 was released by the Energy Commission in December. These
22 reports provide guidance for the continued development and
23 deployment of hydrogen stations, and assess the development
24 of the stations which have already been funded.

25 We've made several changes in the Revised Staff

1 Report compared to the Draft Staff Report which we released
2 in October. The narrative for funding category now
3 discusses the most recent completed solicitation, including
4 the amount and number of projects funded, as well as the
5 oversubscription rate, if applicable. All of the program
6 statistics have been updated to include data through the end
7 of 2015, showing a modest increase to \$606 million over 545
8 projects. In addition, we've expanded the discussion in
9 several sections of the report based on input from the
10 previous Advisory Committee meeting which I will explain,
11 along with each specific allocation. And in Chapter 2 there
12 is a new section which discusses program metrics which I'll
13 review in a few slides.

14 This slide provides an overview of the structure
15 of the Investment Plan. As you can see, the program covers
16 nearly the entire supply chain for alternative fuels from
17 production to distribution infrastructure to vehicles. The
18 remainder of this presentation will follow this structure,
19 as well.

20 The table on this slide was added to the Revised
21 Staff Report based on input from our last Advisory Committee
22 workshop. It shows the cumulative awards and number of
23 projects by fuel type. And I'd like to review each of these
24 to explain what is behind these numbers.

25 The first line for biomethane is straightforward

1 as it is entirely for fuel production infrastructure.

2 The next one for ethanol breaks down as
3 approximately \$21 million for fuel production
4 infrastructure, \$6 million for production incentives, \$13.7
5 million for E85 stations, and \$2.7 million for E84 medium-
6 duty vehicle demonstrations.

7 The biodiesel line is primarily for fuel
8 production infrastructure, with the exception of \$4 million
9 for upstream distribution infrastructure, while the
10 renewable diesel funding is entirely for fuel production
11 infrastructure.

12 Moving on to electricity, this fuel type received
13 funding from numerous Investment Plan allocations. Electric
14 vehicle infrastructure, which is to say EV chargers,
15 accounts for 47 -- I'm sorry, \$40.7 million of this \$199
16 million. The electricity line item also includes \$5 million
17 for Regional Readiness Plans, and \$29.1 million for electric
18 vehicle deployment with ARB's Clean Vehicle Rebate Project
19 and the Hybrid Truck and Bus Voucher Incentive Project.

20 Now the two largest contributors to electricity
21 funding were from medium- and heavy-duty vehicle
22 demonstrations and manufacturing, which account for \$67.5
23 million and \$57 million, respectively. Both of these
24 categories were open to multiple fuel types, though
25 electricity accounted for the majority of the applications

1 and the projects.

2 Hydrogen is another fuel type which has received a
3 sizable amount of funding comprised of \$83.5 million in
4 fueling infrastructure, \$12.5 million in operations and
5 maintenance funding, \$12.2 million for medium- and heavy-
6 duty vehicle demonstrations, and \$4.7 million for fuel
7 standards, development and regional readiness planning.

8 Natural Gas consists of \$21 million in funding for
9 fueling infrastructure and \$68.3 million for vehicles, while
10 all \$6 million in propane funding has gone toward vehicles.

11 Finally, that last slide for multiple and other
12 includes projects that support more than one fuel type or
13 which cannot be readily attributed to one specific fuel
14 type.

15 Another addition to the Revised Staff Report is a
16 discussion in Chapter 2 about program metrics. This new
17 section summarizes the direction given to the ARFVTP in
18 statute and reiterates much of the discussion on program
19 metrics from the 2014 Integrated Energy Policy Report.
20 Notably, the metrics are applied during the solicitation
21 process through weighted scoring factors, rather than while
22 determining Investment Plan allocations. This is done
23 because the ARFVTP has a directive to not adopt any one
24 preferred fuel type or technology type. Applying cost
25 metrics equally across all project types would lead to a

1 preference for near-term and commercialized projects while
2 neglecting other project types that provide different yet
3 very important benefits, such as long-term or market
4 transformation benefits.

5 Moving on from the context of the ARFVTP, the
6 first Investment Plan allocation is biofuel production and
7 supply. The program defines biofuels as non-petroleum
8 diesel and gasoline substitutes, as well as biomethane. We
9 have a sizable allocation for biofuels because of their
10 large near-term potential to reduce greenhouse gas emissions
11 and petroleum use. And this ties in well with Governor
12 Brown's goal of reducing statewide car and truck petroleum
13 use by up to 50 percent by 2030, which he stated in his 2015
14 Inaugural Address.

15 A notable addition to the Revised Staff Report is
16 a new discussion about ARFVTP's previous funding efforts for
17 E85 distribution infrastructure which includes the status of
18 our existing E85 projects and the rationale for
19 discontinuing the funding after the 2012-2013 fiscal year.

20 Now for the entire biofuel production and supply
21 category, our program has provided about \$135 million to 50
22 biofuel projects covering most biofuel types. The projects
23 span various stages of technology development ranging from
24 pilot scale production operations to full commercial-scale
25 production facilities, with an increasing number of projects

1 completing construction and beginning operations.

2 To continue these investments we are proposing to
3 maintain the biofuel production and supply allocation at \$20
4 million for Fiscal Year 2016-2017. This year's Investment
5 Plan Update also continues to leave these funds open to
6 multiple fuel types and development stages.

7 Moving on to electric vehicle charging
8 infrastructure, the number of EVs on California roads is
9 steadily increasing every month, as Jim already pointed out
10 with that chart in his presentation. In order to keep pace
11 and to meet the goals of the ZEV Action Plan, California
12 will need continued investment in charging infrastructure.
13 The chart on this slide shows the estimated number of
14 additional chargers needed statewide in 2017 and 2018 to
15 meet those goals.

16 The analysis provides two scenarios, the first
17 being a home-dominant scenario in which the majority of
18 charging occurs in an owner's residence, resulting in fewer
19 required public chargers. The second being a high public
20 access scenario which assumes the charging occurs away from
21 home and requires more public chargers. These two scenarios
22 can be thought of as a lower and upper bound of the number
23 of additional public chargers required. The actual number
24 will be determined by market forces and will most likely
25 fall between these two estimates.

1 Even so, this analysis suggest tens of thousands
2 of additional chargers are needed within the next two or so
3 years. Since the market and business models for public
4 chargers are not yet fully mature, we expect a significant
5 number of these are going to require state funding.

6 To date the ARFVTP has provided about \$40.7
7 million in grants to install about 7,500 charging stations
8 statewide, the majority of which have been at single-family
9 residences and commercial locations. In this year's
10 Investment Plan we're proposing more of an emphasis on
11 chargers and multi-unit dwellings and fast chargers, most of
12 which have been relatively underserved compared to other
13 charger types in our program.

14 There have also been some recent developments with
15 the utility-owned EV charger proposals which are pending
16 approval by the CPUC. In late 2015 PG&E's initial proposal
17 to install over 25,000 chargers in their service territory
18 was rejected and reduced to 1/10th that amount to about
19 2,500 chargers. This is not final yet. PG&E has submitted
20 a counter proposal, but the reduced scope underscores the
21 continued need for ARFVTP support in this area.

22 New to the Revised Staff Report is a discussion on
23 freight and fleet chargers which have special requirements
24 for infrastructure and capacity than the more common
25 residential and commercial chargers, which have received the

1 bulk of the electric vehicle infrastructure funding in the
2 past. For the coming fiscal year the Investment Plan
3 proposes a \$17 million allocation for electric charging
4 infrastructure.

5 We've had some -- we've had some significant
6 developments with hydrogen refueling stations and vehicles
7 over the past year, as well. Right now 23 hydrogen stations
8 are operational, which is significantly more than even the
9 last time this Advisory Committee met in November. Both
10 Hyundai and Toyota are selling their hydrogen fuel vehicles.
11 And best estimates suggest there are about 300 FCEVs in
12 California as of year-end 2015.

13 In July 2015, ARB released their Second Annual AB
14 8 Evaluation Report which details the need for additional
15 hydrogen refueling stations over the next three years by
16 analyzing DMV data, automaker projections, targeted areas
17 and station coverage. Energy Commission Staff used the
18 recommendations in this report to develop the priority areas
19 and purpose for future hydrogen refueling station
20 development and deployment.

21 One of the major issues in this year's ARB report
22 is projected shortfalls in hydrogen fueling capacity. In
23 this graph the middle purple bar represents the projected
24 station capacity as of 2015, measured in the number of
25 vehicles which can be supported. The dashed red line

1 represents the number of hydrogen fuel cell vehicles
2 projected to be on the road. Now as you can see, the report
3 is projecting statewide hydrogen refueling capacity
4 shortfalls as soon as 2021. The report also projects
5 localized capacity shortfalls limited to certain regions as
6 soon as 2018, but this is not shown on the graph.

7 This Investment Plan Update proposes a \$20 million
8 allocation for hydrogen refueling infrastructure, which is
9 the maximum allowable under Assembly Bill 8 and is
10 consistent with the recommendations in the 2015 Annual
11 Evaluation from ARB. This should be enough funding for
12 about seven or eight stations, plus operations and
13 maintenance funding which is needed to support the business
14 case of station developers while the development and
15 deployment of hydrogen vehicles is still in the early
16 stages.

17 Because the annual evaluation report is projecting
18 capacity shortfalls, even with the maximum \$20 million
19 allocation for hydrogen, Energy Commission Staff will
20 discuss these issues with ARB and stakeholders to ensure
21 that the available funding is used as effectively as
22 possible, and to find ways to increase fueling capacity.

23 For natural gas fueling infrastructure the
24 majority of private fleets are able to access capital to pay
25 for their own station costs. Given this, the Investment

1 Plan will continue to prioritize natural gas fueling
2 infrastructure funding to school districts and other
3 municipal public fleets which have restricted access to
4 capital. For the upcoming fiscal year, Staff is proposing a
5 \$2.5 million allocation for this category which we believe
6 will be adequate to meet demand.

7 Staying on the topic of natural gas, there have
8 been a number of new issues which have come up over the past
9 year, the first of which is the price of petroleum which has
10 dropped dramatically since 2014 and as a result is hampering
11 the economics of natural gas. While the diesel-gallon
12 equivalent price of CNG has remained about the same, the
13 price of diesel fuel has dropped from about \$3.90 per gallon
14 in October 2014 to \$2.80 per gallon just 12 months later.
15 This reduced the positive price difference of CNG by 90
16 percent to about 12 cents per diesel gallon equivalent. It
17 should be noted, though, that larger fleets may be able to
18 secure better pricing by purchasing natural gas directly
19 from providers rather than through a retail station, which
20 improves the economics somewhat.

21 Another major issues effecting natural gas is the
22 revised carbon intensity numbers from the re-adoption of the
23 Low Carbon Fuel Standard and the switch in models to CA-
24 GREET 2.0. The revised numbers calculated with this new
25 model are higher than previously believed and now show a

1 reduced benefit compared to diesel.

2 When we first started this program the best
3 numbers available suggested fossil natural gas reduced
4 greenhouse gas emissions by about 30 percent compared to
5 diesel. Last fiscal year it was assumed to have a 15 to 25
6 percent benefit. Now these new carbon intensity numbers are
7 showing a carbon benefit of only 15 percent for fossil CNG
8 and no benefit for fossil LNG.

9 Despite this, we do see a valuable role for
10 natural gas vehicles. Although fossil CNG is now only
11 showing very modest greenhouse gas emission reductions,
12 biomethane CNG is estimated to reduce carbon intensity by up
13 to 50 to 125 percent below that of diesel, depending on the
14 pathway used.

15 In addition, low-NOx engines are expected to be
16 made available for purchase as soon as the second quarter of
17 this year. These engines are certified to have nitric oxide
18 emissions 90 percent lower than the existing standard for
19 diesel engines. In September a Cummins Westport 8.9-liter
20 gas engine -- I'm sorry, natural gas engine became the first
21 to be certified for this low-NOx standard. The emission
22 technology used in this engine is also scalable to Cummins
23 Westport's 6.7-liter and 12-liter models. So we are hopeful
24 that Cummins Westport and other manufacturers continue to
25 develop and release these low-NOx engines for a wide range

1 of medium- and heavy-duty vehicle applications.

2 Looking ahead, these low-NOx engines may be a
3 primary method of achieving the future ambient air quality
4 standards in nonattainment areas throughout the state. When
5 biomethane fuel and low-NOx engines are combined the
6 lifecycle vehicle emissions are near or equal to those of an
7 equivalent zero-emission battery electric or fuel cell
8 electric vehicle. So we think these two technologies have
9 quite a bit of potential for the California transportation
10 sector.

11 For Fiscal Year 2016-2017, we're proposing a \$10
12 million allocation for natural gas vehicles. Although there
13 are some concerns with fossil CNG, there are also some
14 opportunities and possibilities with other technologies.
15 Going forward, the ARFVTP may consider limiting vehicle
16 incentives to low-NOx engines if an appropriate low-NOx
17 engine is available for the specific vehicle type and weight
18 class. We may also potentially target vehicle purchases for
19 fleets which combine both low-NOx engines and biomethane
20 fuel use, and this would be implemented separately from the
21 existing incentive project.

22 The next category focuses on the demonstration and
23 scale-up of advanced technology medium- and heavy-duty
24 vehicles. As you can see from the statistics on the slide
25 these vehicles account for a small number of the total

1 vehicles on the road but have a disproportionate impact on
2 greenhouse gas emissions, making them a tremendous
3 opportunity to help meet the state's climate change goals.
4 That said, we're dealing with a broad range of vehicle
5 weight classes and purposes, each with their own specific
6 powertrain needs which require unique solutions.

7 For 2016-2017, this category has expanded in scope
8 a number of ways. Perhaps the biggest new issues is the
9 California Sustainable Freight Action Plan which will aim to
10 improve freight efficiency, transition to zero-emission
11 technologies, and increase the competitiveness of
12 California's freight system. The ARFVTP, and this category
13 in particular, is expected to be a part of carrying out the
14 action plan.

15 In addition, this category has been modified to
16 include non-propulsion technologies, such as intelligent
17 transportation systems or autonomous vehicles, as well as
18 refueling infrastructure. These types of projects may be
19 eligible or targeted in future demonstrations.

20 This category is also facing some challenges. The
21 most recently completed solicitation showed high
22 differential costs per vehicle as a result of receiving
23 applications for more capable vehicles and for vehicles with
24 more advanced powertrains. While these more advanced and
25 capable vehicles show advancements in the sector, they also

1 lead to greater demands for funding in this category. In
2 fact, the previous solicitation was oversubscribed by 130
3 percent.

4 There are some new opportunities for alternatively
5 fueled medium- and heavy-duty vehicles which we haven't seen
6 before either. Many of these vehicles are now advancing
7 through the development stages, leaving the proof of concept
8 stage and entering the early adopter stage. This will
9 provide better demonstration opportunities and eventually
10 lead to full commercialization.

11 In addition, battery electric and fuel cell
12 electric vehicles in this class are seen as a significant
13 vehicle-to-grid asset capable of providing load balancing
14 and emergency power to the electrical grid in an emergency.

15 For the coming fiscal year Staff is proposing to
16 increase this allocation to \$23 million to support the
17 upcoming Sustainable Freight Action activities and possible
18 new project types.

19 This final category deals with related needs and
20 opportunities which encompasses allocations that are meant
21 to support alternative fuels and advance technology vehicles
22 beyond what is proposed in the previous categories.

23 First is our emerging opportunities allocation
24 which is set aside for project types which weren't
25 anticipated during the Investment Plan development process.

1 In the past this category has also targeted federal cost-
2 sharing projects to bring federal grant money to California.
3 With the Revised Staff Draft we've also included a
4 discussion on renewable hydrogen production which is an
5 emerging project type which will become more important as
6 hydrogen fuel cell vehicles increase in numbers. For the
7 coming fiscal year we are proposing an allocation of \$3
8 million for this category based on historical demand for
9 these funds and balancing the needs of other allocations.

10 Our workforce training and development activities
11 are continuing with interagency agreements with the
12 Employment Development Department and the Employment
13 Training Panel.

14 And the Energy Commission has also approved a
15 third agreement with the Alternative Transportation
16 Technology and Energy Center to support the California
17 Community College system.

18 As you can see in this slide this category has
19 provided significant assistance to trainees and businesses
20 for alternative transportation and workforce needs.

21 For the coming fiscal year we're proposing a \$2.5
22 million allocation based on the anticipation need of these
23 agreements.

24 Finally, we have a regional readiness category
25 which helps local agencies prepare for and expedite the

1 deployment of alternative fuel vehicles. In our discussions
2 with local and regional governments, we are seeing a
3 continued need for planning and implementation support this
4 year. So for the coming fiscal year we are proposing a \$2
5 million allocation for the regional readiness category.

6 For the next steps in our process we are seeking
7 feedback on these allocations, the Investment Plan, and the
8 program in general from all stakeholders. In order to
9 incorporate any comments in the upcoming Lead Commissioner
10 Report version of the Investment Plan, we're asking to
11 receive them no later than Monday, February 1st. We prefer
12 to receive comments through the Energy Commission's e-
13 commenting docket system, and there's a link to that on this
14 slide and in the workshop notice. We also accept comments
15 via email and regular mail, and instructions for where to
16 send these are also in the workshop notice.

17 We're anticipating -- we anticipate releasing the
18 Lead Commissioner Report version of the Investment Plan in
19 March and adopting the Final Investment Plan Update at a
20 public meeting -- public Energy Commission business meeting
21 in April.

22 The Energy Commission is committed to ensuring
23 that participation in its RD&D programs reflect the rich and
24 diverse characteristics of California and its people, and is
25 currently collecting voluntary information about the

1 attendance of this workshop. For this voluntary survey, we
2 request participants send an email to the address on the
3 screen with your name, your company, how you heard about
4 this workshop, and whether your company is located in
5 Northern, Central or Southern California. That email is
6 tami.haas@energy.ca.gov. We also have a printed survey for
7 everyone joining us in the room today.

8 Additionally, if you are representing a business
9 that is a small business, a disabled veteran business
10 enterprise, a women-owned business, a lesbian-, gay-,
11 bisexual or transgender-owned business, or a minority-owned
12 business, please identify this information in your email.
13 The information supplied will be used for public reporting
14 purposes for statistics regarding anonymous overall
15 attendance of this workshop. For more information about
16 this survey or to ask a question, you can contact us at the
17 same email address, tami.haas@energy.ca.gov.

18 This final slide summarizes all of the funding
19 allocations we are proposing in the 2016-2017 Investment
20 Plan Update. I will leave this slide up during the Advisory
21 Committee discussion which will begin momentarily. I can
22 answer any clarifying questions you may have about this
23 presentation now. However, please hold off on any questions
24 or comments about specific allocations until the discussion
25 or the public comment period. Thank you.

1 Are there any questions from the room? Could you
2 come down please? Yeah, unfortunately we don't have a
3 microphone to pass to you.

4 COMMITTEE MEMBER SCOTT: Jacob, why don't we just
5 check right quick to see if we have questions from any of
6 the Advisory Committee Members on the phone? We don't have
7 any from folks right here.

8 We do have a clarifying question from the phone.

9 MR. BUTLER: Go ahead, Eileen.

10 COMMITTEE MEMBER TUTT: Hi. Thank you. I was
11 just wondering, there was a slide in the front of the
12 presentation that talked about the changes from the previous
13 draft to this draft. And I guess I had a clarifying
14 question about specifically the freight. It's mentioned --
15 okay, yeah. So it's -- I'm sorry, I'm looking for -- there
16 was one that said something about the freight section had
17 changed or there was -- yes, sustainable freight, so new
18 considerations which I believe is -- maybe that's not a
19 change to the report. But I'm presuming that the focus on
20 sustainable freight and the Governor's executive order
21 did -- you know, were incorporated or are reflected in this
22 document.

23 I mean, I guess what I'm wondering about is I
24 think we're probably going to need a lot more money for the
25 transition to sustainable freight than we currently have.

1 And obviously there's other sources of funding, but I
2 believe Jacob mentioned that this -- that the category,
3 medium and heavy duty, was oversubscribed by over 100
4 percent. And I think that's indicative of kind of what's
5 going to be needed.

6 So I just was wondering if that's reflected in the
7 report or if that was a change, or if this is just something
8 that -- anyway, these new considerations are reflected in
9 the report, I presume.

10 MR. ORENBERG: Yes.

11 COMMITTEE MEMBER TUTT: Because I -- you know,
12 yeah.

13 MR. ORENBERG: To clarify, the medium-duty, heavy-
14 duty vehicle demonstration scale-up category does have a
15 discussion about the Sustainable Freight Action Plan, and
16 that is one of the reasons for increasing that category this
17 year. The Sustainable Freight Action Plan is also talked
18 about in the context of the Investment Plan. And new to the
19 Revised Staff Report -- Revised Staff Report, we have added
20 a discussion about freight and fleet chargers to the
21 electrical vehicle section, as well.

22 COMMITTEE MEMBER TUTT: Okay. Thank you. I was
23 looking for that and I couldn't find it, but I will -- I
24 knew that was one of our comments that we sent in and I just
25 was not able to tell if it had been incorporated or not.

1 But I'll look more closely at the document. Thank you,
2 Jacob. That's my question.

3 MR. BUTLER: Okay. Tim Carmichael?

4 COMMITTEE MEMBER CARMICHAEL: Good morning again.
5 I thought Jacob did a good job characterizing changes with
6 natural gas and carbon intensities. But I also think it's
7 worth noting that the LCFS data is showing that about half
8 of natural gas use in transportation in California is
9 renewable. And so the real-world carbon intensity of
10 natural gas, you know, is much better than the fossil fuel-
11 natural gas scenario that you outlined. And we expect that
12 to continue as -- you know, and we're obviously supporting
13 efforts to increase the development of renewable natural gas
14 and use of renewable natural gas.

15 But I just wanted to share that data point for the
16 Committee relative to renewable natural gas use. I think
17 it's a lot higher than people expected it to be at this
18 point.

19 MR. ORENBERG: Thank you, Tim, for that statistic.
20 And we do agree that we see tremendous potential for
21 biomethane, which is one in the same with renewable natural
22 gas.

23 I think that it's for comments from the Advisory
24 Committee.

25 We can now open for public comments.

1 COMMITTEE MEMBER SCOTT: So we just want
2 clarifying questions, if there were any. Okay.

3 So let's -- oh, did you -- did you have a
4 clarifying question for Jacob?

5 MR. MCKINNEY: While Dr. Clark is approaching the
6 podium, I want to say we have received blue cards from many
7 members here in the public audience, so thank you for those.
8 And we will come to those when we get to that specific fuel
9 allocation -- or funding allocation recommendation.

10 Dr. Clark?

11 DR. CLARK: Yes. Thank you. And I know a number
12 of you, both on the Commission and Advisory, so I'm glad to
13 be here in Long Beach and hearing the presentations.

14 I do have specific questions on other things. But
15 my basic question was getting the information, the slides
16 that you were just presenting, and that Jim had, as well,
17 because some of that information, actually a lot of it is
18 not in the report that I saw upstairs. And I think there
19 are some definitions and things that you were going through
20 that would be very interesting.

21 So if we could get that or that could be given to
22 the people who are attending or are online or whatever, that
23 would be great. That's my comment. Thank you.

24 MR. ORENBERG: And just for everyone's reference,
25 we will make the presentations available on the Energy

1 Commission's website, probably within a week of today.

2 COMMITTEE MEMBER SCOTT: Great. Go ahead, Brian.

3 COMMITTEE MEMBER GOLDSTEIN: It's Brian Goldstein
4 with Energy Independence Now. And let me know if there's a
5 better time to ask this question.

6 But going back to Mr. McKinney's slides where we
7 were going through the expected scenarios for the 100
8 hydrogen refueling stations. So we had the expected, robust
9 and delayed scenarios. Expected and robust, we had about
10 \$160 million in spending, but that number jumped up on the
11 delayed scenario for -- to about \$170 million. I'm
12 wondering if you can just give me a ballpark idea of that
13 extra \$10 million under the delayed scenario please?

14 MR. MCKINNEY: Yeah. I think that's a very good
15 question, Brian.

16 So for the expected and robust scenarios to get to
17 100 stations by 2020 there's some specific charts in the
18 report that show an increasing need for private sector
19 investment. In the delayed scenario that increased level of
20 private investment never quite materializes. So the higher
21 levels of public funding, such as we have now, are what is
22 needed. So that's why it actually costs more in the delayed
23 scenario, more in terms of public funding.

24 COMMITTEE MEMBER GOLDSTEIN: Great. Thanks a lot.

25 MR. ORENBERG: And further clarifying questions?

1 Okay.

2 I believe now we can move on to the Advisory
3 Committee discussion.

4 MR. MCKINNEY: So again, this is Jim McKinney.
5 And the way that we run this part of the meeting is we'll go
6 line by line through the funding plan that is up on your
7 screen. We start with discussion by Committee Members
8 present. We then turn to Committee Members on the phone.
9 We then turn to members of the public present. And lastly,
10 to members of public on the phone.

11 The Public Adviser has suggested that we make some
12 time for general public comment before lunch, if people need
13 to flee or leave or have flights to catch, et cetera.
14 Otherwise, we'll take general public comment at the end of
15 this public meeting.

16 So with that, can we turn to Committee Members
17 present? Any comment or discussion on the recommendation
18 for biofuels funding?

19 COMMITTEE MEMBER SCOTT: For biofuels, we are
20 going to be joined by one of our Committee Members, I
21 believe, after lunch. Oh, she's not going to be able to?
22 Sorry, I have old data, so go ahead, Jim.

23 MR. MCKINNEY: Committee Members present? So
24 Peter Christensen, we'll start with you, Air Resources
25 Board.

1 COMMITTEE MEMBER CHRISTENSEN: Thanks, Jim.

2 I just wanted to, you know, once again, I think
3 we've talked about the importance of this category in other
4 Advisory Committee meetings, but I want to emphasize that
5 again. This is a particularly important category, and I
6 think especially true, more and more so, for the reductions
7 from the heavy-duty vehicle fleet. And we think this is
8 also very complimentary to not only the production but also,
9 you know, part of ARB's investment portfolio is looking at
10 opportunities for helping with the fleet, the end-user fleet
11 expenses with the use of renewable biofuels and renewable
12 fuels. And if you look at our investments in low-NOx
13 engines, we think this is another one of those opportunities
14 that compliments that, as well. And you already talked
15 about in the presentation the -- kind of the combined
16 benefit of air quality improvements with low-NOx engines,
17 combined with biofuels, use especially in-state biofuels in
18 achieving those greenhouse gas reductions.

19 So we think, you know, continuing support for this
20 category is really important. And we encourage you to move
21 forward.

22 MR. MCKINNEY: Thank you, Peter.

23 Any other Members present?

24 Al and John?

25 I'm sorry, Brian, go ahead. Brian Goldstein.

1 COMMITTEE MEMBER GOLDSTEIN: So the alternative
2 fuel production category we haven't talked about, including
3 potentially some issues around hydrogen production, and
4 specifically 100 percent renewable hydrogen production. And
5 I'm certainly not suggesting that we cannibalize funding
6 that's going into other areas. But I'd like to make the
7 recommendation that we at least take a look at allocating
8 some of the additional hydrogen funding and to taking a look
9 at not only what it would take to include 100 percent
10 renewable hydrogen for hydrogen refueling stations, but also
11 for the components of biofuels and the other liquid fuels
12 that require a hydrogen component for the refining process.

13 MR. MCKINNEY: So I think as you gather say more
14 specific information on funding opportunities, or when you
15 think that the time might be right for potential adjustments
16 to funding allocations, you know, as a Committee Member we
17 really look to folks like you to kind of, you know, lead the
18 charge in getting us information so we can evaluate those.

19 COMMITTEE MEMBER GOLDSTEIN: Great. Thanks.

20 MR. MCKINNEY: And I think Commissioner Scott is
21 stating that we do -- we have included that in the emerging
22 opportunities section of the -- of this draft of the
23 Investment Plan.

24 John Butler, do you want to --

25 MR. BUTLER: Yeah. Just a quick comment for the

1 Advisory Committee Members present. If you could speak
2 closer into the microphone, WebEx is having a difficult time
3 hearing you, so we'd appreciate it. And I don't think we
4 have any online commenters.

5 MR. MCKINNEY: Okay. So no --

6 MR. BUTLER: One moment. Tim Carmichael.

7 Let us unmute you, Tim. Please proceed, Tim.

8 COMMITTEE MEMBER CARMICHAEL: Thanks very much. I
9 just don't want to miss an opportunity to agree with ARB. I
10 want to echo the comments of Peter Christensen about this
11 category.

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

13 Any other Committee Members on the phone?

14 I'd like to turn to members of the public here. I
15 have a blue card from Mike Pearson [sic].

16 Mike, are you here? There we go. How are you
17 doing, Mike?

18 MR. LEWIS: I'm good. How are you?

19 MR. MCKINNEY: Good. So we have our three-minute
20 rule for -- for public comment. So I'll hit the stopwatch
21 here, and please proceed.

22 MR. LEWIS: All right. Mike Lewis, by the way,
23 with Pearson Fuels.

24 MR. MCKINNEY: I'm sorry.

25 MR. LEWIS: If there was a Mike Pearson, it would

1 be me.

2 So just a couple comments. I'll give you the very
3 quick history. Pearson Fuels, we do E85 all over the state.
4 We've built biodiesel terminals. I have electric chargers.
5 I sell propane to the public. I've had a natural gas
6 station before. And so we've been a recipient in the past
7 which we very much appreciate.

8 Everyone once in a while I'll get up here and
9 waive my E85 flag. And I got a paragraph in the Investment
10 Plan, I think, because of that. And you guys talk about E85
11 infrastructure and the reason that you don't -- or won't
12 fund it this time is because of the slow build out of the
13 previous grants that you have given, and the difficult with
14 the price parity of the gasoline.

15 And first of all, both of those things completely
16 apply to hydrogen. There's been a very slow build out. If
17 you don't believe me, look at your projections five years
18 ago. And then, of course, the price parity of the gasoline
19 is an ongoing issue with natural gas and most of the fuels
20 now with the price of gasoline.

21 So in Fresno, it was just about a year ago in
22 Fresno, I stood up and I told you that E85 has great
23 potential. I mean, the build out is due to giving all the
24 funds or 90 percent of the funds to one company that just
25 didn't perform and hasn't performed. But you did give me

1 some funds and I appreciate it, and I told you I was
2 building them. And so it's been under a year since
3 February. And during that time I have opened 12 new E85
4 sites, and we have 4 under construction and 8 more under
5 contract. So as far as a slow build out, don't categorize
6 the whole industry with a slow build out. You can
7 categorize your grantee with a slow build out, the other
8 grantee. So there's that issue.

9 We talk about it hasn't been accepted by the
10 public, my gas station in San Diego which was funded in 2003
11 by the OE Grant, the volume is the highest -- for 2015, the
12 highest volume out ever, and 73 percent higher than the
13 highest volume ever in this year, 2015. The E85, CARB has
14 all of the numbers for E85. This last year was the best E85
15 volumes ever in the industry.

16 And we talk about price parity to gasoline. The
17 RFS and the LCFS are working. And what I mean by that is
18 your chart in the report shows LCFS credits at \$25.00 a ton.
19 They're really \$120 a ton, so you've got a 63 cent rather
20 than a 9 cent LCFS credit. And so the paper, Union Tribune,
21 this morning, first article, "Stocks Slide Amid Oil Route."
22 So oil is going down. And then right here, "2015 Was the
23 Earth's Hottest Year on Record." All right. Front page.
24 So don't convince yourselves that E85 doesn't have
25 potential. And don't convince yourselves that grant money

1 can make a difference.

2 My suggestion, other than just fund E85, if you
3 don't just want to fund E85 then do this, take the amount of
4 money that you have invested so far -- now, for a minute
5 just look at it a different way and say let's not talk about
6 market transformation and things like that. Because the
7 truth is those are completely immeasurable and very
8 esoteric. And you're looking years out and you say, oh,
9 it's worth all this. Figure out the money that you have
10 spent so far and figure out the petroleum reduction and the
11 greenhouse gas reduction you haven't from that money, and
12 some will be great. The biofuels infrastructure at the
13 plants will be great. Some of the natural gas commercial
14 will be great. The E85 will be great. The hydrogen will be
15 very bad. The electric vehicles will be very bad.

16 And so, I mean, it's so much that the \$1.3 million
17 grant that you gave me, I will go on record and say will do
18 more to reduce petroleum and reduce more greenhouse gases in
19 the next five years than the entire hydrogen budget. You
20 can build 30 E85 sites for one hydrogen site. So don't let
21 the perfect be the enemy of the good.

22 MR. MCKINNEY: Great. Thank you, Mike.

23 MR. LEWIS: How did I do on the time?

24 MR. MCKINNEY: You did great.

25 MR. LEWIS: I'm available for follow-up questions,

1 if you want to. Thanks.

2 COMMITTEE MEMBER SCOTT: Any other --

3 MR. MCKINNEY: That was the only blue card I had.
4 That was the only blue card I had, Commissioner, for public
5 comments in the room.

6 Do we have indication of public comments on the
7 phone?

8 MR. BUTLER: So we don't have any raised hands for
9 WebEx users. We are -- oh, hold on. We do have one. Yeah,
10 so Bob Therkelsen has raised his hand. We're trying to
11 identify your call-in ID on this. So what we're going to do
12 is going to go ahead and unmute all the lines again. Again,
13 if you're participating via phone, if you can mute your end
14 so we can minimize the noise?

15 And then, Bob, once we unmute, if you can go ahead
16 and start speaking we'll be able to identify. Go ahead,
17 Bob.

18 (Loud WebEx background noise.)

19 MR. THERKELSEN: Yeah. This is Bob Therkelsen.
20 And -- and this is Bob Therkelsen trying to speak. It's
21 kind of noisy in the background.

22 MR. BUTLER: Hold on just a minute, Bob. We'll
23 get right back to you.

24 MR. THERKELSEN: Okay.

25 MR. BUTLER: Okay, Bob, go ahead. Okay, Bob, go

1 ahead.

2 MR. THERKELSEN: Yes. This is Bob Therkelsen
3 representing the ACE Cogeneration Company. We're looking at
4 developing a large renewable carbon-free hydrogen production
5 facility. And I'd like to echo support for the gentleman
6 that commented on including hydrogen production in you
7 allocation there on alternative fuel production.

8 One of the things that we're running into in terms
9 of attracting investors to the project are concerns about
10 the lack of information experience and government support of
11 renewable hydrogen production facilities, especially at a
12 larger scale. And so I think that's something that would be
13 worthwhile for you to consider. But we did submit comments
14 to the docket on the Investment Plan noting that. But like
15 I said, I'd like to add my voice and support for that
16 concept. Thank you.

17 MR. MCKINNEY: Great. Thank you, Mr. Therkelsen.
18 Any other public comments on the phone?

19 MR. BUTLER: Bill Leighty, please proceed.

20 MR. LEIGHTY: Bill Leighty in Alaska. Can you
21 hear me?

22 MR. BUTLER: Yes. Can you speak up? We're having
23 difficulty hearing you.

24 MR. LEIGHTY: Bill Leighty, Alaska Pipeline,
25 calling from Alaska. I wanted to recognize your

1 (inaudible).

2 MR. BUTLER: We're -- I'm sorry, Bill. We're
3 still -- we can hear your voice but we cannot make out what
4 you're saying. I don't know if you can speak a little
5 louder into the phone?

6 MR. LEIGHTY: I've got the microphone maxed out,
7 actually.

8 MR. BUTLER: That's --

9 MR. LEIGHTY: I'll try calling back later today.

10 MR. BUTLER: Well, that's a little bit better. We
11 can actually hear you. Please proceed.

12 MR. LEIGHTY: Okay. Thanks. Okay. Thank you.

13 Your allocation of \$3 million for renewable
14 hydrogen production as an emerging opportunity, our company
15 has operated a wind plant in Palm Springs for (inaudible)
16 grid.

17 MR. BUTLER: You know, Bill, I'm sorry, it kind of
18 is coming in and out, so we're only catching like every
19 third word.

20 MR. LEIGHTY: Okay. I'll call back. I'll call
21 back later today, later today.

22 MR. BUTLER: That would be great. And you can
23 always submit written comments to our docket, as well, which
24 are considered as part of this proceeding.

25 COMMITTEE MEMBER SCOTT: Also, if you --

1 MR. LEIGHTY: Yes. I gave you a letter.

2 COMMITTEE MEMBER SCOTT: I was going to say, also,
3 if you happen to be on the WebEx and you can use the chat
4 function and give us maybe a summary in three or four
5 sentences, we can read those sentences from the chat
6 function so that everyone here is able to hear them.

7 And we might ask that the folks who are on the
8 phone can do that, as well. If you have a way to be able to
9 email us or to talk into the chat function, that would help
10 us greatly. There's a lot of background noise when we open
11 up the lines. And we want to make sure we can hear from
12 everybody, but it's very difficult with all the background
13 noise when we open all of the lines. So if you have an
14 opportunity to do the chat function, we'd appreciate that
15 great. Or shoot, you know, me or Jim McKinney or Jacob
16 Orenberg an email, we'll check our i-Phones and we can read
17 what you say into the record. We'd be happy -- we want to
18 make sure we can hear from everyone, but also manage the
19 great deal of background noise on the phone.

20 MR. MCKINNEY: Thank you, Commissioner.

21 And, Bill, you have my email. This is Jim
22 McKinney speaking. So feel free to forward that to me.

23 COMMITTEE MEMBER SCOTT: And additionally, as you
24 all know, we can take written comments. And we read those
25 very closely and pay -- pay good attention to them. So

1 there's -- there's always an option to send us written
2 comments. Or if you have comments that last longer than
3 three minutes, please -- please write that down and send it
4 to us, as well.

5 So let me see, do we have any more on biofuels
6 allocation?

7 MR. BUTLER: I think the one last thing we'd like
8 to do is open the phone lines in case there's a phone only
9 participant. So again, if you can mute your lines on your
10 end, and if you're a comment you'd like to speak if you're a
11 phone-only user, we're unmuting you now. Are there any
12 public comments on phone-in users? Thank you. It looks
13 like no comments.

14 MR. MCKINNEY: Okay. That concludes our
15 discussion of the biofuels part of the Investment Plan.

16 I'm going to turn now to electric charging
17 infrastructure. And I want to open it first to Committee
18 Members present. Okay.

19 I understand we have another member of the public
20 who wanted to speak to the renewable hydrogen issue, so
21 apologies to the Committee.

22 Why don't we take your comment, sir? Can you
23 identify yourself please?

24 MR. LEVIN: Sure. Sorry, Jim. I'm Mike Levin
25 with Fuel Cell Energy. And thank you for letting me go out

1 of order.

2 Fuel Cell Energy, we are the largest stationary
3 fuel cell manufacturer in the world. But one of the unique
4 things that we do with our fuel cells is also coproduce
5 hydrogen. And as Commissioner Scott knows, we did the first
6 system like this in the world in Orange County at the Orange
7 County Sanitation District. We're now engaged with a number
8 of stakeholders. In fact, Chair Weisenmiller encouraged me
9 to participate in this meeting today, encouraged us to
10 provide comments and so forth and we will. We're also
11 working with the Governor's Office and the ARB on this whole
12 renewable hydrogen fuel cell idea.

13 Each of our fuel cell plants can produce around
14 1,200 kilograms per day of completely renewable hydrogen.
15 The feedstock is generally a wastewater facility, although
16 we're exploring things like dairies, a tremendous
17 opportunity to reduce greenhouse gas from dairy methane.
18 And that's of great interest to CARB and their short-lived
19 climate pollutant strategy.

20 My hope would be that to the extent there is an
21 available allocation of funding for alternative fuel
22 production, that that might be a potential avenue for this
23 technology, as well as the emerging bucket for things like
24 electrolysis which we, you know, clearly think are good --
25 good, as well. The -- the hope would be that we could

1 produce around 5,000 kilograms a day of renewable hydrogen
2 from four of these facilities. Each would be located in
3 centers of both population, as well as higher concentration
4 of fuel cell electric vehicle charging station. We've been
5 working also with our friend Tyson Eckerle who I think is on
6 the phone, so hi Tyson.

7 But we appreciate the opportunity to continue to
8 discuss this with you. We think it's a great potential
9 application for renewable hydrogen that's local and cost
10 effective compared to some of the others out there.

11 So thank you. Sorry for going out of order.

12 MR. MCKINNEY: Great. Thanks for your commentary.
13 And please follow up with -- with the written comment, as
14 well.

15 So let's continue our electric charging
16 infrastructure discussion. So I don't -- I didn't see any
17 hands from Committee Members present.

18 Let's turn to Committee Members on the phone.

19 MR. BUTLER: Eileen Tutt?

20 COMMITTEE MEMBER TUTT: Hi, Commissioner, Jacob
21 and Jim, thank you. This is Eileen Tutt with the California
22 Electric Transportation Coalition. And we did submit
23 written comments. We really appreciate the funding
24 remaining at \$17 million, and particularly the recognition
25 from the Staff that that's probably, well, clearly the

1 absolute minimum needed. And we are going to have to find
2 more money in other places because it's clear that the
3 utilities are not going to be allowed to invest as much as
4 we had certainly hoped. So the \$17 million, we're good with
5 that, understanding that there are just limited funds.

6 The one things I wanted to ask was whether or not
7 the \$17 million includes any -- like the hydrogen
8 infrastructure, whether or not there's any funding for
9 operations and maintenance? And I bring that up
10 specifically because as we are now rolling out significant
11 numbers of these stations, many of them funded by the CEC,
12 so thank you for that, we're finding that when they -- when
13 they break down, and I get a lot of calls on this, as well
14 as I've experienced it personally, they just don't get fixed
15 for sometimes months and months if, you know, forever as far
16 as I can tell. And when I have personally made phone calls
17 or talked to people who have, there's a lot of finger
18 pointing between the infrastructure providers and the
19 facility about who's is responsible for maintaining.

20 So I think there may need to be, especially in
21 this early stage of implementation, some funding here,
22 perhaps even added, for operation and maintenance of these
23 stations.

24 The other thing that I would like to encourage
25 the -- the CEC to work closely with Air Resources Board on

1 is these stations are not -- I mean, they're -- we say they
2 need to be publicly accessible when they're in a public
3 place, but in many cases, not all, but in many cases it's --
4 it's challenging to access them without some sort of RFID
5 card, and then you're -- you have a number of different RFID
6 cards depending on, you know, what station happens to be
7 there which does -- it really is a big challenge. And we
8 need to get past this place where you have to be a member of
9 a particular organization or you have to, you know, either
10 purchase or sign up for an RFID card to make it convenient
11 to charge.

12 And so I just want to -- I think both of those
13 things, I think the O&M costs are really important for us to
14 start considering at this point in the implementation of the
15 program, but also I know CARB is starting to think about
16 this, those of us that drive these vehicles certainly deal
17 with it regularly, is the lack of what I would call true
18 public access. There's -- we'll -- I'll include some of
19 this stuff in written -- certainly in our written comments.

20 And then the only final comment I have here is for
21 the ARB and the Energy Commission together, and perhaps,
22 Tyson, it would be a good thing for the Governor's Office,
23 is the way people are charged. So it -- you can -- within
24 one block of each other, one charging station can be
25 something like \$3.00 an hour and another one can be free.

1 There doesn't -- and they're both perhaps funded -- in fact,
2 they are funded by state government by this funding, by
3 these dollars.

4 And I think there needs to be some, I don't know,
5 regulation or something about if you're going to fund these
6 projects, then the amount charged, there's got to be some
7 kind of range or framework that is fair to the customer.
8 Because right now it's just kind of the Wild West, to be
9 honest with you, in terms of how much you pay depending on
10 where you charge.

11 MR. MCKINNEY: Great. Thank you, Eileen.

12 I believe that for the maintenance issues this is
13 now a requirement for our most recent solicitation, DC fast
14 chargers. And again, thanks for alerting us to this issue.
15 It's something that Leslie Barody and Jennifer Allen are
16 also tracking. So it might be good to have this discussion
17 with you in Sacramento.

18 Other Committee Members on the phone?

19 MR. BUTLER: Yes. So we have another Advisory
20 Committee Member who has joined us.

21 So, John Shears, could you introduce yourself,
22 first of all? And then any comments you may have.

23 COMMITTEE MEMBER SHEARS: Yes. Good morning,
24 everyone, and sorry. I have multiple meetings this morning,
25 so I'm trying to manage where I am at important junctures.

1 My name is John Shears. I'm with the Center for Energy
2 Efficiency and Renewable Technologies, one of the Advisory
3 Committee Members.

4 I just wanted to speak in full support of Eileen's
5 observations and suggestions and would be willing to be a
6 full participant in working with everyone to help resolve
7 some of those issues, some of which, in fact, as part of the
8 collaborative work in a pamphlet I produced on challenges
9 around charging infrastructure, some of those points are --
10 have been highlighted previously. And Eileen has raised
11 them again today.

12 So I know Leslie and Jennifer are capably
13 contracting things. But as we know, the Public Utilities
14 Commission last week adopted its decision on one of the
15 first IOU pilots. And the Commission is taking a more
16 conservative approach than the utilities in using a slower,
17 more phased approach than the utilities were proposing in
18 their -- in their pilots, so infrastructure will be rolling
19 out a little slower.

20 So we -- all of the -- the three major agencies
21 working on charging infrastructure probably need to sort of
22 rejig and reprioritize and shuffle exactly, you know, who is
23 supporting what aspects of the deployment strategy going
24 forward as we -- as we adjust to how the pilots roll out in
25 the funding, both on the Energy Commission side and for GGRF

1 funds on the ARB side rollout going forward.

2 COMMITTEE MEMBER SCOTT: Thank you for those
3 comments, John. This is Janae Scott. And I just wanted to
4 say, welcome. We're glad you joined us by the phone.

5 Any other folks on the phone -- or on the WebEx,
6 Committee Members on the WebEx?

7 MR. BUTLER: Yes. We have another Committee
8 Members who has just joined us, as well.

9 Sekita Grant? Go ahead, Sekita, if you could
10 introduce yourself --

11 COMMITTEE MEMBER GRANT: Hi.

12 MR. BUTLER: -- and any comments you have?

13 COMMITTEE MEMBER GRANT: Great. Thank you. Can
14 you guys hear me?

15 COMMITTEE MEMBER SCOTT: Yes.

16 COMMITTEE MEMBER GRANT: Hello? Okay. That's
17 good.

18 COMMITTEE MEMBER SCOTT: Hi, Sekita. We can hear
19 you.

20 COMMITTEE MEMBER GRANT: Apologies for calling --
21 hi. Okay. It sounds like there's a little bit of a delay.

22 But, yeah, I'm glad to hear the progress that
23 Staff has made to date, and excited to see how some of these
24 funding categories are shaping up.

25 I'd like to echo Eileen's comment about public

1 access. I think that's a critical point, and looking
2 forward to kind of seeing how Staff is thinking through ways
3 to ensure that there's kind of ease of use, which is really
4 important throughout all demographics and areas, and in
5 particular those communities that might not be as inclined
6 to -- to switch over to electric vehicle due to cost and due
7 to convenience. So I think that is an excellent point and
8 wanted to echo that. (Inaudible) grant with the Greenlining
9 Institute.

10 The other point I wanted to make, this is a
11 comment and maybe question, just in terms of how we're kind
12 of tracking how things are moving through the PUC, and also
13 looking at how the Energy Commission is addressing
14 charging -- electric vehicle charging stations is really
15 trying to keep a close eye on what's happening with the
16 vehicle funding, so what's happening on the vehicle side is
17 just -- is through the Air Resources Board. Particularly,
18 our focus has been on equity programs and looking for
19 opportunities to fund plug-in electric vehicles that are
20 really consumer -- or excuse me, community-serving, so
21 looking for ridesharing opportunities, you know, looking at
22 the possibility of focusing around school districts or
23 access to clinics or shopping centers, and helping
24 farmworkers with their transportation needs and that type of
25 thing. So there's already programs that are in place, and

1 hopefully more to come.

2 And it's really encouraging, and I'm sure that the
3 Energy Commission is already thinking of this, but how do we
4 make sure that to the extent that there are programs funded
5 by Air Resources Board that are -- that are serving
6 disadvantaged communities, that there's also kind of
7 complimentary funding on the charging station side and so
8 that things are kind of happening in parallel to help
9 support the rollout in those areas?

10 COMMITTEE MEMBER SCOTT: Great. Thank you very
11 much, and welcome, Sekita. We're glad to have you joining
12 us by WebEx.

13 Other Committee Members on the phone?

14 MR. BUTLER: Yes. Tyson Eckerle.

15 Just a moment while we unmute you. Go ahead,
16 Tyson.

17 COMMITTEE MEMBER ECKERLE: Great. Thanks, John,
18 and thanks, Commissioner Scott. Sorry again I have to
19 participate remotely. But I just wanted to echo, and I
20 think Eileen offered some very insightful comments on the
21 electric drive side. And, you know, this section is
22 incredibly important if we want to meet the Governor's
23 goals. You know, the infrastructure is the key, the lagging
24 factor.

25 I did want to stress, also, what you brought up

1 about reliability. I had the opportunity to work with Flood
2 Share (phonetic) and some of their data, and they have an
3 impressive data set, you know, that look specifically at
4 level 2 chargers and their reliability, and it was -- it was
5 not as good as we would like it to be. And so I think I'm
6 looking forward to working with the Commission, you know, to
7 figure out, you know, how do we address those existing
8 chargers to make sure, you know, as we're building new
9 chargers that also the existing chargers are serving their
10 full functionality.

11 So I think I just would encourage the Commission
12 and Staff to keep that in mind as we go forward, and I look
13 forward to working with you. But I think it's a very
14 balanced plan, so thank you.

15 MR. MCKINNEY: Great. Thank you, Tyson.

16 Any -- any other Committee Members on the phone,
17 Al and John? Thank you.

18 I have no blue cards for public comment on EV
19 charging infrastructure.

20 So let's turn to public comments on the phone.

21 MR. BUTLER: Yes, we do. So we'll start with Andy
22 Bartosh.

23 MR. MCKINNEY: Mr. Bartosh, proceed.

24 MR. BARTOSH: Yes. Hello.

25 MR. MCKINNEY: You have three minutes.

1 MR. BARTOSH: Am I --

2 MR. MCKINNEY: Yeah. Just proceed.

3 MR. BARTOSH: Okay. Am I unmuted?

4 MR. BUTLER: Yes, we can hear you.

5 MR. BARTOSH: Okay. Great. Thank you. All
6 right. Excellent.

7 So I just wanted to comment briefly on Eileen's
8 comments. I'm totally in agreement. I'm from ABB, by the
9 way, doing DC -- DC fast chargers.

10 I totally agree on the initiative for operations
11 costs. I think we've seen that a lot in California and --
12 and certainly beyond. But it is being addressed in the more
13 recent notifications.

14 As far as more public access, I just want to make
15 everybody on the call aware, there are -- there are options
16 for just open credit card reader hardware within certain
17 chargers, certain manufacturers, ABB included. I won't give
18 any more of a sales plug than that, but just know that we're
19 happy to (inaudible) specifications for that and we are
20 ready for it.

21 And then as far as fees framework, I think that
22 from ABB's perspective as a business model, being this young
23 we want to enable as much as possible. But I can appreciate
24 the interest in keeping, you know, comparable fair fees.
25 However, I think we have to also appreciate that each

1 network operator has very different operating costs and
2 business models of their own. And so I think at least
3 certainly today, DC fast charging specifically is a
4 convenience as much as it is just a pure energy play. I
5 understand the implications of funded or not funded. But I
6 think we should let those things play out for the sake of
7 the operations and the users. So we've seen cases already
8 where drivers will go to a more expensive site because of
9 its convenience. And I think we need to allow that free
10 market to happen.

11 So I'm happy to address any questions here or --
12 or after the fact.

13 MR. MCKINNEY: Great. Thank you, sir.

14 Any other public comments, John and Al?

15 MR. BUTLER: So just one comment to the online
16 WebEx participants. If -- once you're done speaking, if you
17 can un-raise your hand so we can keep track of, you know,
18 when you have another comment, maybe later on this
19 presentation, that would help us coordinate.

20 And then what we're going to do is we're going to
21 go ahead and open the phone lines for any phone -- phone
22 public comment. If you can unmute all please?

23 Is there anybody on the phone who would like to
24 make a comment?

25 I just wanted to ask a clarifying question.

1 Is this Sean Henshel (phonetic)?

2 MR. MCKINNEY: Can you please identify yourself,
3 sir.

4 MR. BUTLER: Okay. It doesn't look like we have
5 any public comments.

6 MR. MCKINNEY: Great. Thank you, John. Okay.

7 That concludes our discussion of electric charging
8 infrastructure funding allocation.

9 Let's turn now to hydrogen refueling
10 infrastructure. I'd like to ask if any Committee Members
11 present want to comment on this section?

12 COMMITTEE MEMBER WARD: This is Justin Ward.
13 Thank you again for having this opportunity to make
14 comments.

15 I do want to just say thank you for the continued
16 support for hydrogen infrastructure. I think the -- the
17 current plan, as well as some of the verbiage in the
18 Investment Plan kind of clearly identifies the -- the
19 challenges and the successes that we've had.

20 I think as we move forward I want to just
21 encourage us to continue to be flexible, because it seems
22 that we're learning almost on an hourly basis as these
23 current stations are being deployed. And so as we look
24 towards the future of funding opportunities within those
25 hydrogen stations that we accommodate that learning as much

1 as is possible in a kind of a real-time basis.

2 And also I think when we look at funding, also to
3 be open to, I think you mentioning in the beginning of the
4 Investment Plan, different opportunities to distribute
5 funds, whether it's the loan or the grant or the different
6 type of things. I think as we move forward and as we get
7 more interest from the private sector, I think those
8 opportunities may start to be more important.

9 MR. MCKINNEY: And then, Justin, if I can ask, at
10 some of the Fuel Cell Partnership meetings, I think other
11 representatives from Toyota have offered comments on
12 renewable hydrogen and what you might be learning from your
13 customer base on, you know, hydrogen sources for their fuel.

14 COMMITTEE MEMBER WARD: And there's -- as far as
15 Toyota as a company, we have been -- we have been a big
16 supporter of renewable hydrogen production because we think
17 that's going to be one of the key technologies needed to
18 really achieve a sustainable transportation technology.

19 Inside Toyota we have our Drive 2050 Vision right
20 now which includes a launch of a wide range of technology
21 including plug-ins, EVs, hybrids and fuel cells. We think
22 those are going to be the dominant player in 2050. And we
23 think that one of the ways we do that is that we make this
24 infrastructure available, whether it's EV, as we talked in
25 the previous section, or hydrogen as we're speaking now.

1 infrastructure, some of the concerns that there were in the
2 O&M funding, which I think has brought up another need that
3 I've heard a lot around the hydrogen community, as well, and
4 I'm hearing in the EV community, which is beyond just the
5 operations and maintenance it seems that there's a need or a
6 kind of real-time network oversight of the stations that --
7 that are being built. And again, I'm hearing this across EV
8 and hydrogen.

9 And essentially in the early phases, we're a
10 little earlier in hydrogen, obviously, than in the EV space.
11 But a station going down can have a huge impact on -- on the
12 initial adopters and on the perception of the success of
13 this technology at this point. So while I applaud the O&M
14 program, I believe it has a little more of a long term year-
15 to-year outlook on keeping the stations maintained and
16 running effectively.

17 But I'm hearing a need within the industry for
18 some sort of almost day-to-day oversight of the operation of
19 the stations. And, you know, we've proposed solutions and
20 opened brainstorming of sort of, you know, a AAA, so to
21 speak, of -- or some type of agency that can oversee these
22 issues on a day-to-day basis, and again within the EV
23 community and the hydrogen community. And we've talked
24 about budgets and kind of brainstormed on what it would
25 cost. It seems to be a very, very minimal financial

1 commitment relative to what we're putting into building the
2 stations.

3 But the impact when a station goes down and an OEM
4 has to send a flatbed out to pull vehicle, it creates
5 negative news stories and really a poor reflection of all
6 the work that we're doing here. So there seems to be a
7 collective need for this ongoing oversight of these
8 stations. And again, not necessarily 100 percent the
9 responsibility of the Energy Commission, but a topic I'd
10 like to bring up as something that maybe we could work in
11 between industry and government to try to figure out what
12 some potential solutions would be there, so we wanted to
13 bring that up.

14 And thanks for the opportunity there.

15 MR. MCKINNEY: Great. Thank you, Brian, for those
16 observations.

17 Peter, anything?

18 I'd like to turn to Committee Members on the
19 phone.

20 MR. BUTLER: Tyson Eckerle?

21 COMMITTEE MEMBER ECKERLE: Great. Yeah. So Tyson
22 Eckerle with GO-Biz. I want to offer strong support. I
23 think the hydrogen program, you know, is relatively high
24 profile with all the reporting and the -- the dedicated
25 allocation.

1 And I just want to offer some perspective from --
2 from my experience. And I've spent the last nearly two
3 years working very closely with all the different station
4 developers to get these stations open. And I know the
5 stations have not opened as quickly as we would have liked
6 to see happen. But I can assure everyone that the progress
7 has been consistently forward. And we've learned a ton as a
8 community going forward. So I think this is really --
9 really just hitting the starting line. I'm sure a lot more
10 stations are going to come online, fully open to the public
11 this quarter.

12 And so I just encourage Energy Commission that we
13 work closely together and stay the course on this. And
14 thank you for your leadership in this space. I think the
15 cost report was really great, a lot of great information
16 there.

17 I just really wanted to communicate that the --
18 the progress has been steadily forward and we're beginning
19 to start to see excitement grow. I think what Brian and
20 everybody talked about, reliability at these stations is
21 going to -- is the key component. Redundancy, obviously, as
22 more of these stations come online there will be more
23 flexibility for the customer. So that's the idea and that's
24 what I've spent my every waking hour trying to do. I worked
25 with all the stakeholders.

1 The other piece that goes is how encouraging it is
2 working with all the government and industry and nonprofit
3 stakeholders and everybody pulling in the same direction.
4 So I think, you know, I'm very encouraged and optimistic
5 about the future and what this year is going to look like.
6 I want to thank the Energy Commission for continuing your
7 support of hydrogen.

8 MR. BUTLER: Okay. Thank you, Tyson.

9 Brian wanted to, I think, have a response comment.
10 And then we'll go to the next Committee Member.

11 COMMITTEE MEMBER GOLDSTEIN: Yeah. I wanted to --
12 to build on what Tyson said and echo, first of all, our
13 gratitude for the Commission's dedication to that topic.
14 But I think something that was especially great last year
15 was the community prep carve-out for -- for all the alt
16 fuels categories, but specifically for hydrogen. I think
17 that more engagement that we can have, kind of the community
18 outside of Tyson's office, made within decision maker
19 stakeholder groups and potential developers the easier it's
20 going to make Tyson's job and the quicker it's going to
21 allow us to build these stations that we're funding right
22 now.

23 We've seen tremendous progress in your chart of
24 the overall build out times from year to year as far as the
25 infrastructure grants, and I think that we can certainly

1 improve upon that. Every bit of contact we can make within
2 the communities that are targets for the next rounds of
3 stations will certainly help ease the path to getting these
4 things up and running a lot faster, utilizing the funding
5 that's allocated within the budget years instead of having
6 to push those over and, candidly, just to help make Tyson's
7 job a lot easier.

8 So again I wanted to thank you guys for including
9 the community prep piece last year, and would love to see
10 that continued in ongoing years. Thanks.

11 MR. MCKINNEY: Great. Thank you, Brian.

12 So John and Al, should we go to the next Committee
13 Member on the phone? No more?

14 I'd like to turn to public comments here in the
15 auditorium.

16 Dr. Clark, you submitted a card. So thank you,
17 Dr. Clark. And as a friendly reminder, we have a three-
18 minute timeframe --

19 DR. CLARK: Yeah.

20 MR. MCKINNEY: -- for public comments, give or
21 take.

22 DR. CLARK: I was just going to echo that, three
23 minutes. Is there a clock ticking, though? Someone's
24 got -- okay?

25 I'm actually here -- I've got a number of comments

1 to make and I'm going to try to go through them, but I
2 wanted to go through just a couple of major points in terms
3 I'll call it critical comments that could be constructive.

4 I think some of you know me well enough to know
5 that I've raised questions before about the use of the word
6 "alternative." I think that we are no longer talking about
7 alternative. Those of you that paid attention or were at
8 the Paris Conference in December, the COP 21, our Governor
9 was there, our former Governor and a lot of leaders, maybe
10 some of you, the fact of the matter is this is no longer
11 alternative. When we talk about, as Brian pointed out and
12 as Tyson pointed out, when we talk about renewable energy
13 we're talking about the major thing that's also had an
14 impact on the stock market we're all aware of. Okay.

15 The point I think that needs to be made here is
16 not talking about alternatives, but instead talking about
17 renewable energy as a key component. So, for example, in
18 the critical comment, when you look at the numbers that you
19 have here, and I think if we dig into them enough we'll
20 notice an awful lot of even the hydrogen refueling stations
21 are coming from reforming natural gas. I know that 19 of
22 the ones from first element, we're doing just that of the
23 awards of, I think it was like 20 or 25 that were made just
24 recently.

25 My point to all of you, you should change that and

1 do it immediately. And I do know that Justin in working
2 with Toyota has a series of videos, three to five minutes,
3 out which are fantastic. The first one showed how this
4 country in the world has to move off of fossil fuels, like
5 oil, and move into hydrogen refueling. And where do they do
6 it? They do it in Western Pennsylvania and show people
7 going through this process. And a fellow from Connecticut
8 with a fuel cell company, I'm not sure it's the same one
9 that's here, were actually showing how the students could
10 learn from that and then do it. And then later on, yes,
11 they had a lady showing kids selling lemonade and how they
12 could use the lemonade to make into fuel cell energy. Okay.

13

14 That's what we've got to do is communicate the
15 solutions, and the solution is not going to natural gas. As
16 all of you know, this state has no got 63 percent of its
17 energy coming from natural gas. And I've already been
18 talking about some of the current issues that are going on
19 regarding some fractures in the pipelines and other things
20 that have caused major damages here in California and around
21 the country.

22 So let me go to the solutions. One of the
23 solutions that somebody eluded to is the CPUC. We need to
24 see the state, and I know Governor Brown is pushing this, as
25 well, going from not just central power plants but onsite

1 distributed power. When you look at these refueling
2 stations like hydrogen, these are the kinds of things that
3 can be done not just today in one place or another, but all
4 over the state in shopping malls, in government buildings,
5 and frankly in condominium buildings or other places where
6 people live and work.

7 I've actually been experiencing some of this, as
8 well. But what really upset me was that what you also need
9 to do is think about where the local cities become partners
10 in this process. You listed a bunch of different places
11 that have received funding so far. I didn't see anybody
12 getting an award in Santa Monica, Malibu, Brentwood, part of
13 Los Angeles. I didn't even see Los Angeles listed. I live
14 in Beverly Hills. Well, yeah, fine, okay. But those
15 communities are willing to put money into these stations,
16 and that's what you need, you need local government money,
17 as well as state funds to be able to do it, and especially
18 when you are looking at using renewable energy and sources.

19 Now I'm -- I can go through another list of
20 things. But what I want to emphasize in particular is I do
21 believe that the CPUC and other state organizations
22 partnering with ARB, partnering with the CEC, and certainly
23 with the Governor's Office of Planning and Research can see
24 those resources coming together. And my key point is
25 integrate these systems, work together on it. When we do it

1 separately the only people that win is our friends on Wall
2 Street, our former friends, I should say. That was a joke.
3 I'm from Connecticut. I have a different kind of sense of
4 humor, okay?

5 So my point to all of you is, yes, continue this.
6 But I do think you need to put an emphasis on renewable for
7 hydrogen refueling stations and look at some locations.
8 They're not just coming from a study that was done by some
9 people who just looked at it in a very different way, but it
10 needs to come from sources that are renewable, that are
11 usable locally, and it will also be good for the
12 environment.

13 And with that closing comment, and I have 30
14 seconds left or less, I'm going to give my card out to all
15 of you, okay?

16 MR. MCKINNEY: Great. Thank you, Dr. Clark.

17 And let me just state for the record that under SB
18 1505, one-third of all the hydrogen sold through a publicly
19 funded hydrogen refueling station in California needs to be
20 renewable content. In our recent AB 8 Time and Cost Report
21 that I referenced earlier we found that on a system average
22 the carbon footprint for a fuel cell vehicle is within five
23 points of the carbon footprint for an electric vehicle using
24 grid mix with renewable power, so very, very close in
25 that -- in that regard.

1 John and Al, should we turn to public comments on
2 the phone?

3 MR. BUTLER: Yes. So we'll start with Bob
4 Therkelsen.

5 MR. MCKINNEY: Go ahead, Bob.

6 MR. BUTLER: Bob, any comment? Maybe a leftover
7 raised hand, so we'll go ahead and mute that.

8 We don't have any other hand-raisers on the WebEx.
9 So again we're going to unmute the phone lines. If you
10 can -- oh, we do have one more. One moment, please.

11 Go ahead, Bill Leighty. And I'm sorry if I keep
12 mispronouncing your last name.

13 MR. MCKINNEY: Bill, you want to give it another
14 try?

15 MR. LEIGHTY: Yeah. Can you hear me now?

16 MR. MCKINNEY: Much better. Yeah. Speak loudly.

17 MR. LEIGHTY: Okay. Thanks. Okay. Thank you.

18 It's about your emerging opportunities suggestion
19 to allocate \$3 million to renewable hydrogen production. I
20 took a look at that and I think you should consider doing
21 even more for a couple of reasons.

22 One, the total amount of hydrogen fuel, high
23 purity required by year 2050 to beat California's 80 by '50
24 and other obligations is likely to be about 8 million tons
25 per year. And I wish you folks would collaborate with ITS

1 to -- to verify that number. If so, if it's that big a
2 number, that's the full output of about 110 gigawatts of
3 wind -- nameplate wind. It's a huge amount of energy.

4 So I think you should consider investing even more
5 in R&D projects to come up with ways of equipping wind and
6 solar and other renewable generators with ways to deliver
7 that high purity hydrogen fuel by the new dedicated hydrogen
8 pipeline system that ITS at UC Davis has envisioned in their
9 recent papers so that you can free those plants from the
10 need to deliver grid-quality AC to an electricity grid to
11 move it a couple hundred miles across the state where it
12 will be transformed back into -- into hydrogen. We can't
13 inflict that amount of demand on the electricity grid in
14 addition to its RPS obligation.

15 So I am interested in knowing that this
16 opportunity or a PON would be available. Our company owns a
17 small wind plant in Palm Springs which has been stranded a
18 few years because the -- our purchase agreement went away.
19 We've applied for funding from ARPA-E and the NREL Small
20 Business Voucher to convert that plant to deliver 100
21 percent of its output, its hydrogen fuel to the nearby
22 market, SunLine Transit or others, with no connection to the
23 grid. So that would set the stage for opening a very large
24 amount of California area to hydrogen fuel production
25 without grid connection, take advantage of the new hydrogen

1 fuel infrastructure pipeline system that ITS predicts.

2 Thank you.

3 MR. MCKINNEY: Great. Thank you, Mr. Leighty.

4 And I'm looking to John Butler. Do we have an
5 anticipated date on our website for the emerging
6 opportunities solicitation?

7 MR. BUTLER: We do not. So we are looking at --
8 there's the seaport solicitation which we have utilized a
9 portion of our emerging opportunities funding for the ITS
10 portion of that solicitation. And that is currently on the
11 street, so we're waiting for the results of that to -- to be
12 known.

13 MR. MCKINNEY: Okay. Thank you, John.

14 Are there any other public comments on hydrogen
15 refueling infrastructure on the phone?

16 MR. BUTLER: So again we're going to go ahead and
17 unmute the phone lines in just a minute for any phone-only
18 users. Again I ask everybody on their end if you can mute
19 your lines so we can open up? And then if any phone users
20 have any comments, please speak up pretty quickly. We'll
21 try to identify you quickly and then just zero in on your
22 call-in number. So we're going to go ahead and unmute the
23 lines right now.

24 Are there any comments on hydrogen refueling
25 infrastructure?

1 COMMITTEE MEMBER SHEARS: Hello. This is John
2 Shears with the Advisory Committee. And I just also want to
3 express my full support for the allocated -- recommended
4 allocations.

5 MR. BUTLER: Okay. Mute. Okay. Thank you very
6 much.

7 MR. BUTLER: Great. Thank you, John.

8 Brian, one last word?

9 COMMITTEE MEMBER GOLDSTEIN: Sorry. It's Brian
10 Goldstein, EIN. I just wanted to make a quick comment and
11 build on Mr. Leighty's comments there and just point out to
12 the Commission that the renewable hydrogen production topic
13 goes well beyond simply using hydrogen for the fuel cell
14 electric vehicle market. Certainly a strong power-to-gas
15 issue or energy storage issue within the gas sector, within
16 the electricity sector. Certainly an issue within helping
17 conventional fuel refiners meet their LCFS standards. And
18 you know, it certainly touches on this group within the
19 alternative biofuels production community.

20 So I think that the need for further examination
21 of renewable hydrogen production goes clearly beyond the
22 fuel cell electric vehicle community. But obviously that
23 community stands to benefit. And we would all love to see a
24 high level of 100 percent renewable hydrogen available once
25 we hit this critical mass in the next four to five years.

1 So thanks again.

2 MR. MCKINNEY: Yeah. Thank you, Brian.

3 Our Research Division within the California Energy
4 Commission is actually sponsoring an early market
5 opportunity, looking at early market potential business
6 cases for power to gas, and renewable hydrogen is the energy
7 carrier there. The Air Resources Board and the National
8 Renewable Energy Laboratory have a similar study underway,
9 as well. So I think there's increasing attention to this
10 topic and some good work forthcoming.

11 And with that, I'd like to turn to natural gas
12 fueling infrastructure. And the Staff recommendation is
13 \$2.5 million, primarily focused at school districts and
14 municipal fleets.

15 Are there any comments from Committee Members
16 present?

17 John and Al, do we have Committee Members on the
18 phone that might want to comment? Nope? Okay.

19 MR. BUTLER: Yes, we do have one, Tim Carmichael.

20 Go ahead, Tim. Hang on a moment, Tim. We're
21 going to have you start over. All right, we got you, Tim.
22 Go right ahead please.

23 COMMITTEE MEMBER CARMICHAEL: Thank you, Jim and
24 others. Tim Carmichael with the Natural Gas Vehicle
25 Coalition. Just two comments.

1 One, as we've mentioned in the past through these
2 Committee hearings, we continue to believe that we get the
3 most bang for the buck with vehicle incentives. The report
4 does a good job of referencing how there is still
5 significant private financing available for most natural gas
6 refueling infrastructure scenarios. That's not an argument
7 against the level of funding that you proposed, it's just a
8 reminder that the industry continues to believe that we get
9 more value if we put the public funding into vehicle
10 incentives.

11 And then the second point is a question. I
12 thought that previous solicitations had limited funding to
13 \$300,000 per project. This report or updated Investment
14 Plan talks about \$500,000 per project. Is that a change or
15 can somebody speak to that?

16 MR. ORENBERG: Hi, Tim. This is Jacob Orenberg.
17 Thank you for your comment.

18 I believe that the \$500,000 number may have been
19 for LNG stations. I'm not entirely sure. No, I'm sorry.
20 John is telling me, no.

21 MR. BUTLER: Yeah. And, you know, I'm sorry, my
22 memory may be a little bit fuzzy here, Tim. This is John
23 Butler. So this last solicitation, you're right, there was
24 \$500,000 for school districts to do natural gas fueling
25 infrastructure, and then \$250,000 for local jurisdictions.

1 So that was -- that was a change from the previous
2 solicitations. And again, that's where my memory is a
3 little fuzzy on exactly what those funding levels were. But
4 certainly we could talk offline and I can get you that
5 information.

6 COMMITTEE MEMBER CARMICHAEL: Thank you very much.
7 We support this line item.

8 COMMITTEE MEMBER SCOTT: Any other Committee
9 Members?

10 And we don't have any blue cards in the room on
11 that one. Do we have any public comment from the WebEx or
12 phone?

13 MR. BUTLER: No. But we can go ahead and open the
14 phone lines once again to see if there's any phone-in users
15 who would like to make a comment. So we're going to go
16 unmute those lines right now.

17 Are there any comments on natural gas fueling
18 infrastructure? Looks like none.

19 COMMITTEE MEMBER SCOTT: Okay. Thanks for double-
20 checking those lines.

21 So we have come to about noon. So we are planning
22 to break for lunch for an hour. And we will start again at
23 one o'clock, and we will pick up with the natural gas
24 vehicle incentives at that time. See you all at one o'clock
25 sharp.

1 (Off the record at 11:59 a.m.)

2 (On the record at 1:13 p.m.)

3 COMMITTEE MEMBER SCOTT: Okay, everyone, welcome
4 back. I am Commissioner Janea Scott. And we're going to
5 continue our discussion. I'll turn it back over to Jim
6 McKinney and we'll kick off the natural gas vehicle
7 incentives.

8 John and Al, I think we're going to start with the
9 folks on the phone while we wait for a couple of the
10 Committee Members in the room to come on back.

11 Go ahead, Jim.

12 MR. MCKINNEY: Okay. John, and Al, do we have
13 Committee Members on the phone who wish to speak to our
14 natural gas vehicle incentive proposed allocation of \$10
15 million?

16 MR. BUTLER: Yes, we do.

17 So, Tim Carmichael, please go ahead, or hang on a
18 second.

19 COMMITTEE MEMBER CARMICHAEL: Tim Carmichael with
20 the Natural Gas --

21 MR. BUTLER: All right. Tim, sorry.

22 Committee Member -- with the Natural Gas --

23 MR. BUTLER: We just unmuted you. So if you could
24 start again please?

25 COMMITTEE MEMBER CARMICHAEL: Hi. It's Tim

1 Carmichael with the California Natural Gas Vehicle
2 Coalition. Just a couple of quick comments.

3 One, as I said at our last meeting, we support
4 this allocation but continue to believe that it should be
5 augmented. And the category that we think makes the most
6 sense to reduce and augment this category is the technology
7 demonstration category. That's, you know, the same message
8 I gave when we were together in the fall. We think that
9 that makes more sense if you're balancing near-term
10 reductions with long-term development.

11 I don't have any specific points. I think Jacob
12 did a good job earlier describing where that technology is
13 and this great advance with the new low-NOx engines. One
14 detail that I think CEC Staff is already aware of, but those
15 low-NOx engines are likely to be more expensive than
16 existing technology than 90 percent lower emission. A lot
17 of money went into the R&D. I don't have a price sheet on
18 them, but all indications are they're going to be more
19 expensive than what's currently available. So I think we
20 should allow the flexibility for the CEC to increase the
21 per-vehicle incentive for trucks that use those low-NOx
22 engines.

23 And I also want to mention that we are having an
24 issue with the augmentation of the existing solicitation. I
25 know there's a lot of effort going into it, but there's

1 nothing up on the NGVIP website yet. So I'm getting calls
2 every week, people wondering what's going on.

3 For those that aren't aware, there was a
4 significant oversubscription for that solicitation. And we
5 were hoping that there would be a pretty smooth augmentation
6 with funding that's already been approved. But there have
7 been some issues there and we just need to get that
8 addressed as soon as possible. And more communication about
9 what is happening I think will go a long ways.

10 And finally --

11 (Background WebEx noise.)

12 COMMITTEE MEMBER CARMICHAEL: Go ahead.

13 COMMITTEE MEMBER SCOTT: Sorry about that. We're
14 getting some background noise. We're going to mute
15 everybody, except for Tim, please. Okay.

16 Sorry about that, Tim. Go ahead.

17 COMMITTEE MEMBER CARMICHAEL: No problem. Can you
18 hear -- still hear me?

19 COMMITTEE MEMBER SCOTT: Yes.

20 COMMITTEE MEMBER CARMICHAEL: And then my last
21 comment, Commissioner Scott and some of the Staff are
22 already aware, this will actually be my last meeting
23 representing the Natural Gas Vehicle Coalition on this
24 Committee. I've really enjoyed it over the last several
25 years, but I've actually accepted a position with Southern

1 California Gas Company and will be starting with them next
2 week. I anticipate continuing to be very engaged, but won't
3 be with the Natural Gas Vehicle Coalition. And we're hoping
4 to have a new person in place sometime in February.

5 COMMITTEE MEMBER SCOTT: Thank you very much, Tim.
6 I just wanted to say that we will miss having your
7 participation on this group we have. And to say thank you
8 so much for your thoughtful comments and for always lending
9 your expertise to us, and we hope that you will continue to
10 do that in your new role. Congratulations on that.

11 And I also wanted to note that we did put some
12 language up on the Energy Commission webpage about what's
13 kind of the current status of the natural gas, but not on
14 the Natural Gas Vehicle Incentive page. So we can -- we can
15 work with UCI to do that, as well, but there is some
16 language on the Energy Commission page.

17 Any other comments from the Committee Members on
18 the phone? Then we'll turn back to the room. Okay.

19 Peter, please.

20 COMMITTEE MEMBER CHRISTENSEN: Okay. Thank you.
21 And thanks, Tim, for those comments.

22 I just wanted to kind of complete the picture a
23 little bit from the incentives that are available through
24 the Air Resources Board. And it becomes a little bit, I
25 guess, complicated because of the funding allocations

1 that -- that came to ARB.

2 But just very simply put, in our last funding plan
3 that we took to the Board last June we approved \$7 million
4 for low-NOx truck incentives. And we are preparing to roll
5 those incentives out, roughly along the same time that those
6 engines are available in the marketplace. So that's going
7 to help to offset the incremental cost of those low-NOx
8 trucks and buses and other vehicles with those engines.

9 We -- there's -- the funding allocation that came
10 to ARB is less than the \$350 million in our plan, so that's
11 going to be a topic of discussion as we at the Air Resources
12 Board go through our public process in developing our
13 funding plan. But suffice it say, there is funding that's
14 going to be available. We have two different funding
15 sources that make up that total of \$7 million, part of which
16 is from the Greenhouse Gas Reduction Fund, and another part
17 of which is from our Air Quality Improvement Program, our
18 companion the AB 118 Program. So funding will be available.

19 And we're doing our best to roll that out along with the
20 engines when they -- when they hit the marketplace this
21 spring.

22 MR. MCKINNEY: And, Peter, I think going back to
23 Tim Carmichael's comment, have you set an incentive value
24 yet for the low-NOx engines?

25 COMMITTEE MEMBER CHRISTENSEN: No. We're still --

1 we're still working on what that incentive is going to be.
2 I'll just -- from our perspective, you know, whatever the
3 incremental cost might be, we don't think it's going to be a
4 huge incremental cost, it's going to be a -- but
5 nevertheless, a cost that's going to be important to the
6 end-user fleets. Our goal is to offset all of that
7 incremental cost so that the end-user fleet doesn't have to
8 realize any kind of a purchase price penalty, and that's --
9 that's our plan moving forward.

10 And we -- like I said, it's really important that
11 we make those incentives available as soon as the engines
12 hit the marketplace. So we're looking forward to making
13 that available soon.

14 MR. MCKINNEY: Great. Thank you, Peter.

15 John and Al, any other Committee comments on the
16 phone? Okay.

17 We have no blue cards for public comment -- excuse
18 me -- natural gas vehicle incentives.

19 So do we have any public comments on the phone?

20 MR. BUTLER: No, we do not, but we'll go ahead and
21 unmute the phone lines in case there are any phone-in users
22 who have a comment.

23 Go ahead, Al.

24 If anybody has a comment, please speak up now.

25 MR. MCKINNEY: Okay. Thanks to the Committee for

1 the discussion on this.

2 I'm going to turn now to medium- and heavy-duty
3 vehicle technology demonstration and scale-up. And this
4 combines our former manufacturing category with the medium-
5 duty and heavy-duty technology development category. The
6 Staff recommendation is \$23 million.

7 And are there any Committee Members presents who
8 wish to speak to this?

9 Are there any Committee Members on the phone who
10 wish to speak to this? Okay.

11 I do have a series of blue cards from members of
12 the public who wanted to speak to this. So the first --

13 MR. BUTLER: I'm sorry, Jim, we do have one,
14 Eileen Tutt.

15 Go ahead, Eileen.

16 MR. MCKINNEY: Very good.

17 COMMITTEE MEMBER TUTT: Thank you. This is Eileen
18 Tutt with the California Electric Transportation Coalition.

19 And I just wanted to -- we actually submitted a
20 written comment, so I'm just going to -- and it didn't get
21 accepted yet, but I'm sure it will be, and that is I do
22 think that in this -- in this particular funding section we
23 need to specify that the stations don't need to be publicly
24 accessible just because these are large -- by and large
25 private sleet that would be funded.

1 I also want to point out that there are members of
2 CalETC that have already experienced the implications. And
3 I guess I'd love to hear from -- from Peter, as well, on
4 this one, of the cost of infrastructure for these medium-
5 and heavy-duty electric vehicle projects and that that's a
6 big barrier. And so I'm hoping that this money can be used
7 to help overcome some of those barriers, and maybe in
8 combination with the money that -- that Peter referenced
9 from the climate change incentives programs -- or the GGRF,
10 whatever you want to call them, the cap and trade funds,
11 those need to be augmented to support the needed
12 infrastructure for these vehicles. And it is -- it is a
13 barrier. It's something that requires funding.

14 I do think that we do need to specify somewhere,
15 and maybe -- maybe it's already true, but we need to specify
16 that the stations don't have to be publicly accessible in
17 these particular applications.

18 And then I guess, finally, not that I ever, ever
19 disagree with Mr. Carmichael because we're pretty much
20 lockstep most of the time, but I would disagree on this
21 issue in that we really need -- \$23 million is, as I think
22 Jacob indicted, is -- is not nearly enough and was
23 significantly, 100 percent, oversubscribed, plus, last year.
24 And really this year, although there's more funding, it's
25 only \$3 million more, so it's now still going to be

1 significantly underfunded, particularly as we move into
2 investing in sustainable freight.

3 And where the Air Board is investing in these
4 multi-source projects and other big pilot projects, the
5 infrastructure needed to fuel those vehicles, for electric
6 vehicles in particular is what I'm thinking of but I assume
7 it's probably true for hydrogen, as well, there's going to
8 be a growing need for this money, and probably significantly
9 more than \$23 million in the coming years. And, in fact,
10 this year it will likely be oversubscribed. So that's kind
11 of my comment.

12 I guess the one thing I'd like to ask is it may be
13 that our comment wasn't needed because these are -- it's
14 just known that these don't have to be publicly accessible
15 if you -- if you use this money to install infrastructure,
16 particularly in coordination with the Air Resources Board's
17 multi-source or other pilot projects. And Maybe I could ask
18 that question first, and then leave a comment. We will, of
19 course, resubmit our comment for the written record.

20 MR. MCKINNEY: Peter, did you want to comment
21 here?

22 COMMITTEE MEMBER CHRISTENSEN: Yeah. Hopefully -
23 hopefully the microphone is on, but my button just broke
24 over here, so can you hear me okay?

25 Thank you, Eileen. And that's a good opportunity.

1 I appreciate that. I wanted to find the right -- the right
2 time to mention that the infrastructure that goes along with
3 a lot of the heavy-duty projects is particularly important.
4 And historically, you know, one of the -- one of the -- kind
5 of the elements of the partnership between ARB and the
6 Energy Commission has been that the Air Resources Board
7 could not fund infrastructure, because that was part of our
8 AB 118's statutory language. That -- that distinction has
9 evolved over time now that much of our funding at the Air
10 Resources Board is from the Greenhouse Gas Reduction Fund,
11 otherwise known as the California Climate Investments.

12 And so what you're seeing in the solicitations
13 that we release, including the latest ones that have come
14 out for zero-emission drayage trucks, our multi-source
15 facility demonstration project, and the solicitation that's
16 currently open for zero-emission truck and bus pilot
17 deployment projects all includes the opportunity for
18 components of those projects that include infrastructure.
19 So whether that be hydrogen infrastructure to support heavy-
20 duty fuel cell vehicles or battery electric charging
21 infrastructure for heavy-duty battery electric trucks, those
22 are now all elements of eligible applications in our funding
23 program.

24 And I just -- I did want to just take a second to
25 note that we're, you know, we're right now in the process of

1 awarding the projects for -- for our drayage truck and
2 multi-source demonstration project.

3 It's worth noting that the response to those
4 solicitations was tremendous. We had a total of \$50 million
5 available in funding. We received applications for three
6 times that amount, so \$150 million in applications. And
7 every single one of those applications was worthy of
8 funding. We wish we had the funding available to fund all
9 of those projects but, of course, we have to make tough
10 choices there.

11 At the same time, as we look forward I think we
12 recognize that our funding is likely to be challenged over
13 the next year or so. So I think this complimentary
14 approach, again, as we have done for many, many years now, I
15 think is particularly important. So I just wanted to
16 recognize that and encourage the -- continuing the
17 allocations that you've identified here.

18 And in case I don't have a chance to say it before
19 I have to leave for the airport in a little while, I once
20 again really appreciate the work that your Staff has put
21 into this, working with us at the Air Resources Board. I
22 think this is a tremendous collaborative effort and I'm
23 really looking forward to it.

24 And I you would just indulge me for another 15
25 seconds, I wanted to put in a shameless plug. For those of

1 you that don't have it on your calendar yet, our public
2 workshop as we engage in developing our funding plan for
3 Fiscal Year '16-17, mark your calendars, our next public
4 workshop is next week on Wednesday, January 27th, starting
5 at 9:30. We anticipate it will run from 9:30 to 1:00 at the
6 Cal/EPA building in Sacramento. And that will also be
7 webcast. The meeting notice is available on our ARB
8 website.

9 And I appreciate you giving me a little bit of
10 time for that plug. Thanks.

11 COMMITTEE MEMBER SCOTT: You're more than welcome.

12 And I would like to echo about the good
13 partnership between the Air Resources Board and the Energy
14 Commission. We appreciate that very much, as well.

15 MR. MCKINNEY: And this is Jim McKinney. And I
16 want to look to John Butler for confirmation here.

17 But going back to Eileen Tutt's comments, John, I
18 believe in our seaport solicitation that funding for
19 charging infrastructure is allowable in the match category?

20 MR. BUTLER: You're putting me on the spot, Jim.
21 I would have to go back to my solicitation.

22 MR. MCKINNEY: Okay.

23 MR. BUTLER: I don't want to give bad information
24 here. But certainly the solicitation is available online,
25 on our website, on our funding page. So --

1 MR. MCKINNEY: Okay. Great.

2 MR. BUTLER: -- sorry, Jim.

3 MR. MCKINNEY: Thanks. Okay.

4 MR. BUTLER: Sorry to let you down.

5 MR. MCKINNEY: No worries. No worries. No. So
6 we'll clarify that.

7 And I think as John just said, anybody can go and
8 look on that solicitation. But that -- that has been the --
9 kind of the Staff discussions that I've been a part of. So
10 we'll -- so we'll confirm that for you, Eileen. Okay.

11 I think that concludes --

12 MR. BUTLER: So we do -- we do have a couple more
13 comments online. So I want to open it up to Tim Carmichael.
14 I'm not sure if this is a new hand raise or not.

15 So, Tim, do you have a comment on this category?
16 Please go ahead.

17 COMMITTEE MEMBER CARMICHAEL: Sorry, I don't. I
18 forgot to lower my hand electronically after I finished my
19 last comment.

20 MR. BUTLER: No problem.

21 COMMITTEE MEMBER CARMICHAEL: Thank you, though.

22 MR. BUTLER: We weren't sure about that.

23 So we want to go back to Eileen Tutt. She has
24 another comment, as well.

25 Just a minute, Eileen. Let's get you unmuted.

1 And the floor is yours.

2 COMMITTEE MEMBER TUTT: Okay. Thanks. Thanks so
3 much again.

4 I guess, Jim, I really appreciate the comment
5 about match funding. But actually what I was asking was,
6 there is a requirement, and my understanding is that there
7 is a requirement that these stations be publicly accessible.
8 And obviously in commercial applications that's not
9 feasible. So I just wanted clarification. And I can -- if
10 you don't know it right off, you know, off the top of your
11 head, I will circle back with you, you know, one on one.
12 But I just wanted to make sure that we did -- we did comment
13 on this in writing, and I wanted to make sure that that was
14 addressed.

15 And then I just -- I want to just clarify that,
16 sort of to Peter's comment and to Jim's follow-up, that we
17 have a project already underway that one of our -- and it
18 is -- it's a goods movement, it's medium -- heavy-duty
19 application where the customer is actually hesitant now to
20 buy the trucks because of the cost of infrastructure. So we
21 know for a fact that without this funding, and that, you
22 know, again, the \$23 million is the minimum, without this
23 and without the good work of both the Energy Commission and
24 the Air Resources Board these projects won't go forward. So
25 it's not -- there's no -- there's no question as to whether

1 or not this funding is absolutely essential and will really
2 accelerate the market for medium- and heavy-duty zero-
3 emission trucks.

4 MR. MCKINNEY: Great. Thanks, Eileen. I think
5 you know it's been the Staff's intent to ensure that there
6 is funding for the ZEV truck projects one way or the other,
7 so let's continue to talk about that. And if you have more
8 specific cases, come on in and we'd be happy to meet with
9 you.

10 I think that does it for Committee Member comments
11 on this category.

12 I'd like to turn now, we have, I think, three blue
13 cards for members of the public today that wanted to speak
14 to this. So I'd like to recognize Jim Halloran with
15 Caterpillar.

16 MR. HALLORAN: Let me see if I can get close to
17 this.

18 Good afternoon, Commissioner Scott and Advisory
19 Board Members. I'll keep my comments brief. Jim Halloran.
20 I'm the Western Regional Legislative and Regulatory Affairs
21 Manager for Caterpillar. We're a little tractor company
22 headquartered in Peoria, Illinois, although with our dealers
23 and locations here in California, probably about 10,000
24 employees or so in the state.

25 I want to support a couple things. I want to

1 support this category, obviously. And I would support
2 Eileen's comments that we'd love to see more dollars, more
3 resources given to it.

4 But with that being said, you know, we had just
5 finished here in the last two months or so, completed a 36
6 ton excavator, a hybrid excavator project with you all. We
7 greatly appreciate your support in that. We felt that
8 your -- your support really at that time was critical and
9 helped us get that machine to market much sooner than we
10 would have without it. So we -- our deep -- our deep thanks
11 for your support in the past.

12 We also feel that, you know, projects like these
13 really can achieve what -- and, Jim, you had raised the
14 point earlier with a number of the initiatives, one of which
15 is the Governor's Petroleum Initiative. And we think that
16 the advances we're making in this space can achieve that 40
17 percent number. So we think that further support in this
18 space would be extremely helpful.

19 Lastly, as we talk about the non-road space, and
20 this is where Jacob had talked about it a little bit earlier
21 and this is something that we'd be happy to share, probably
22 in a more confidential manner with Staff directly, would be
23 in this whole idea about intelligent transportation system,
24 and in our space, in the construction industry space we
25 would call this connected worksite where your various

1 machines are actually communicating to each other, as well
2 as to say an outside central command.

3 And then lastly what I'd like to just leave with
4 you is it's really interesting, and I've used this analogy
5 in some other forums, but in the construction industry space
6 we -- we really hit a perfect storm here in terms of the
7 state's goals as far as efficiency goes and reduced
8 petroleum. Because when you think about it, for that
9 contractor operating in the state, you know, his fuel costs
10 are -- are some of the most expensive part of his owning and
11 operating costs. Well, if we can reduce his fuel costs we
12 also improve air quality, amongst other -- other pollutants.
13 And so it's really a perfect storm and we'd really like to
14 take advantage of that.

15 And I said earlier, really do appreciate your
16 early support, as you have done in the past with that 336
17 project.

18 And I would say to my friend, Peter, that doesn't
19 say that you're off the hook. We'd always love your support
20 on the backend for deployment.

21 But seriously, we really do appreciate the
22 Commission -- the Commission's support in that. So thanks
23 very much.

24 MR. MCKINNEY: Great. Thank you, Jim, and thanks
25 for coming down to attend this workshop.

1 Next we have James Holtz with BYD.

2 MR. HOLTZ: Thank you for the opportunity to speak
3 today. Again, I just wanted to second and third both Jim
4 and Eileen's comments that we need a lot of support for
5 infrastructure. I have -- BYD is rapidly growing its
6 customer base and we have a number of customers that want to
7 take it from a science experiment to a mass-scale
8 deployment. And there's concerns as to how to we get there,
9 specifically with infrastructure costs associated with that.
10 So any help that we can get for the infrastructure costs to
11 help us do larger scale deployments is greatly appreciated.
12 We absolutely are emphatically happy with the work you guys
13 are doing right now in helping us lead the charge here for
14 the -- the rest of the nation.

15 That's pretty much about it. Eileen,
16 unfortunately, took a lot of my thunder, but thank you.

17 MR. MCKINNEY: Great. Thank you, Mr. Holtz.
18 Thanks for attending our workshop.

19 Next, Dedrick Roper with ChargePoint.

20 MR. ROPER: Hi. Thank you for the opportunity to
21 speak today. Dedrick Roper with ChargePoint. And I want --
22 will follow up with more detailed comments. But we really
23 wanted to express the importance of maintaining some funding
24 for manufacturing, primarily due to, you know, job creation
25 being one of the foundation -- you know, being very

1 important to establishing an economic foundation in this
2 state, as well as maintaining manufacturing in California
3 will help expedite the deployment of these technologies in
4 California.

5 Also, as these technologies become more prevalent
6 and companies are doing better and have the desire to bring
7 manufacturing into the state, you know, having the
8 additional assistance from the Commission to maintain and
9 build -- to build and expand those facilities in California
10 is very much appreciated. And we'd also like to stress the
11 importance of allowing infrastructure to be a part of the
12 manufacturing funding, not just vehicles and vehicle
13 components. Again, I'll follow up with more detailed
14 comments in the filing. Thank you.

15 MR. MCKINNEY: Yeah. Thank you. And just one
16 moment, Dedrick. So I know ChargePoint won a manufacturing
17 grant from us many years ago, and I don't remember if that
18 was to establish your assembly line or to expand it. But --
19 so you're saying that ChargePoint is thinking of doing
20 something similar again?

21 MR. ROPER: Absolutely. ChargePoint is very
22 interested in manufacturing in California. Unfortunately,
23 you know, space is very limited in the Bay Area and it's
24 very expensive. So a little assistance would go a long way.

25 MR. MCKINNEY: Right. Okay.

1 MR. ROPER: Right.

2 MR. MCKINNEY: Thank you very much.

3 MR. ROPER: Thank you.

4 COMMITTEE MEMBER SCOTT: Let me just -- I forgot
5 to mention this, this morning, but if -- for the folks who
6 have made public comment, if you have a business card that
7 you could give to our Court Reporter, she would love you
8 forever. So that will help make sure that we get your name
9 correct as we put the transcript from today's meeting
10 together. So if you wouldn't mind handing her a business
11 card, either at the end or if you want to hand it to her
12 now, she'd appreciate that.

13 MR. MCKINNEY: All right. Thank you,
14 Commissioner.

15 Turning to John and Al, do we have public comment
16 on the phone?

17 MR. BUTLER: So, yes. We're going to open the
18 line for Mike Harrigan.

19 Mike, I know you typed in a comment online, but
20 I'd like to open the line to you so you can verbally provide
21 your comment. Please go ahead.

22 MR. HARRIGAN: Hi. It's Mike Harrigan from
23 Prospect Silicon Valley.

24 My main question was in this area is -- what's --
25 is there any plan for funding for transit bus technology

1 development? This is an area that's growing fairly rapidly
2 and can significantly reduce pollution, greenhouse gases.
3 And it wasn't clear in the presentation today whether
4 transit buses are included in this -- in this area or not.
5 So just a clarification really. Thank you.

6 MR. MCKINNEY: Great. Thank you. We're -- we're
7 checking on that. I'm -- Jacob and I don't know the answer
8 to your question.

9 John, do you know, in terms of eligibility for
10 transit buses in this category?

11 MR. BUTLER: Yeah. So when -- when we're talking
12 about eligibility, especially for specific project types, we
13 typically deal with that in the specific solicitations. You
14 know, I'm kind of looking to Jacob to see how we
15 characterize that in the Investment Plan. I don't know off
16 the top of my head, but I don't think, you know, I don't
17 think we would preclude transit buses as part of that
18 funding category per se.

19 MR. MCKINNEY: Great. Thank you, John. And I
20 know historically that's been the case, so --

21 MR. ORENBERG: And to echo John's comments, yeah,
22 I can't recall whether or not the Investment Plan
23 specifically addresses transit buses. But that typically is
24 left to the individual solicitations.

25 COMMITTEE MEMBER SCOTT: Maybe -- maybe a useful

1 thing would be keep an eye on our -- our listserv. And if
2 you're not signed up, please do, because what we often times
3 as we're designing solicitations is have pre-solicitation
4 workshops where we look to see what are the most current
5 issues, what are, you know, challenges that need to be
6 solved or barriers that need to be overcome or places
7 where -- overcome, or places where funding is really needed
8 and what would -- what could happen if we put funding in
9 that space?

10 And so those are great opportunities to weigh in
11 with us, weigh in with our Staff as they're designing
12 solicitations, so I'd also encourage you to be involved in
13 that process.

14 MR. MCKINNEY: Thank you, Commissioner.

15 Do we have any other public comments on the phone?

16 MR. BUTLER: So none identified, but we'd like to
17 go ahead and open the phone lines for any phone-in users.
18 We're going to unmute everybody right now.

19 And if you have a comment and you're a phone-in
20 user, please speak up. And go ahead, please.

21 It looks like none, so we'll go ahead and move the
22 phones again and move on.

23 MR. MCKINNEY: Okay. Thank you. Okay. Okay.

24 Let's turn now to Committee discussion on the
25 emerging opportunities category. The Staff recommendation

1 is \$3 million. We had a little bit of discussion on this
2 earlier in terms of renewable hydrogen.

3 Are there any further comments from Committee
4 Members here on this funding category?

5 Seeing none, do we have Committee Members on the
6 phone?

7 I have no blue cards or public comment on this
8 category.

9 Do we have public comments on the phone?

10 MR. BUTLER: So, Bob Therkelsen, please go ahead.

11 MR. THERKELSEN: Yes. This is Bob Therkelsen
12 again, representing ACE Cogeneration Company. And I
13 apologize for leaving my hand up earlier. That was
14 ignorance on my part.

15 One of the other things that we've run into in
16 terms of looking at developing large renewable hydrogen
17 projects is the lack of data in terms of what the hydrogen
18 market is, either currently or projected in the future.
19 While the Energy Commission has some good information in
20 terms of light-duty vehicles, you know, the whole picture of
21 hydrogen supply and demand is kind of missing.

22 And I know the Energy Analysis Division at the
23 Commission has a little bit of data and is starting to
24 collect some. But it would be extremely helpful to look at
25 the big picture. That comment was mentioned earlier, not

1 just for vehicles but for the entire supply and demand for
2 all the different sectors, and to be able to make that
3 available for in the market. It seems like emerging
4 opportunities may be a category to do that work, especially
5 in conjunction with the Energy Analysis Division. Thank
6 you.

7 MR. MCKINNEY: Great. Thank you, Mr. Therkelsen.
8 Any other public comments on the phone?

9 MR. BUTLER: No. But we'll go ahead and again
10 open up the phone lines in case there are any phone-in
11 users.

12 MR. MCKINNEY: Okay.

13 MR. BUTLER: So we're unmuting all right now. If
14 you have a comment, please speak up. It doesn't sound like
15 we have a specific comment there, so go ahead and mute all
16 again.

17 And back to you, Jim.

18 MR. MCKINNEY: Great. Thank you, John.

19 Brian, I think you wanted to make a --

20 COMMITTEE MEMBER GOLDSTEIN: Yes. Brian Goldstein
21 with EIN again.

22 And I just wanted to make a brief comment that,
23 you know, within the fuel cell electric vehicle community
24 it's a hot topic trying to figure out how to garner market
25 support for building hydrogen stations after the Energy

1 Commission funding runs out for the first hundred stations.
2 So I realize we have several years until we get to that
3 point, but I think that the industry as a whole is very
4 interested in examining what type of financing mechanisms,
5 what type of market dynamics we would necessarily need to
6 see for private industry to take that over.

7 So some research in that area in the future would
8 probably be very beneficial and certainly help us kind of
9 leverage these first 100 stations and really push the next
10 round of stations out into the -- to the open market. So
11 thank you.

12 MR. MCKINNEY: Great. Thank you, Brian.

13 That concludes our Committee and public discussion
14 on emerging opportunities.

15 I'm going to turn now to workforce training and
16 development. And the Staff recommendation is \$2.5 million.

17 And do we have any comments from Committee Members
18 present?

19 Do we have comments from Committee Members on the
20 phone? None.

21 I have a blue card from Nina Babiarz, or if you
22 can correct the pronunciation on your name when you approach
23 the podium?

24 MS. BABIARZ: Thank you very much. My name is
25 Nina Babiarz. And so if somebody called me Nina, I know

1 they don't know me.

2 Thanks very much for holding this workshop. It's
3 truly appreciated. I'm the Training Director for the
4 Southern California Regional Transit Training Consortium
5 which is comprised of 45 members, 30 transit agencies and 15
6 universities and community college members.

7 And I want to give just a little bit of background
8 on the consortium itself. It's a grassroots effort that was
9 founded, a nonprofit organization that was founded about 11
10 years ago. It's conceived by our transits in Southern
11 California that we're mandated by the South Coast Air
12 Quality Management District to really be the first in the
13 country to be on the front lines of procuring, maintaining,
14 operating and repairing low- and zero-emission buses.

15 And so our current Chair of the Board of Directors
16 is Tommy Edwards from SunLine Transit, but we also have many
17 other Board Members, Cal State University of Long Beach, Dr.
18 Tom O'Brien, Peter Davis, I think you saw here earlier, that
19 runs the Advanced Transportation Technology and Energy
20 Center, among others. And I'm happy to be like the last
21 presenter on workforce development because it really
22 transcends everything that we're talking about here today.
23 You know, we develop and deliver training specifically to
24 the transit industry on every technology we're discussing
25 here today.

1 Currently -- and we deliver. Currently we have
2 delivered over 65,000 hours of training to over 4,500
3 transit technicians. We've just run the National Transit
4 Institute Achievement in Transit Training Model Program
5 Award, and a month after that the California Transit Award
6 for the 2015 Transit Innovation. And we're very proud of
7 that because, again, just a little history on the
8 consortium, they came together as a grassroots effort.

9 And so with regard to the previous funding that we
10 have received, our initial funding source was the federal
11 transit administration with a four-year earmark from Senator
12 Boxer's -- with Senator Boxer's assistance. We got a fifth
13 year of that funding without asking direct from Ray LaHood
14 as a result of the "value and the success of our program."

15 As a nonprofit we were eligible, applied for and
16 received three years, \$700,000 for the reformulated gasoline
17 settlement grant. And we used that money specifically to
18 develop and deliver all of the hybrid electric transit bus
19 training. And as some of you recall we were -- we were able
20 to do that and we had to do that because ISE Corporation had
21 gone belly up. So our transits really didn't have that
22 vendor support that they needed once they took delivery on
23 those hybrid buses. And it was the RFT Grant that gave us
24 the ability to do that.

25 We were also -- the SCRTTC was the first in the

1 country to receive a federal transit -- Innovative Transit
2 Workforce Development Grant. And that grant was specific to
3 allow us to transition some of our technical training to
4 distance learning. We're the first in the country to do it.
5 And we got a second grant, we just finished in January, to
6 transition more of our course so that rural transits in
7 Northern California and remote areas can access this
8 training. They don't have the budget to send their folks
9 off the floor, you know, to take the training elsewhere.

10 And as you all probably know, we've been waiting
11 for a transit -- transportation bill to be passed. And so
12 we just received word from FTA that with the current bill
13 that has been passed there is, in the -- in the category of
14 workforce training and development, \$4 million for that
15 category for the entire country, and it's just not enough.

16 And, Mr. Christensen, I'm sure you probably
17 remember Mary Nichols direction at the ARB Board in October
18 talking about the transformation that our entire transit
19 industry is underway -- undergoing. And she asked the Board
20 to take maybe a closer look, a more detailed look. And
21 that -- her comment really inspired me to not only come here
22 today, but also to all the workshops with ARB and CEC that
23 have been held.

24 I guess one of the things I'm really trying to
25 stress is that not only are we, you know, developing and

1 delivering, every course that we develop and deliver is with
2 a transit and an academic partner. And so what we're
3 delivering is, number one, it's not an easy task. The
4 workforce itself is -- the composition really represents all
5 those -- the vets, the women, you know, all of those that
6 are in that -- that group that you're trying to reach, as
7 well.

8 And so transit-specific training in our industry
9 is the overarching and critical component to either ARB or
10 CEC ensuring the attainment goals that you're trying to
11 meet. And the significant technical advances and zero-
12 emission buses come with very unique training and
13 educational challenges.

14 And I shared with Commissioner Scott a little bit
15 of my background. I was -- I was a founding member of the
16 consortium. I directed the Advanced Transportation
17 Technology and Energy Program at the College of the Desert,
18 had the first FTA hydrogen fuel cell training for SunLine
19 Transit and AC Transit, some of my transit partners, a
20 National Science Foundation Grant for the same,
21 Schwarzenegger's California Hydrogen Highway. So I'm
22 intimately familiar with what it is we're talking about
23 here. I helped to administer some of the programs that
24 provide funding, whether it's ETP or ARB or CEC it's, you
25 know, quite the acronym soup, but all the way down to the

1 specific eligibility requirements.

2 And so, you know, even though -- even in this
3 current solicitation with the zero-emission buses, you know,
4 we worked three years to get workforce training and
5 development into that solicitation. And we're very grateful
6 that you included it. But what I'm here to talk about is
7 that that inclusion is specific to that solicitation.

8 So just like you wouldn't send your eight-year-old
9 child to a college course, you can't expect this entire
10 industry to leapfrog into these advanced courses. And so
11 even though that money is extremely helpful for the training
12 of those advanced courses, you've got an entire industry
13 that needs everything from the foundation prerequisites
14 from, you know, the basic electric, compressed natural gas,
15 hydrogen fuel cell, no matter what it is we're talking about
16 you can't expect to put a highly compressed gas or high-
17 voltage vehicle in front of a diesel mechanic without any
18 training. It's not safe.

19 And so the Consortium came together because they
20 were the ones that were on the front lines of trying to
21 solve this problem together. And it's a very collaborative
22 spirit, I might add. They were all dealing with the same
23 problems and somebody said -- as a matter of fact, it was
24 Jim Ditch at Long Beach Transit here 15 years ago that said
25 to somebody else, "Well, you know what, I just had vendor

1 training at my place last week and we had, you know, two or
2 three seats. You could have sent some of your guys over.”
3 And that’s how the Consortium got -- originally got started.

4 MR. MCKINNEY: And so, ma’am, this is really
5 interesting information. And you’re a new participant, so
6 welcome to our -- our process. I would like to ask you if
7 you have a specific comment to maybe focus in on that.

8 MS. BABIARZ: I appreciate that, Jim.

9 MR. MCKINNEY: -- as you close.

10 MS. BABIARZ: Yes, I do.

11 MR. MCKINNEY: Okay.

12 MS. BABIARZ: I’d like you to take a look at
13 knowing -- I mean, if you have any questions, I’ve provided
14 you my card, and I’ll certainly give it to the Court
15 Reporter. We provided detailed written input, so we’re on
16 ARB, we’re on the CEC site. But really I’m here to maybe
17 get you to take a different perspective and look at the
18 programs that are funded currently, but consider a
19 competitive grant to a nonprofit organization like the
20 SCRTTC. And we can -- we’re more than happy to compete
21 because we’ve competed nationally in the previous funding
22 that I’m telling you about, won it and delivered on every
23 single contract we’ve ever had.

24 And so I’d like you to consider some funding to
25 look at the transit-specific training that transcends the

1 entire industry, rather than just the specific training
2 that's need to deliver on a particular procurement. Because
3 that it is what's going to help your agency, as well as, you
4 know, ARB, achieve the attainment goals that you're
5 ultimately wanting to achieve. And I appreciate your time
6 today.

7 MR. MCKINNEY: Great. Thanks very much for that
8 comment. And we look forward to the written version of
9 that, as well.

10 MR. BUTLER: So, Jim, we do have an Advisory
11 Committee Member who would like to make a comment on this
12 item.

13 MR. MCKINNEY: Great.

14 MR. BUTLER: So, Eileen Tutt, please go ahead.

15 COMMITTEE MEMBER TUTT: Thank you, Jacob [sic].

16 This is Eileen Tutt with the California Electric
17 Transportation Coalition.

18 I just kind of want to, I hope, compliment what
19 Nina just said and just say that I really appreciate the
20 Energy Commission including this -- this funding because I
21 think we do need to -- I think a lot of times the community
22 colleges and the CSU system in California tends to be
23 overlooked by the technical agencies. And a lot of the
24 funding will go to the UCs but not so much the community
25 colleges and CSU who have a tremendous amount to offer.

1 So I just -- I think this is extremely important,
2 this \$2.5 million. I think it's very, very important that
3 the state invest in the training at the community college
4 level. So I just wanted to make sure that I supported that
5 strongly and really feel like it's important. And I think
6 the CEC has recognized that throughout the years. And
7 that's -- you know, I hope that that will translate to other
8 agencies, as well, because I do feel like sometimes the CSUs
9 get -- get overlooked, as do the community colleagues, and
10 this funding is important in that -- in that sense, as well
11 as Nina said, you know, we need to train the workforce
12 that's going to support these technologies. And we have the
13 expertise in our community colleges and in our CSU system.

14 MR. MCKINNEY: Great. Thank you for that comment,
15 Eileen.

16 Any more public comments on the phone?

17 MR. BUTLER: None that we can, but we will open up
18 the phone lines. So we're going to unmute everybody right
19 now. If you have a comment on this topic, please speak up.
20 And hearing none, we'll go ahead and mute the lines again
21 and move on.

22 MR. MCKINNEY: Great. Thank you, John.

23 Our final category before we go to general comment
24 are the all fuel readiness or the Regional Readiness and
25 Planning Grants. The Staff recommendation is \$2 million.

1 Do we have any comments from Committee Members
2 present?

3 COMMITTEE MEMBER GOLDSTEIN: Hey, Jim, it's Brian
4 Goldstein from Energy Independence now, just with a brief
5 comment.

6 I'd like to commend the Energy Commission on this
7 category. I think it's a hugely important category. We're
8 looking, relative to the overall budget, a relatively small
9 amount of funding. But I think it goes a long way in making
10 sure that the commissioning process for -- specifically for
11 the hydrogen stations can advance. You've already shown how
12 much progress we've made and the timeline and the
13 commissioning of the stations over the last several years.
14 And I think this is a huge help in that process. I think
15 really having the communities prepared ahead of time, having
16 sites identified ahead of time will really just help us to
17 get these stations built that much quicker and to use the
18 Energy Commission funds that much faster.

19 And what I'd like to add to that is that as we see
20 a flood of the new stations opening up over the next year or
21 two, I think that present a great education and outreach
22 opportunity to bring in community leaders as we open up the
23 stations and really kind of show them what we've built and
24 show them some success factors. I know in the hydrogen
25 community we've been waiting a long time to see these

1 stations open up. We're really going to see a flood of them
2 coming up soon and I think it's a great education and
3 outreach opportunity to kind of fold into this community
4 readiness and planning. Thank you very much.

5 MR. MCKINNEY: Great. Thank you for those
6 comments.

7 Do we have any Committee Members on the phone that
8 wish to speak to this?

9 MR. BUTLER: It doesn't look like it.

10 MR. MCKINNEY: I have -- no, I do not have blue
11 cards yet. I have no blue cards on this funding category.

12 Do we have public comments on the phone?

13 MR. BUTLER: No comments on the phone that we see.
14 But again we'll open up the phone lines and see if there's a
15 phone-in user who would like to make a comment. We're going
16 to unmute everybody right now. If you have a comment on
17 this topic, please speak up. Hearing none.

18 MR. MCKINNEY: Okay. I'd like to open it now to
19 general public -- I'm sorry, general comments from the
20 public. I have two blue cards. The first is Naveen Berry
21 from the South Coast Air Quality Management District. And
22 then afterwards, Michael Ippoliti from CALSTART.

23 MR. BUTLER: So, Jim, I'm sorry, we have a late
24 request from an Advisory Committee Member. So if we can
25 get --

1 MR. BERRY: Okay.

2 MR. BUTLER: -- Eileen Tutt, if --

3 MR. BERRY: Okay.

4 MR. BUTLER: Sorry, sir. If you can just wait a
5 couple minutes.

6 MR. BERRY: All right.

7 MR. MCKINNEY: Great.

8 MR. BUTLER: Appreciate it.

9 MR. MCKINNEY: Thanks, Naveen.

10 Go ahead, Eileen.

11 COMMITTEE MEMBER TUTT: Hi, I'm sorry. I don't
12 know -- the phone lines went dead, so I actually didn't hear
13 the request to comment on the regional readiness which
14 probably came and went. But I just wanted to support the
15 regional readiness \$2 million. This was put in about three
16 years ago, and at the request, I believe, of both -- both
17 Bonnie Holmes-Gen who is not there today and myself. And I
18 think it has proven to be invaluable. I think Tyson Eckerle
19 said earlier that the importance of getting local community
20 support for these projects, and specifically electric
21 charging and hydrogen, can't be underestimated or
22 overestimated, I should say.

23 And so I think \$2 million is probably the minimum
24 needed. Really happy to see it, and also glad to see it
25 expanding to both electric charging infrastructure, as well

1 as the hydrogen. And I think for those communities that have
2 taken advantage, and we've worked with some of them, this
3 money has been just invaluable.

4 So thank you for adding it and thank you for
5 keeping it in. I know for a while it came out and I'm glad
6 it went back in again, and I just want to -- want to thank
7 the Staff for that.

8 So sorry, I did not actually hear any of the
9 discussion so I don't know if anybody else commented, but --
10 but that's my comment. Thank you.

11 MR. MCKINNEY: We had a lively and informative
12 half-hour discussion on that point, so --

13 COMMITTEE MEMBER SCOTT: Eileen, Brian -- Brian
14 Goldstein from EIN did say about the same thing that you
15 did, if that's a fair summary. And we did not have any
16 additional public comment on that.

17 COMMITTEE MEMBER TUTT: Thank you, Commissioner.

18 COMMITTEE MEMBER SCOTT: You're welcome.

19 MR. MCKINNEY: I was teasing you, Eileen.

20 COMMITTEE MEMBER SCOTT: No, I know you were.

21 MR. MCKINNEY: Great. I'd like to recognize Mr.
22 Berry.

23 And I think, Naveen, this is your first
24 participation in one of our Advisory Committee meetings, so
25 welcome.

1 MR. BERRY: Yes, sir. Thank you, Jim, and good
2 afternoon. Again, my name is Naveen Berry and I'm the
3 Technology Demonstration Manager with the South Coast Air
4 Quality Management District. I'd like to thank the Energy
5 Commission for holding the workshop in the South Coast Air
6 Basin and really giving us an opportunity to chime in.

7 Again, overall, as you're probably well aware, the
8 South Coast AQMD really appreciates our ongoing partnership
9 with the Energy Commission, and I know Peter left, but with
10 the Air Resources Board, as well -- I guess I did catch him
11 -- in helping the South Coast AQMD with developing and
12 deploying hydrogen and electric charging infrastructure,
13 heavy-duty near zero-emission engines, zero-emission heavy-
14 duty vehicles, especially drayage trucks, including the
15 overhead catenary charging system located a few miles just
16 west of here, biofuels including renewable natural gas, and
17 numerous other projects that are all critical in reducing
18 criteria pollutants, and especially outside of nitrogen and
19 PM2.5, which is our essential goal in trying to meet the
20 National Air Quality Standards for the South Coast Air
21 Basin.

22 I do have one specific comment, however. And
23 since I was going to touch on all the categories I didn't
24 want to come up five or six times so I'm just saving it. It
25 really has to do with the Natural Gas Engine Voucher

1 Program. And the South Coast AQMD staff believes that use
2 of biogas combined with heavy-duty low-NOx engines is one of
3 the more cost effective nearest-term strategies to reduce
4 NOx in the basin in that use of renewable natural gas should
5 be considered as part of the Natural Gas Truck Voucher
6 Program to complement our collective goals in terms of
7 greenhouse gas reductions and criteria pollutants.

8 The Energy Commission's goals, again, I'm just
9 going to reiterate, for greenhouse gas reduction, reduction
10 in petroleum usage, and energy efficiency are kind of all in
11 line and really significantly benefit the air quality in the
12 South Coast AQMD in terms of our criteria pollutant and
13 ozone attainment goals. South Coast AQMD, again, looks
14 forward to continuing this vital relationship and leveraging
15 efforts by the Energy Commission and the Air Resources Board
16 to achieve our collective goals of reducing emissions.

17 I especially want to thank the Commissioners for
18 their vision, the extremely supportive management and staff
19 that works with us at endless hours to work out contracts
20 and so on and that are getting more and more complicated.
21 And it's really been an actual pleasure working with such a
22 helpful staff at the Energy Commission.

23 With that I want to strongly support the proposed
24 Investment Plan update and propose allocations. I think
25 they're right in line with what we're thinking. And I look

1 forward to working together with Staff and the Commissioners
2 to meet mass goal of allocation for the South Coast AQMD in
3 terms of funding. And with that, thank you very much.

4 MR. MCKINNEY: Great. Thank you, Mr. Berry. And
5 again, welcome.

6 COMMITTEE MEMBER SCOTT: Let me just also echo our
7 thanks for a good partnership. We enjoy working with you
8 all, as well, and we've all got our sleeves rolled up to
9 figure -- figure out these challenges. We have big, big air
10 quality challenges. And the transformation we need to make
11 in the transportation system really does require all of us
12 to have our sleeves rolled up and work together in
13 partnership and collaboration. So we appreciate the good
14 working relationship with South Coast.

15 MR. MCKINNEY: The last blue card that we have is
16 Michael Ippoliti with CALSTART.

17 MR. IPPOLITI: Hello, and thank you. Thank you
18 for the time. I appreciate it, Mr. McKinney, Commissioner
19 Scott, for coming down to my home town of Long Beach. And
20 again I also want to thank you for the -- the hard work on
21 the ARFVTP. I mean, I think this program really has
22 impacted the industry. The Caterpillar Hydrogen Excavator
23 Project is one example. It was a big success, I think. It
24 pulled that product forward, got it out there in the market.
25 And I think the -- the person in charge of the program in

1 Peoria got promoted, so I think that's a sure sign that it
2 worked.

3 So the Proterra Bus Project, I think, worked very
4 well. That's moved Proterra forward and accelerated that
5 part of the industry, so it's led to some great successes.
6 And I know we're administering some of the other programs
7 that will be also very successful.

8 We had a few ideas that we've heard from our team
9 members, so we wanted to bring them up with you here. I'll
10 try and be very fast.

11 In the world of light-duty infrastructure, it was
12 mentioned on page 42 of the Investment Plan, and also in the
13 presentations, that workplace charging is an area of great
14 interest and success. We would like to recommend some
15 funding be allocated towards education and outreach to try
16 and get people, companies, smaller companies perhaps, you
17 know, others than Facebook and Google and Disney, to start
18 doing voluntary actions to install workplace charging. We
19 think that might be very effective in accelerating that
20 area.

21 Also on infrastructure, on page 44 of the
22 Investment Plan and in the presentations it was mentioned
23 about the need to look at freight and fleet charging. And
24 we think a critical element there is determining some kind
25 of standard for medium- and heavy-duty charging interface.

1 Right now there isn't one and it is hindering things getting
2 unified. And this is a great example of an industry-wide
3 issue that would be well served by a state-supported
4 project.

5 In the medium- and heavy-duty area, the demos and
6 scale-up, on page 57 of the Investment Plan you talked about
7 enabling technologies and funding some of those. We think
8 that's a great idea. We strongly support doing that. That
9 will lead to greater carbon reductions in the future as
10 opposed to more immediate carbon reductions, but it will
11 improve the industry in general, you know, whether it's
12 waste heat capturing, waste heat recovery, electrified
13 auxiliaries, start-stop, things like that that will support
14 the overall product development.

15 Also as mentioned in the plan, non-propulsion
16 technologies I think are a huge opportunity. The ITS,
17 intelligent transportation systems, connected and autonomous
18 vehicles. As Jim mentioned, one area of particular
19 interest, we think, beyond just trucks is the off-road
20 world. Worksite communication, worksite automation, there's
21 an awful lot of agriculture that has already started doing
22 some of these things. That could lead to some great
23 projects in the Central Valley around ITS for agricultural
24 systems. And those are already starting to show reductions
25 in fuel use and carbon. So I think that's a great area

1 to -- to focus on.

2 And finally, we'd like to recommend some of the
3 manufacturing funding be allocated towards scale-up
4 assistance beyond facilities and manufacturing equipment.
5 What we're seeing is for a lot of the companies that aren't
6 Caterpillars, they need help in, for example, design for
7 manufacturing or supply chain development or developing
8 parts supplies or regional repairing facilities, the kinds
9 of improvements that help them scale their equipment and
10 designs to be more manufacturable. Volvos and Caterpillars
11 already know this, and a lot of these smaller companies do
12 not.

13 So those are my comments. We'll submit some other
14 things, of course. But again, thank you for the program and
15 thank you for your time.

16 MR. MCKINNEY: Great. Thank you, Michael. Those
17 are thoughtful comments, so thanks very much for
18 participating today.

19 Any public comments? Any general public comments
20 on the phone?

21 MR. BUTLER: Yes. We have Advisory Committee
22 Member John Shears who would like to make a comment.

23 John, please proceed.

24 COMMITTEE MEMBER SHEARS: Yes. Thanks. So just
25 to wrap things up, I just what to express my appreciation to

1 Commissioner Scott and Staff for again doing another
2 fantastic job on balancing all of the tensions and all of
3 the demands around designing and Investment Plan for this
4 program.

5 And last but not least, I'd like to congratulate
6 my colleague Tim Carmichael on his new gig with So Cal Gas,
7 thank him for his many years of service and exchanging of
8 wisdom on the Advisory Committee, and hope we're not going
9 to lose his participation and insights in this work going
10 forward. So congratulations, Tim, and thanks a lot.

11 MR. MCKINNEY: Any other public comments on the
12 phone?

13 MR. BUTLER: So not that we can tell, but we'll go
14 ahead and unmute the phone lines in case there are any
15 phone-in callers. And if you have any public comments at
16 this time, please speak up.

17 COMMITTEE MEMBER SCOTT: All right. It sounds
18 like we're not hearing any folks from the -- on the phone
19 line; is that correct, John, or is there another --

20 MR. BUTLER: Yeah. I was just leaving them open
21 for a little bit longer just to see if anybody --

22 COMMITTEE MEMBER SCOTT: Okay.

23 MR. BUTLER: -- had to unmute their lines. It
24 doesn't sound like there any -- any takers.

25 COMMITTEE MEMBER SCOTT: All right. Well, that's

1 a great segue for me to remind folks that we also take
2 written comments. The comments are due on February 1st; is
3 that correct, Jacob? So they're due on February first. You
4 can find the link to the docket and the presentations which
5 will be up on our web page. And we hope that you will
6 provide us with detailed thoughtful written comments, and we
7 look forward to looking at those.

8 I wanted to, for the folks in the room who gave
9 comments, which is almost everyone which is fantastic, I
10 hope that you will remember to give a card to our Court
11 Reporter so she can get your name spelled correctly.

12 And also, I hope that if you had a few minutes to
13 take the survey -- is our Public Adviser over there? Yeah.
14 She's still over there. We would love it if you would fill
15 out that voluntary survey just to -- so we have a good sense
16 of what inspired you to come here today, your love of
17 transportation. So that would be terrific if you would
18 please fill out those surveys for us.

19 I want to say thank you so very much to all of our
20 engaged stakeholders. You really help make this program
21 very, very rich and very valuable. As I mentioned before
22 when I was talking with South Coast, there's a lot to do in
23 this space. And we couldn't do it without all of us working
24 together.

25 I want to echo the comments to Tim Carmichael

1 about how much we have valued his expertise, his thoughtful
2 comments, his insights, and his participation on the
3 Committee. And we hope that he will continue to provide us
4 with great information.

5 I want to say thank you to all of our Committee
6 Members. We had Brian Goldstein and Justin Ward, Peter
7 Christensen, thank you, guys, for being here in person
8 today.

9 Eileen and Tyson, Tim, Joy, John and Sekita, thank
10 you so much for joining by the WebEx. We appreciated the
11 opportunity to be able to hear from you all.

12 I'd love to say welcome again to our new Deputy
13 Director John Kato. And thank John Butler and Al for
14 their -- their great running of the WebEx and making sure
15 everyone had a chance to weigh in who did not have an
16 opportunity to be in the room.

17 And then last but certainly not least, thank you
18 so very much to Jim and Jacob for their -- I reminded them
19 about the survey -- to Jim and to Jacob for your terrific
20 leadership in this program, for putting together a
21 thoughtfully revised Investment Plan based on the comments
22 we had gotten the first time to -- to roll out to the
23 Committee today. You both gave excellent presentations. I
24 appreciate the work that you do.

25 And with that we will be adjourned. Thanks

1 everyone for joining us.

2 (Whereupon the 2016-2017 Investment Plan Update

3 Advisory Committee Meeting and Public Workshop

4 adjourned at 2:18 p.m.)

5

6

7

8

9

10

11

12

13

14

15

16

17

18

19

20

21

22

23

24

25

1 CERTIFICATE OF REPORTER

2 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.

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

IN WITNESS WHEREOF, I have hereunto set my hand this 1st day of February, 2016.

3 

4 _____
MARTHA L. NELSON

CERTIFICATE OF TRANSCRIBER

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 transcribed by me, a certified transcriber and a disinterested person, and was under my supervision thereafter transcribed into typewriting.

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

I certify that the foregoing is a correct transcript, to the best of my ability, from the electronic sound recording of the proceedings in the above-entitled matter.



MARTHA L. NELSON, CERT**367

February 1, 2016