

DOCKETED

Docket Number:	18-ALT-01
Project Title:	2019-2020 Investment Plan Update for the Alternative and Renewable Fuel and Vehicle Technology Program
TN #:	229534
Document Title:	Transcript First Advisory Committee Meeting November 8 2018
Description:	Transcript of advisory committee meeting
Filer:	Tami Haas
Organization:	California Energy Commission
Submitter Role:	Commission Staff
Submission Date:	8/26/2019 10:15:57 AM
Docketed Date:	8/26/2019

CALIFORNIA ENERGY COMMISSION
ADVISORY COMMITTEE MEETING AND PUBLIC WORKSHOP

In the Matter of:) Docket No. 18-ALT-1
)
)
) Meeting and Public
2019-2020 Investment Plan) Workshop RE: Alternative
Update) and Renewable Fuel and

) Vehicle Technology
Program

NOTICE OF ADVISORY COMMITTEE MEETING
AND PUBLIC WORKSHOP

CALIFORNIA ENERGY COMMISSION
THE WARREN-ALQUIST STATE ENERGY BUILDING
ART ROSENFELD HEARING ROOM - FIRST FLOOR
1516 NINTH STREET
SACRAMENTO, CALIFORNIA 95814

THURSDAY, NOVEMBER 8, 2018

10:00 A.M.

Reported By:
Susan Palmer

APPEARANCES

COMMISSIONER:

Janea Scott, CEC Commissioner

GOVERNOR'S OFFICE

Tyson Eckerle, Governor's Office of Business and Economic Development

ADVISORY COMMITTEE MEMBERS:

Chris Shimoda, California Trucking Association
Claire Jahns, California Natural Resources Agency
Joy Alafia, Western Propane Gas Association
Joe Gershen, California Advanced Biofuels Alliance
Jack Michael, Recreational Boaters of California
Stephen Kaffka, California Biomass Collaborative,
University of Davis
Jananne Sharpless, Member at Large
Andy Panson for Steven Cliff, California Air Resources
Board
Irene Gutierrez (via WebEx), Natural Resources Defense
Council
Ralph Knight (via WebEx), Consultant for Alternative-
Fueled School Buses
Brian Goldstein, Energy Independence Now
Casey Gallagher, California Labor Federation
Thomas Lawson, California Natural Gas Vehicle Coalition
Eileen Tutt, California Electric Transportation Coalition
Peter Cooper, California Employment Training Panel

STAFF:

John Butler, Fuels and Transportation Division
Charles Smith, Fuels and Transportation Division
Kevin Barker, Fuels and Transportation Division
Jean Baronas, California Energy Commission
Tim Olson, California Energy Commission

APPEARANCES (Cont.)

PRESENTERS:

Patrick Brecht, 2019-2020 Investment Plan Update for the
Alternative and Renewable Fuel and Vehicle Technology
Program
Jennifer Masterson, School Bus Replacement Program
Patrick Brecht, Investment Plan Update Overview
Taiying Zhang, Low-Carbon Fuel Production and Supply
Brian Fauble, Electric Vehicle Charging Infrastructure
Phil Cazal, Hydrogen Refueling Infrastructure
Larry Rillera, Manufacturing and Workforce Development
Wendell Krell, Advanced Freight and Fleet Technologies

PUBLIC COMMENT:

Ryan Kenny, Clean Energy
Linda Urata (via WebEx), San Joaquin Valley Clean Cities
Coalition
Norma McDonald (via Webex), Organic Waste Systems, Inc.
Nina Babiarz (via WebEx), Southern California Regional
Transit Training Consortium
Temesgen Garoma (via WebEx), San Diego State University
Ryan Schuchard, CALSTART
Obrie Hostetter, Hsubject
Dedrick Roper, Chargepoint
Adam Mohabbat (via WebEx), EVgo
David Greenfader (via Webex), Envision Solar
International, Inc.
Bill Elrick, California Fuel Cell Partnership
Jaimie Levin, Center for Transportation and the
Environment
Wayne Leighty, Shell Hydrogen North America
Gustana Slimon (via WebEx), FirstElement Fuel
Raul Renaud
Dave Anderson, Lion Electric Bus and Truck
Jay Friedman, Zero Motorcycle

I N D E X

	<u>Page</u>
1) Introductions and Opening Remarks	6
Janea Scott, Commissioner CEC	
2) Overview of the 2019-2020 Investment Plan Update for the ARFVTP	9
Patrick Brecht, Program Manager	
3) Staff presentations on ARFVTP activities:	
Jennifer Masterson, School Bus Replacement Program	11
Patrick Brecht, Investment Plan Update Overview	19
Taiying Zhang, Low-Carbon Fuel Production and Supply	39
Brian Fauble, Electric Vehicle Charging Infrastructure	89
4) Advisory Committee discussion on the Investment Plan Update, and public comment	
5) Lunch break	125
6) Staff presentations on ARFVTP activities	
Phil Cazal, Hydrogen Refueling Infrastructure	127
Larry Rillera, Manufacturing and Workforce Development	166
Wendell Krell, Advanced Freight and Fleet Technologies	209

I N D E X

7) Advisory Committee discussion on the Investment Plan Update, and public comment (continued)	
8) Public Comments	---
Adjourn	230

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

P R O C E E D I N G S

NOVEMBER 8, 2018 10:04 A.M.

COMMISSIONER SCOTT: Okay, good morning everyone. Thank you so much for your patience as we wait for a few more members of our Advisory Committee to gather.

Welcome to our Alternative and Renewable Fuel Technology Program Investment Plan Advisory Committee Meeting. I am Commissioner Janea Scott. I oversee the Transportation Team here at the Commission. Let's go around the table. We'll do introductions and then we will turn to our Committee Members on the phone to introduce themselves. And we will get going from there. So John, please go ahead.

MR. BUTLER: Good morning. My name is John Butler. I'm the Deputy Division Chief of the Fuels and Transportation Division that's responsible for implementing ARFVTP.

COMMITTEE MEMBER SHIMODA: Chris Shimoda, California Trucking Association.

COMMITTEE MEMBER JAHNS: Claire Jahns, Assistant Secretary for Climate Issues at the California Natural Resources Agency.

1 COMMITTEE MEMBER ALAFIA: Joy Alafia,
2 President and CEO with the Western Propane Gas
3 Association.

4 COMMITTEE MEMBER GERSHEN: Joe Gershen
5 with the California Advanced Biofuels Alliance.

6 COMMITTEE MEMBER MICHAEL: Jack Michael,
7 Recreational Boaters of California.

8 COMMITTEE MEMBER KAFFKA: Steve Kaffka,
9 University of California Davis.

10 COMMITTEE MEMBER SHARPLESS: Jan
11 Sharpless, Public Member, former Commissioner,
12 former Chair of the Air Resources Board.

13 COMMITTEE MEMBER PANSON: Andy Panson
14 representing the California Air Resources Board.
15 I'm here on Steve Cliff's behalf today. He sends
16 his regards.

17 COMMISSIONER SCOTT: Thank you.

18 MR. SMITH: Charles Smith with California
19 Energy Commission's Fuels and Transportation
20 Division's Program Integration Unit Supervisor.

21 MR. BARKER: Kevin Barker, the new Deputy
22 Director for Fuels and Transportation. I just
23 want to say welcome to everyone. This is going
24 to be my first Advisory Committee Meeting and so
25 I'm really looking forward to hearing the

1 Advisory Committee's comments on the Investment
2 Plan. And I guess I would just stress that this
3 is the first crack at getting feedback and so
4 we're really looking forward to it. Thanks.

5 COMMISSIONER SCOTT: Great and welcome.
6 We're delighted to have Kevin as our new Director
7 of the Transportation Program.
8 And then we have, I believe, three members on the
9 phone, so let us -- three Advisory Committee
10 Members, which is Irene Gutierrez. Would you
11 like to say hello, Irene?

12 COMMITTEE MEMBER GUTIERREZ: Hi. Good
13 morning. This is Irene Gutierrez from the
14 Natural Resources Defense Council.

15 COMMISSIONER SCOTT: Good morning, and
16 how about Ralph Knight?

17 COMMITTEE MEMBER KNIGHT: Ralph Knight
18 from Napa.

19 COMMISSIONER SCOTT: Good morning, Ralph.
20 And did we have Brian Goldstein calling in? No,
21 not yet. Okay.

22 All right, so those are the Committee
23 Members. I want to say thank you to all of you.
24 We really appreciate the time that you take to
25 come and give us your expertise and advice in

1 this area. Also we should introduce Patrick
2 Brecht who is the new person who is in charge of
3 getting the Investment Plan together. Patrick is
4 standing over here behind the podium.

5 And then for members of the public if
6 you'd like to make a comment please get one of
7 these blue cards. They're up in front when you
8 came in. There's also a few over here.
9 Johnathan who's waving at you is the person who
10 will collect those. That's how we know you'd
11 like to make a public comment. We'll do it topic
12 by topic, so make sure that you note which topic
13 you'd like to comment on. And we will go from
14 there, so good morning and welcome.

15 Let me turn this over now to Patrick.

16 MR. BRECHT: Good morning, everyone. My
17 name is Patrick Brecht and I'm the Project
18 Manager for the 2019-2020 Investment Plan Update
19 for the Alternative and Renewable Fuel and
20 Vehicle Technology Program.

21 The purpose of today's workshop is to
22 discuss the recently released draft staff report
23 of the Investment Plan Update. But before we
24 begin, I need to go over a few announcements and
25 they are as follows. This workshop is being

1 recorded and the transcript will be made
2 available on the Energy Commission's website.
3 There are restrooms and drinking fountains
4 located outside the main door. And I should also
5 note, please use the front entrance when leaving.
6 Make sure you don't exit out the side or there'll
7 be alarms. (Laughter.)

8 There is a snack bar located on the
9 second floor atrium, which sells sodas, snacks
10 and other vending machine items. Finally, in the
11 unlikely event of an emergency in which we need
12 to evacuate the building please calmly and
13 quickly follow Energy Commission employees to the
14 appropriate exits. We will reconvene at
15 Roosevelt Park located diagonally across the
16 street from this building.

17 And to start off I'd like to thank all
18 the Advisory Committee Members for being here and
19 for their dedication in helping us to develop the
20 Investment Plan and the program and generously
21 giving us their time and expertise for another
22 year.

23 Oh, I'm sorry, this is a map of Roosevelt
24 Park across the street.

25 Okay, the meeting agenda. Our meeting

1 today will follow the agenda on the slide.
2 First, we'll start with The School Bus
3 Replacement Program presentation with Jennifer
4 Masterson. That will be followed by an overview
5 of the 2019-2020 Investment Plan Update.

6 After that, staff will be providing a
7 brief overview of the ARFVTP funding categories
8 or activities and we'll be including Advisory
9 Committee discussions on each allocation.

10 We'll also take public comments after
11 that, after the Advisory Committee discussion of
12 each allocation. And since we have lots to cover
13 today, and many interested stakeholders are
14 present, we request that public comments are kept
15 to three minutes or less.

16 At some point we'll plan a break for
17 lunch and reconvene an hour later, at which time
18 we'll continue the discussion. Finally, we have
19 another period of public -- at that point we'll
20 have another public comment time at the end of
21 the workshop.

22 Finally, here is the list of our speakers
23 today. And with that I will turn it over to
24 Jennifer.

25 MS. MASTERSON: Good morning. As Patrick

1 mentioned, my name is Jennifer Masterson and I
2 will be presenting a brief overview of the Energy
3 Commission's School Bus Replacement Program. The
4 school bus funding the Energy Commission received
5 is a result of Senate Bill 110, which allocated
6 75 million to replace the oldest school buses in
7 California.

8 This legislation provided a few
9 parameters. First, each applicant or eligible
10 applicants are school districts, county offices
11 of education and transportation joint power
12 authorities. Next, priority is given to the
13 oldest school buses operating in disadvantaged
14 communities and have a majority of students
15 eligible for free or reduced price meals. And
16 lastly, any school bus being replaced must be
17 scrapped.

18 Our school bus program has three
19 components. The first one is the school bus
20 replacement. And this is divided into two
21 phases, or two solicitations. The first phase is
22 to solicit the school districts, COEs and JPAs to
23 establish a list of buses eligible for
24 replacement.

25 This solicitation emphasizes electric

1 buses, but it also provides CNG buses when
2 electric is not feasible. This first phase
3 solicitation was released in May and closed in
4 September of this year. The second phase is to
5 solicit bus manufacturers to design, construct
6 and deliver the electric replacement buses
7 established in the first phase. This will be
8 released in a November-December timeframe.

9 The second program component is to
10 provide EV and CNG fueling infrastructure to
11 support the awarded school buses. And lastly,
12 the third component is to provide workforce
13 training to the bus awardees who choose electric
14 school buses.

15 The school bus program is funded with
16 both SB 110 and ARFVTP funds; 75 million from SB
17 110 will fund EV school buses. These funds will
18 be distributed between four regions: northern,
19 central, LA County and southern regions. Each
20 region has approximately 1.5 million in average
21 daily attendance.

22 The ARFVTP fund will fund all
23 infrastructure, CNG buses and workforce training
24 and development; 26 million has been set aside
25 for the installation of EV chargers.

1 Each awardee is eligible to receive up to 60,000
2 per awarded school bus. 3.7 million is available
3 for CNG buses and each awardee will receive
4 165,000 per bus. 2.4 million is available to
5 install CNG infrastructure up to 500,000 per
6 awardee.

7 And lastly, an amount to be determined
8 will be used to provide workforce training and
9 development to electric bus awardees.

10 The key dates for this program. In the first
11 quarter of 2019 we will enter into agreements
12 with CNG awardees. In the second quarter, we
13 will enter into agreements with both the bus
14 manufacturers and electric bus awardees. Schools
15 will then install their infrastructure between
16 April and December of 2019. And lastly, begin
17 delivering the buses in the fourth quarter of
18 2019.

19 There are many benefits for using
20 electric school buses such as it improved
21 children's health, it lowers emissions, it's a
22 quieter smoother ride, it lowers the maintenance
23 and fuel costs for the school districts. And it
24 has potential vehicle-to-grid capabilities. The
25 Energy Commission is extremely excited about this

1 new school bus program and especially excited
2 about improving the health of our children.

3 That concludes my presentation and I'd be
4 more than happy to answer any questions you may
5 have.

6 COMMISSIONER SCOTT: Great. Thank you
7 very much, Jennifer. This program, as you all
8 around the table know is not part of ARFVTP, but
9 it is a component that our Transportation Team is
10 overseeing. We're really excited about this. It
11 came from Prop 39 funds and so we've got great
12 relationships here at the Energy Commission with
13 the school districts with the distribution of
14 those. And so we're delighted to be able to do
15 some transportation work as well, thought the
16 Advisory Committee Members might be interested in
17 that.

18 If questions for Jennifer from Advisory
19 Committee Members, please feel free to ask. Yes,
20 Jan?

21 COMMITTEE MEMBER SHARPLESS: Yes. The
22 Energy Commission has been involved, over the
23 years, in school replacement for buses through
24 the Petroleum Escrow Violation Account money. So
25 what is the -- where we are before this program

1 came in terms of, I think those buses were
2 natural gas buses or were they ethanol, methanol?
3 I can't remember what they were, but there were
4 quite a few buses that were being funded through
5 PEVA account money. And now this is kind of a
6 standalone program that's coming after that.
7 Can you give me some kind of context in which to
8 understand the bigger picture?

9 MR. BUTLER: Absolutely. If memory
10 serves most of those buses were indeed CNG, so I
11 think this is our first opportunity to really
12 fund zero emission buses in this sector, which we
13 think is a great push on the market to get those
14 buses out there and show that they're a viable
15 option in many locations. So it's a great
16 opportunity and we're very excited about the
17 electric school buses.

18 In terms of the other fueling types under
19 the PEVA programs, I just don't have that off of
20 the top of my head. So I'd have to look for more
21 information on that.

22 COMMITTEE MEMBER SHARPLESS: But this
23 is -- excuse me, I know we have a short amount of
24 time for this, but this is just a standalone
25 program that was initiated because of

1 legislation?

2 MR. BUTLER: That's correct, so the 75
3 million is one-time funding. Hopefully, if we
4 can show great success here and we've actually
5 already closed the first phase of the
6 solicitation and we've had great demand under
7 that solicitation. If there are other
8 opportunities to get additional funding sources
9 into this I mean it would be fantastic to
10 continue to move that needle for zero emission
11 buses.

12 COMMITTEE MEMBER SHARPLESS: And you're
13 looking at a focus on disadvantaged communities?

14 MR. BUTLER: That is a part of the
15 solicitation and a part of the ranking that we do
16 on the buses that we want to replace. So as
17 Jennifer mentioned it's three elements where
18 we're talking about oldest buses, so the vintage
19 of the bus and then free and reduced priced
20 lunches at the school districts. And I'm sorry
21 I'm blanking on the third one.

22 MS. MASTERSON: Disadvantaged community.

23 MR. BUTLER: Okay. Disadvantaged
24 communities.

25 COMMITTEE MEMBER SHARPLESS: So will the

1 solicitations by disadvantaged communities kind
2 of have a higher priority than some of the other
3 districts?

4 MR. BUTLER: That's correct.

5 COMMISSIONER SCOTT: I don't see any
6 other members around the table. Do any of our
7 members on the phone have a question? Irene or
8 Ralph? If so, please speak up.

9 (No audible response.)

10 COMMISSIONER SCOTT: Okay. Hearing
11 silence, I will take that as no questions. But
12 thank you, Jennifer, so much for providing a
13 brief overview of the School Bus Program. It is
14 something that we are really excited about and
15 delighted to get to build on the relationships
16 that we've developed with the 2,000 local
17 educational agencies across the state with Prop
18 39.

19 And also I want to recognize Casey
20 Gallagher. Good morning. Thank you for joining
21 us.

22 COMMITTEE MEMBER GALLAGHER: Good
23 morning.

24 COMMISSIONER SCOTT: Glad to have you
25 here. Let us now move on to Patrick.

1 MR. BRECHT: Hello again. Actually let
2 me adjust this here. To provide some context for
3 the ARFVTP, this slide shows some key statistics
4 for the California transportation sector.
5 Statewide, we have almost 29 million light-duty
6 passenger cars and trucks on the road, as well as
7 nearly 1 million medium and heavy-duty trucks.

8 The state's efforts against global
9 climate change have begun to show progress. And
10 in 2016, California achieved its goal of reducing
11 greenhouse gas emissions to 1990 levels, four
12 years ahead of schedule. Despite the overall
13 reduction in greenhouse gas emissions, emissions
14 from the transportation sector increased 2
15 percent in 2016 as a result of higher vehicle
16 miles traveled and fuel consumption.

17 The transportation sector is the largest
18 source of greenhouse gas emissions in California
19 with vehicles, oil extraction and oil refining
20 combined, accounting for roughly 50 percent of
21 in-state emissions. In addition, many regions in
22 California struggle with poor air quality and
23 most notably San Joaquin Valley and South Coast.
24 Even with these advances through petroleum-based
25 fuels, still account for 90 percent of

1 California's ground transportation fuel and
2 resulting in significant greenhouse gas
3 emissions.

4 Both the State of California and the
5 federal government have set numerous policy
6 regulations to protect health and wellbeing and
7 the environment. These include greenhouse gas
8 emission reduction policies, air quality
9 regulations, petroleum reduction and renewable
10 fuel goals and zero emission vehicle regulations.

11 These policies and regulations outlined
12 on this slide help guide the development of the
13 Investment Plan and the funding allocations. And
14 in turn the ARFVTP helps the state meet these
15 goals.

16 The ARFVTP was set up to develop and
17 deploy innovative technologies that transform
18 California's fuel and vehicle types to attain
19 aforementioned climate change policies. In
20 addition, we have the complimentary goals of
21 improving air quality, increasing alternative
22 fuel use, reducing petroleum dependence and
23 promoting economic development.

24 The ARFVTP was established by the
25 California Assembly Bill 118 in the year 2007.

1 The program is funded through a small surcharge
2 on California vehicle registrations, which give
3 us a budget of up to 100 million per year
4 depending on how much is collected from the
5 surcharge. Originally, the program was scheduled
6 to end in 2016; however, California Assembly Bill
7 8 extended it through January 1st, 2024.

8 The Annual Investment Plan Update serves
9 as a basis for all solicitation agreements and
10 other funding opportunities for each fiscal year.
11 The document is vetted through a public review
12 process that involves multiple iterations of the
13 document and meetings with our Advisory
14 Committee, one of which we are holding today.

15 For fiscal year 2019-2020 we expect to
16 have 95.2 million allocation for project funding.
17 The allocations described in the Investment Plan
18 are the general project categories and provide an
19 overview of the status of the fuel or technology
20 and its potential over the coming fiscal year.
21 The specific requirements of what we ultimately
22 fund are determined by each solicitation and not
23 the Investment Plan.

24 The Energy Commission has followed a
25 consistent approach toward implementing the

1 ARFVTP since the beginning of the program. This
2 approach as summarized on this slide, which
3 begins with an Annual Investment Plan Update that
4 determines that coming fiscal year funding
5 allocation for categories of projects.

6 Energy Commission staff initially
7 processed funding allocations based on
8 consideration of policy priorities such as air
9 quality standards, environmental justice, zero
10 emission vehicle deployment, evaluation of
11 complimentary funding or regulations,
12 identification of the primary market and
13 technology opportunities and barriers and the
14 greenhouse gas emission reduction potential of
15 alternative fuel and technologies, both near and
16 long term.

17 This slide shows the process, beginning
18 with the Investment Plan funding allocations.
19 The funding allocations lead to solicitations,
20 which result in agreements, which are then
21 managed by Energy Commission staff.

22 Data collection and project review are
23 also key parts of the program's implementation.
24 The Energy Commission surveys funding recipients
25 of the anticipated results of the projects with

1 questions related to alternative fuel, petroleum
2 displacement, greenhouse gas emission reductions,
3 air quality benefits and instate economic
4 benefits.

5 The Energy Commission also continues to
6 collect data from funding recipients after
7 completion of a project, typically for six
8 months. Information of all these efforts feed
9 into the development of the biannual ARFVTP
10 Benefits Report as well as the program
11 measurement, verification and evaluation efforts.

12 Today, the Energy Commission has provided
13 over 789 million in funding through the ARFVTP.
14 About 24 percent of this has been invested in
15 biofuel production and distribution projects
16 indicated here in the shades of blue. Another
17 combined 35 percent, which is shown in green has
18 been provided for electric charging
19 infrastructure, light-duty electric vehicle
20 incentives, medium and heavy-duty electric
21 vehicle demonstrations and electric vehicle and
22 component manufacturing.

23 About 20 percent, shown in yellow, of the
24 funding has gone to hydrogen refueling
25 infrastructure and the vehicle demonstrations,

1 15 percent of net to natural gas fueling
2 infrastructure and vehicles shown in orange and
3 the remaining 6 percent to projects that either
4 incorporate multiple fuel types or do not address
5 specific fuel types such as regional readiness
6 planning or workforce training. And that's shown
7 in red.

8 To demonstrate its commitment to
9 diversity, the Energy Commission adopted a
10 resolution during the April 2015 Business Meeting
11 to firmly commit to increasing the following:
12 participation of women, minority disabled veteran
13 and LGBT business enterprises and program funding
14 opportunities; outreach to and participation by
15 disadvantaged communities; diversity and
16 participation at Energy Commission proceedings;
17 and diversity in employment and promotional
18 opportunities.

19 The Energy Commission also is committed
20 to taking steps toward broadening pool of
21 applicants to our various programs, especially
22 underrepresented groups, disadvantaged
23 communities and small businesses. Workshops such
24 as these are a part of a continued effort to
25 encourage diversity and participants in Energy

1 Commission programs, which help to ensure
2 equitable access to Energy Commission funding,
3 create jobs and provide economic stimulus in
4 underrepresented and disadvantaged communities;
5 increase competition to ensure the best
6 opportunities are identified and funded, and
7 ensure the local needs are identified and
8 addressed.

9 We also have survey forms out in front as
10 you came in, which you're welcome to fill out.
11 The Energy Commission also seeks to increase the
12 participation of disadvantaged and
13 underrepresented communities from a diverse range
14 of geographical regions in implementing the
15 ARFVTP. As depicted in this slide about 34
16 percent of program project funding has gone into
17 disadvantaged communities as defined by
18 CalEnviroScreen. When excluding program projects
19 that occur statewide or without applicable site
20 addresses, this funding share is closer to 45
21 percent.

22 The schedule that we expect to follow for
23 the 2019-2020 Investment Plan Update is outlined
24 in this slide. We released the draft staff
25 report on November 2nd and we're holding the

1 first Advisory Committee Meeting today. We will
2 release the revised staff report in January and
3 hold a second Advisory Committee Meeting in late
4 January or early February.

5 After reviewing and incorporating
6 comments from the workshop we expect release the
7 Lead Commissioner Report in March and seek
8 Business Meeting approval for the final document
9 in April.

10 This slide shows the layout of the
11 Investment Plan and I will provide an overview of
12 each funding category and proposed funding
13 allocation. My colleagues will then provide
14 detail of each funding category, which include
15 describing past, present and upcoming activities.

16 Major considerations for 2019 and 2020,
17 these are just a few of the considerations, which
18 will have a notable impact on the Investment Plan
19 Update with further detail throughout this
20 presentation and that of my colleagues.

21 Executive Order B-48-18 regarding zero
22 emission vehicle infrastructure, goals include
23 250,000 electric vehicle chargers, 10,000 direct
24 current fast chargers and 200 hydrogen refueling
25 stations by 2025 and 5 million zero emission

1 vehicles by 2030.

2 Executive B-55-18 states achieving carbon
3 neutrality by 2045.

4 Senate Bill 1000, here in 2018, electric
5 vehicle charging infrastructure proportionality,
6 which will require the Energy Commission to
7 consult with the California Air Resources Board
8 to assess whether electric vehicle charging
9 station infrastructure is disproportionately
10 deployed. And Low-carbon fuel Standard, reduce
11 carbon intensity of transportation fuels in
12 California at least by 10 percent by 2020 and
13 more recently 20 percent by 2030. Additionally,
14 in September of 2018, the California Air
15 Resources Board adopted changes to the Low-carbon
16 fuel Standard Regulations that will benefit the
17 deployment of zero emission vehicles and zero
18 emission infrastructure.

19 The amendments will allow hydrogen
20 refueling stations to earn hydrogen refueling
21 infrastructure credits based on the capacity of
22 the hydrogen station. The amendments will also
23 provide credits to DC fast chargers or direct
24 current fast chargers equipment based on the
25 equipment's power rating.

1 Now I'll move on to each funding
2 allocation. Electric vehicles are a key
3 component of achieving zero emission vehicle
4 deployment goals, greenhouse gas reduction
5 targets, petroleum reduction goals and air
6 quality standards in California. The program's
7 investments I electric vehicle charging
8 infrastructure are guided by legislation and
9 mandates: Executive Order B-16 in 2012, which
10 calls for 1.5 million zero emission vehicles on
11 California roads by 2025 and Executive Order B-
12 48-18, which calls for 5 million zero emission
13 vehicles by 2030, as mentioned earlier; Executive
14 Order B-48-18 also calls for 250,000 electric
15 vehicle chargers, including 10,000 direct current
16 fast chargers.

17 The program funding to date has supported
18 infrastructure for the 475,000 zero emission
19 vehicles in California, roughly half of all such
20 vehicles in the United States.

21 Due in part to program investments
22 California has the largest network of publically
23 accessible electric vehicle chargers in the
24 nation. In addition to charging infrastructure
25 goals recent legislation including Assembly Bill

1 2127 will require the Energy Commission working
2 with California Air Resources Board and the
3 California Public Utilities Commission, to
4 prepare a statewide assessment of the electric
5 vehicle charging infrastructure needed for the
6 state to meet its at least 5 million zero
7 emission vehicles on California roads by 2030.

8 Also, Senate Bill 1000 will require the
9 Energy Commission in consultation with California
10 Air Resources Board to assess whether electric
11 vehicle charging station infrastructure is
12 disproportionately deployed. Disproportionate
13 refers to a population density, geographical area
14 or income level.

15 For fiscal year 2019-2020, the Energy
16 Commission staff has proposed a 32.7 million
17 allocation for electric vehicle charging
18 infrastructure in order to reach these ambitious
19 goals. The ARFVTP program is the primary source
20 for funding for hydrogen refueling stations in
21 the state. California law directs the Energy
22 Commission to allocate a maximum of 20 million
23 annually to fund the initial network of 100
24 hydrogen refueling stations; Executive Order B-
25 48-18, setting a new goal of 200 stations.

1 To date, through the ARFVTP Program, the
2 Energy Commission has provided funding to install
3 or upgrade 64 publically available hydrogen
4 stations capable of light-duty vehicles
5 refueling.

6 Assembly Bill 8 requires the California
7 Air Resources Board to evaluate the need annually
8 for additional publically available hydrogen
9 fueling stations.

10 Based on the analysis conducted for the
11 report, Energy Commission and Air Resources Board
12 staff expect that the 2016 Zero Emission Vehicle
13 Action Plan goal to build an initial network of
14 200 hydrogen refueling stations can be achieved
15 with an additional program investment of 70
16 million, achieving the 200 goal set by Executive
17 Order B-48-18. However, it will require
18 significant additional funding.

19 For fiscal year 2019-2020, the Energy
20 Commission staff proposes a 20 million allocation
21 for hydrogen refueling infrastructure, which is
22 the appropriation allocation provided under
23 current law.

24 Funding support is critical at all stages
25 of product manufacturing and business development

1 to successfully bring emerging technologies to
2 market. The Energy Commission through the ARFVTP
3 has provided significant support to expand the
4 in-state manufacturing capacity of zero emission
5 vehicles and components.

6 The Energy Commission also has provided
7 significant investments for the training and
8 development of California's alternative fuel
9 workforce through the ARFVTP. Workforce efforts
10 funded through the program have grown in size and
11 scope with expanded programs with partner
12 agencies, as well as efforts with new partner
13 agencies.

14 This funding allocation supports a number
15 of recently adopted clean transportation plans
16 including the ZEV Action Plan with the release of
17 the 2018 ZEV Action Plan Priorities Update last
18 month. There are articulations of the rule that
19 the Energy Commission is helping ZEV workforce,
20 zero emission vehicle workforce expansion and job
21 training creations that will help ensure the
22 workforce is trained to meet future needs.
23 Sustainable freight, the California Sustainable
24 Freight Action Plan calls for stakeholders and
25 the state agencies to ensure that the future

1 workforce needs of a sustainable freight system
2 are met.

3 Low Income Barriers Study on clean
4 transportation calls for the state to maximize
5 economic opportunities and benefits for low-
6 income residents. Residents form investments to
7 help them form investments in clean
8 transportation ability options by expending
9 workforce training and development. But our
10 allocations for this category we'll also be
11 looking for opportunities to invest more heavily
12 in disadvantaged communities as captured in
13 previous slides.

14 For fiscal year 2019-2020, the Energy
15 Commission staff proposes a 5 million allocation
16 for this category based on the project needs for
17 funding to support manufacturing and workforce
18 development of the zero vehicle infrastructure
19 industry in California. This allocation will
20 complement the efforts of other government
21 programs that focus on manufacturing and
22 workforce for zero emissions vehicles.

23 The advanced freight and fleet
24 technologies category has continued to evolve.
25 As with previous years this category still

1 focuses on the needs of medium and heavy-duty
2 vehicles, which are most commonly used for
3 freight and fleets. We define these as Class 3
4 through 8 vehicles with a gross vehicle weight of
5 10,000 pounds. And we focus solely on
6 alternative fuel and zero emission power trains.
7 These vehicles represent a small share of
8 California's registered vehicle stock, about 3
9 percent. However, they account for 23 percent of
10 on road greenhouse gas emissions in the state.

11 The California Sustainable Freight Action
12 Plan released in 2016 discusses potential
13 statewide actions to improve freight efficiency,
14 transition to zero emission technologies and
15 increase competitiveness of the California
16 freight system.

17 The Energy Commission is also working in
18 collaboration with six ports throughout
19 California to identify and implement
20 transportation project concepts that will help
21 attain California's climate and clean air goals,
22 while meeting the needs of the ports.

23 This category is expected to be a primary
24 source of the Energy Commission funding supported
25 through the Sustainable Freight Action Plan

1 strategies and ports' collaborative activities.
2 For fiscal year 2019-2020 Energy Commission staff
3 proposes 17.5 million allocation for this
4 category to continue to support the demonstration
5 and deployment of advanced technology freight and
6 fleet vehicles and infrastructure. Staff intends
7 to balance the needs to continue vehicle
8 demonstration projects, while taking into account
9 similar funding available from other sources and
10 increasing need for charging and refueling
11 infrastructure.

12 The California transportation sector
13 depends largely on petroleum, which accounts for
14 89 percent of the ground transportation fuel used
15 in the state. Any low carbon substitute fuel
16 that can displace the roughly 14 billion gallons
17 of petroleum-based gasoline and the 3.3 billion
18 gallons of petroleum based diesel used per year
19 in California can provide immediate and long-term
20 opportunity to reduce greenhouse gas emissions
21 and petroleum use.

22 Biofuels, defined as non-petroleum diesel
23 substitutes, gasoline substitutes and biomethane
24 represent the largest existing stock of
25 alternative fuels in the California

1 transportation sector. In addition, the
2 production of and demand for renewable hydrogen
3 are expected to increase the incoming years as
4 more hydrogen fuel cell vehicles are sold.
5 Given the enormous petroleum and greenhouse gas
6 emission reduction potential of any low carbon
7 dropping gasoline or petroleum replacement,
8 future solicitations under this category may
9 emphasize renewable gasoline, renewable crude oil
10 and similar products in an attempt to accelerate
11 development.

12 In addition, given the ultimately limited
13 quantities of common feedstocks such as waste
14 vegetable oil and food waste, future
15 solicitations may also emphasize underused and
16 emerging feedstocks such as woody biomass or
17 agricultural residue.

18 Energy Commission staff expects the
19 availability of organic waste feedstocks suitable
20 to (indiscernible) for biomethane production to
21 increase as a result of Senate Bill 1383, which
22 sets goals to reduce statewide disposal of
23 organic waste from 2014 levels by 50 percent by
24 2020 and 75 percent by 2025.

25 CARB also notes that in the short-lived climate

1 pollutant reduction strategy that the state must
2 have sufficient organics processing capacity to
3 handle this additional diverted organic waste.
4 Low-carbon fuel production projects that reduce
5 methane emissions such as biomethane production
6 facilities can help achieve the state's short-
7 lived climate pollution reduction goals.

8 In addition, Senate Bill 1505 requires
9 the state's network of publically-funded hydrogen
10 stations to dispense a minimum of 33.3 renewable
11 hydrogen. Renewable hydrogen production
12 therefore, is also an integral part of the
13 state's plan to expand hydrogen fueling
14 infrastructure.

15 For fiscal year 2019-2020, the Energy
16 Commission staff proposes a 20 million allocation
17 of low-carbon fuel production and supply. This
18 funding will be used to continue Energy
19 Commission support for biofuel and renewable
20 hydrogen production facilities in California.

21 Next steps for the 2019-2020 Investment
22 Plan Update, those are all the categories we are
23 proposing for funding in this Investment Plan
24 Update. Going forward, we will be seeking
25 feedback with these allocations, the Investment

1 Plan and the program in general from all
2 stakeholders. In order to incorporate any
3 comments into the staff draft, we're asking to
4 receive them no later than Wednesday, November
5 21st. We prefer to receive comments through the
6 Energy Commission E-commenting system. And
7 there's a link to that on this slide and in the
8 workshop notice. We also accept comments via
9 email and regular mail. And the instructions for
10 where to send these are also in the workshop
11 notice.

12 We expect to release the revised staff
13 draft of the Investment Plan in January and are
14 planning to have a second Advisory Committee
15 meeting in late January or early February with a
16 location to be yet decided.

17 And just to recap, this slide show's a
18 summary of all the funding allocations we are
19 proposing in this draft of the Investment Plan.
20 Please hold off your questions or comments about
21 the specific types of fuel technologies or
22 allocations until after the staff presentations.
23 Once the Advisory Committee discussion is
24 complete, we can open it up to the public comment
25 period. Thank you. If you'd like to provide a

1 public comment as indicated before, please fill
2 out the blue card and provide it to Johnathon
3 here. And please specify on the blue card, which
4 category you'd like to speak on. If you are
5 participating with WebEx we would like your
6 comment, so please use the raised hand feature.
7 We will then call your name to speak and unmute
8 you during the public comment period.

9 And with that, I'll turn it over to
10 Taiying.

11 COMMISSIONER SCOTT: Great. Before we do
12 that, I just want to welcome Brian Goldstein and
13 also Thomas Lawson. Good morning.

14 COMMITTEE MEMBER GOLDSTEIN: Good
15 morning.

16 COMMISSIONER SCOTT: Nice to see you.
17 And are there any like clarifying questions for
18 Patrick on what he just said from the Advisory
19 Committee Members before we get into the specific
20 allocation?

21 COMMISSIONER SCOTT: Okay. And we have
22 both Irene and Ralph on phone, any clarifying
23 questions?

24 (No audible response.)

25 COMMISSIONER SCOTT: Okay. So let us now

1 then we'll turn to the Low-Carbon Fuel Production
2 and Supply. Okay, so Taiying.

3 MS. ZHANG: Thank you. My name is
4 Taiying Zhang and I'm from the Advanced Fuel
5 Production Technology and Planning Unit. I'm
6 going to talk about the activities of the low
7 carbon production and supply.

8 First, I will want to summarize all the
9 funding that was made. The total made is 62
10 awards with a total amount \$175 million. You can
11 see we have four different fuel categories, but
12 I'm not going to talk about the details right
13 now. Renewable hydrogen is a new category this
14 year. I will mention a little bit more detail on
15 this later.

16 Now, let's have an overview of the
17 project benefits of this low-carbon fuel
18 production. Overall, we found the production
19 capacity is over 137 million diesel gallons
20 equivalent. This is about 4 percent of the total
21 diesel consumption in California. All this low-
22 carbon fuel, the average carbon intensity is very
23 low. It's less than 25 grams of CO₂ e/MJ. So
24 this is just kind of in context, this is
25 significantly lower than the LCFS 2017 average of

1 biodiesel. The biodiesel average (indiscernible)
2 was 35, I think LCNJ is about 45. By this
3 displacing the petroleum fuels then these low-
4 carbon fuels could reduce more than 1.5 million
5 metric tons of CO2 emissions every year. 1.5
6 million metric tons CO2, basically that equals to
7 more than say 336,000 typical passenger vehicles
8 according to EPA.

9 Besides the GHG reduction this project
10 also provides a large economic benefit to the
11 state and local tax and job creation. These 62
12 projects will provide job creation of 525
13 permanent jobs and more than 1,600 temporary jobs
14 like construction. We required all the
15 recipients to provide the match funding for these
16 projects. So overall, these projects will bring
17 over \$500 million public and private investments.

18 We want to highlight more than \$410
19 million, it's about 85 percent investments are
20 located in disadvantaged communities.

21 After that we mention about the increase
22 in demand for renewable hydrogen production. So
23 our Hydrogen Unit and the Fuel Production Unit
24 are working together. We released the first
25 commercial-scale renewable hydrogen production

1 solicitation last December. This solicitation
2 required 100 percent renewable hydrogen
3 production. The minimum production capacity is
4 1,000 kg/day. 1,000 kg of hydrogen is basically
5 equal to 2,500 gallons of gasoline. All we can
6 say is it can fuel more than 200 fuel cell EVs.

7 We funded one -- actually that's probably
8 too small for you to read -- we funded the one
9 facility, StratosFuel, in June. This was a
10 proposal to add 2,000 kg/day production of two
11 years privately funded 3,000 kg/day facility.

12 Later in actually early October we funded
13 two more facilities. Both of them have the
14 production capacity of 1,000 kg/day. It just
15 kind of gives the real-time information,
16 unfortunately it shows only (indiscernible) for
17 this award. We can see all these three, the
18 projects that they use is a one all-solar, 100
19 percent renewable energy.

20 The primary benefits that come from the
21 community-scale and the commercial-scale
22 production facilities, which produce high volumes
23 of low-carbon fuels, this facility also matched
24 the production with local feedstock like waste of
25 any feedstocks. This production also addresses

1 the other state goals, as actually Patrick gave
2 some information on some of them.

3 Right now we have a solicitation for
4 community-scale and commercial-scale advanced
5 biofuel production as GFO-18-601. This
6 solicitation has up to 16.9 million in grant
7 funding.

8 Another opportunity is to de-carbonize
9 the transportation fuels. It's placed in the
10 transformative technologies such as the
11 demonstration of new fuels, other advancements to
12 increase yield, productivity or cost
13 effectiveness. We also emphasize sustainability
14 and the new feedstock. We kind of mentioned
15 those already.

16 Right now we also have a solicitation
17 open for demonstration-scale biofuel production.
18 It's 18-602. We have up to 6 million funds
19 available for this one. On both 601, 602 we are
20 in the second phase. We expect to receive all
21 the full proposals at the end of this month.
22 Hopefully we will announce awards early next
23 year.

24 Last year in '18-'19 we had \$12.5 million
25 in funding and also we were grateful to receive

1 12.5 million from the GGRF Fund and this is the
2 first time we are going to start the Low-Carbon
3 Fuel Production Program. Right now we're working
4 on the GGRF funding. We probably will have a
5 guideline workshop in January.

6 To close my presentation, we want to
7 emphasize we want to propose the 2019-2020 ARFVTP
8 funding for the 20 million to keep supporting the
9 low-carbon fuel production. Thank you.

10 COMMISSIONER SCOTT: Great. Thank you.

11 Do we have any clarifying questions from members
12 for Taiying before we open up our discussion?

13 Yes, please go ahead Steve and then Andy.

14 COMMITTEE MEMBER KAFFKA: So it's
15 probably for the Commission as well as for
16 Taiying, nice job, Taiying. The money that's
17 allocated to come from the Greenhouse Gas
18 Reduction Fund, has that been allocated by the
19 Legislature or is that still effectively
20 uncertain?

21 COMMISSIONER SCOTT: Yeah, that's last
22 years' money that's here.

23 COMMITTEE MEMBER KAFFKA: So it's
24 actually in the budget for this program?

25 COMMISSIONER SCOTT: Right.

1 MR. BUTLER: Yeah, so the GGRF funding
2 for biofuels was in the current year's Investment
3 Plan. So that's currently available through the
4 program to expend. This is next year's '19-'20
5 Investment Plan. So there's no GGRF funding in
6 this allocation that you're seeing in this
7 category.

8 COMMITTEE MEMBER KAFFKA: Okay. So it
9 may or may not actually become available to the
10 Commission?

11 COMMISSIONER SCOTT: No, yes. This \$20
12 million, yes will be available to the Commission
13 in fiscal year '19-'20. So that starts on July
14 1st.

15 MR. BUTLER: Yes. And this is ARFVTF
16 funding, so it comes directly from the program
17 whereas last year we split it between GGRF and
18 ARFVTF.

19 COMMISSIONER SCOTT: Andy. And then I
20 think Joe and then Jan.

21 COMMITTEE MEMBER GERSHEN: Actually no,
22 Joe is first.

23 COMMISSIONER SCOTT: Oh, okay. Joe.

24 COMMITTEE MEMBER GERSHEN: I think I have
25 a clarifying question as well. It seems like the

1 current year was 12 1/2 from GGRF and 12 1/2 from
2 ARFVTP. It's gone up to 20 for next year, but
3 that's still a decrease of 5 from prior years.

4 And from this current year it seems, right?

5 Because we had been at 25, so it's down to 20?

6 COMMISSIONER SCOTT: I think it was 20 in
7 '17-'18, 25 in '18-'19 and 20 in '19-'20.

8 COMMITTEE MEMBER GERSHEN: Okay. So it
9 had only gone up to 25, but that had been cut
10 between the ARFVTP and the --

11 COMMISSIONER SCOTT: And the Greenhouse
12 Gas Reduction Fund, right.

13 COMMITTEE MEMBER GERSHEN: Okay.

14 COMMISSIONER SCOTT: Jan?

15 COMMITTEE MEMBER SHARPLESS: Yes, to kind
16 of piggyback for one moment on that question.

17 Are any of these funds being rolled over because
18 you haven't had total commitment of them from
19 year to year? So even though it's not 25, the
20 sum total is greater than what we're seeing as an
21 investment allocation?

22 MR. BUTLER: So the answer is yes. So
23 the current solicitations that are on the streets
24 and active are actually from fiscal year '17-'18
25 funds. The '18-'19 funds just became available

1 to us, so there was a NOPA for the renewable
2 hydrogen production that actually tapped into the
3 '18-'19 funds of about 7.9 million. And we
4 understand there's a potential withdrawal out of
5 that proposed award as well. So it may only be
6 half of that, about four million or so from '18-
7 '19.

8 COMMITTEE MEMBER SHARPLESS: So based on
9 that what would be total that you would have in
10 we're talking '19-'20 right, in that finance
11 period?

12 MR. BUTLER: It's always an interesting
13 calculation, right? Because we always have a
14 moving target here. So on the streets right now,
15 we have about \$23 million out in solicitation
16 that we're actively pursuing and looking to
17 evaluate. And then beyond that, we're going to
18 have about \$20 million available in '18-'19 that
19 can be used for other projects as well.

20 COMMITTEE MEMBER SHARPLESS: So the next
21 increment of that question is on each of these
22 different year allocations have you changed the
23 conditions or are the conditions the same when
24 somebody applies for them as they were in the
25 '18-'19 period; are the conditions going to be

1 the same for the '19-'20 as to the qualifying
2 conditions?

3 MR. BUTLER: So I'm not sure what you
4 mean by the qualifying. So every time we run a
5 solicitation, we certainly establish eligibility
6 and the target of that solicitation through the
7 solicitation itself. We always have the ability
8 if we're oversubscribed with good projects to
9 pull forward funding that's available and
10 actually fund further down the list if we feel
11 there are good projects in those solicitation to
12 actually fund.

13 If we do a new solicitation, we're always
14 learning and we're always trying to find the
15 right niche to be able to fund the best projects.
16 So the conditions can change from solicitation to
17 solicitation.

18 COMMITTEE MEMBER SHARPLESS: Okay. And
19 then the last part of the question is are these
20 demonstration projects or are they actual
21 commercially ready to go production projects?

22 MR. BUTLER: It's actually both. So the
23 solicitations we have on the street, we have two.
24 One is for commercial scale and the other is for
25 demonstration scale and pilot scale projects. So

1 the commercial scale has allocated about \$17
2 million in that solicitation and then the
3 demonstration scale has \$6 million allocated.

4 COMMITTEE MEMBER SHARPLESS: So can you
5 tell me what the volume of production would be
6 for the commercial?

7 MR. BUTLER: So demonstration scale, I'd
8 better turn to my expert here. Go ahead.

9 MS. ZHANG: We had that on the slides.
10 It's the minimum requirement of 100,000 DGE.
11 Clearly this is a measure for the community
12 scale. For the commercial scale usually it would
13 go much higher.

14 COMMITTEE MEMBER SHARPLESS: Thank you.

15 COMMISSIONER SCOTT: Yes, Thomas?

16 COMMITTEE MEMBER LAWSON: Hi. Good
17 morning. I have three questions. One on can we
18 get a sense of how many projects will be funded
19 with the new money and how many projects do we
20 expect to be funded with the two solicitations
21 that are out? That's one question.

22 The second question is what's the
23 timeframe on these projects as far as when we
24 expect for them to -- from the time they receive
25 money to actually be completing and kind of

1 getting these objective and producing these DGE
2 reductions?

3 And then my third questions is do we have
4 breakdown of where these projects are located
5 regionally?

6 COMMISSIONER SCOTT: Yes.

7 MR. BUTLER: So thank you. For the
8 demonstration-scale projects a maximum award is
9 up to \$3 dollars. So with the 6 million, we're
10 looking at possibly two. Now we don't have the
11 final applications in yet. Those should be
12 coming soon.

13 For the commercial scale and community
14 scale, I'm making sure I'm getting this right, so
15 please correct me if I'm wrong, Taiying. Maximum
16 award amounts are \$5 million, so it looks like we
17 could get three to four projects out of that
18 current solicitation assuming we don't pull any
19 additional funds forward to fund further down the
20 list if we have good eligible projects to fund
21 those.

22 Again, these are active solicitations, so
23 we don't have the timeframes available on when
24 these facilities will be built. At this point we
25 hope to have our final applications in, I

1 believe, this month. And we will be going
2 through the evaluation process and publishing a
3 Notice of Proposed Awards here in the next few
4 months.

5 COMMISSIONER SCOTT: And if you go to
6 page 76 of the Investment Plan itself it has a
7 chart, Table 16, that kind of breaks down the
8 fuel types, how many projects, how many dollars.

9 COMMITTEE MEMBER LAWSON: Okay.

10 COMMISSIONER SCOTT: Are there any
11 clarifying questions from our members on the
12 WebEx, from Irene or from Ralph? Did Shannon
13 join by the way? If so -- okay.

14 (Off mic colloquy.)

15 COMMISSIONER SCOTT: Brian, yes, go
16 ahead.

17 COMMITTEE MEMBER GOLDSTEIN: See, I'm
18 just wondering if there's a crossover within a --

19 UNIDENTIFIED SPEAKER: I'm sorry, your
20 mic's off.

21 COMMITTEE MEMBER GOLDSTEIN: Oh, excuse
22 me. Hi. This is Brian Goldstein, Executive
23 Director of Energy Independence Now. I'm
24 wondering if there is a potential crossover
25 between the fuel types, specifically for

1 production of biomethane does that fuel need to
2 be used in a vehicle that's specifically made to
3 use biomethane. Or can that biomethane then be
4 used as a feedstock to produce renewable
5 hydrogen?

6 COMMISSIONER SCOTT: That's a good
7 question.

8 MS. ZHANG: We also state in our current
9 solicitation we require that you have the fuel
10 production used for transportation, but we are
11 open to comments for the future solicitation.

12 COMMITTEE MEMBER GOLDSTEIN: Great.
13 Thank you.

14 COMMISSIONER SCOTT: And to the
15 geographic distribution, I don't think we have
16 the chart in the Investment Plan. I have to kind
17 of flip through and see, but we do have a map up
18 on the Energy Commission webpage. And it shows
19 where all the projects are and you can -- if you
20 select the biofuels check box it'll pull those
21 ones forward so that you can see where they are.
22 And we can get that exact link for you, but
23 energy.ca.gov and then if you click on the
24 transportation tab you should be able to find it,
25 but we'll also get the direct link for you.

1 Any other clarifying questions for Taiying or
2 John or me?

3 (No audible response.)

4 COMMISSIONER SCOTT: Okay. So let's go
5 into discussion. Joe?

6 COMMITTEE MEMBER GERSHEN: You can see I
7 was reaching for my name plate. (Laughter.) Why
8 is that not surprising to anyone here?

9 So jumping around, I didn't have quite
10 enough time with all my other duties to go
11 through everything clearly, but I'll try to get
12 through things. So I think it would be remiss if
13 I didn't point out that the category that
14 continues to provide the best proven carbon
15 reduction potential, close to 90 percent overall
16 in the Low-Carbon Fuel Standard, is still only
17 receiving 20 percent of the funding in this
18 program. For those that didn't know that I would
19 say that then that's just for everybody else
20 that's new.

21 So in Table 6, and again jumping around
22 just a little bit and I apologize for that, Table
23 6 expected annual petroleum, fuel and greenhouse
24 gas emission reduction benefits on page 27 and
25 also Table 7, expected annual market

1 transformation benefits in 2030, on page 28, I'm
2 wondering once again if it's possible to see
3 metrics that support these assumptions? We don't
4 have to answer all of these all at once. And we
5 will be submitting formal comments here. These
6 are just some bullet points that I sort of
7 highlighted as I reviewed things.

8 Also, I think -- and I'm happy to have an
9 offline discussion about this, but it seems that
10 some of the staff's instate diesel subsidies
11 production capacity assumptions might be
12 incorrect or off by a bit. So the Investment
13 Plan Update says we will displace 81.5 million
14 gallons a year of petroleum from instate diesel
15 substitute production in 2020, which I agree with
16 essentially. But it also says that number will
17 flatten out to 111.3 million gallons a year in
18 2025 and beyond, including 2030.

19 So just to point out if we add up
20 existing plant capacity, including New Leaf, IWP,
21 Crimson Community, Agron, Biodico, which are
22 biodiesel plants and AltAir, which is a renewable
23 jet and renewable diesel plant we're currently at
24 122 million gallons of capacity if you add up
25 what all of their name plates are it might be 122

1 million, but you get the idea. And by 2022, the
2 current expansion's under way being completed at
3 some or most or all of those plants will be at
4 about 150 million gallons a year capacity.

5 So with LCFS credits pushing towards,
6 probably surpassing we're guessing \$200 dollars a
7 metric ton, currently I think they traded
8 yesterday at 191, it seems likely that most
9 production will be at capacity. In other words
10 with the driver of the Low-Carbon Fuel Standard
11 why would anyone not produce as much as they
12 could, right? So feedstock notwithstanding and
13 that's a separate discussion.

14 So if we add AltAir's recent announcement
15 of plans to go to 360 million gallons a year, I
16 believe the Commission has funded them partially,
17 which is great. That would be another 260
18 million gallons a year, which puts us at 410
19 million gallons a year of diesel substitutes
20 production capacity in the state. So I'm trying
21 to understand how staff thinks petroleum diesel
22 displacement would be flat at 111.3 million
23 gallons a year.

24 You don't have to answer now, but sure in
25 time.

1 COMMISSIONER SCOTT: I do actually have
2 an answer now and it's that we sent a set of
3 projects to NREL, funded projects through June of
4 2017.

5 COMMITTEE MEMBER GERSHEN: Okay.

6 COMMISSIONER SCOTT: So there are
7 projects we have funded since then. There are
8 projects that we will continue to fund. And so
9 maybe what we need to do on this chart is note
10 that, right? So by 2017 those projects that we
11 have funded in -- I'm sorry by 2030, the ones we
12 funded in 2017 of course, will. So that's why it
13 flat lines and it's also the reason the number is
14 lower compared to the numbers that you mentioned,
15 is it's literally just Energy Commission-funded
16 projects. So what we might want to do as is put
17 that in a little bit more context to add some of
18 those data points to the report.

19 COMMITTEE MEMBER GERSHEN: Okay. It's
20 just I mean as a public document for folks to
21 understand that there's all this other stuff
22 that's also coming online. Yeah, there's
23 other -- I'm not even counting some of the other
24 stuff we're aware of.

25 COMMISSIONER SCOTT: Yeah. But put this

1 program in context with what's taking place in
2 the other.

3 COMMITTEE MEMBER GERSHEN: Yeah, I
4 wondered if there's a feedstock component or an
5 anticipated feedstock like will there be enough
6 feedstock for all those plants. And you know,
7 there are some interesting things that others on
8 the Committee are working on and things that can
9 inform that.

10 Okay, so moving right along. On page 74
11 it says, "Staff may consider investing in
12 biodiesel terminal infrastructure." And I'm
13 just wondering if you guys can explain what that
14 actually means.

15 Table 6 indicates that by 2028, \$8.5
16 million will be spent on biodiesel
17 infrastructure. So I'm just curious is that the
18 plan to take another 4 1/2 million on top of what
19 was spent about a decade ago for infrastructure,
20 which was about 4 million. So that would be if
21 it's 8 1/2 what you're anticipating is 8 1/2 that
22 would be another 4 1/2 million.

23 I'm just also curious as to why that
24 number doesn't really increase. I mean, I've
25 tried to make the point in several prior meetings

1 that it's a pretty low investment considering the
2 return on that investment for biodiesel, which is
3 there's quite a bit of (indiscernible) based on
4 the Low-Carbon Fuel Standard. And I think that
5 last few miles of infrastructure spending would
6 enable a broad perception of the implementation
7 of B-20 blending in California.

8 COMMISSIONER SCOTT: Okay.

9 COMMITTEE MEMBER GERSHEN: So it is just
10 a thought.

11 COMMISSIONER SCOTT: Yes, and just one --
12 the reason it says it may consider is to give
13 folks an idea of what we're thinking about in
14 this space. We have not done the sort of
15 solicitation focused workshop to kind of gather
16 the type of information that you're providing to
17 then say, "Oh, okay. Here's what we're going to
18 put that category of funding toward."

19 COMMITTEE MEMBER GERSHEN: We'd be eager
20 to do a workshop like that helping the public to
21 understand it. It's pretty simple, but yeah we'd
22 love to do that.

23 So I want to give other folks a chance,
24 but page 1 I'm curious about the status of
25 progress for the purpose of the ARFVTP goals in

1 reducing greenhouse gas emissions to 1990 levels
2 by 2020, and 40 percent below 1990 levels by
3 2030, reducing short-lived climate pollution
4 emissions such as methane to 40-50 percent below
5 2013 levels by 2030 and achieving carbon neutral
6 economy by 2025.

7 This goes back to my prior statements
8 about metrics and that kind of thing on how we're
9 doing there. On page 5, I have some concerns
10 about whether funding allocations reflect the
11 potential for each alt fuel and vehicle
12 technology to contribute to the goals of the
13 program. Also about the quote of the effect of
14 other investments, I'm curious if that includes
15 other agency investments like CARB.

16 And then on page 6, since we have a new
17 Governor-elect, do we know if Governor Brown's
18 Executive Order will still hold with a new
19 Governor of the new Governor will make their own
20 Executive Orders. And I know I'm getting ahead
21 of myself there. (Laughter.) But I just wanted
22 to kind of flag that and I'm sure you guys are
23 thinking about it.

24 Also, can you guys share results with
25 respect to the statement on page 6, "Past

1 projects also provide direct feedback on how the
2 ARFVTP can maximize value in supporting the
3 transformation of the California Transportation
4 Sector for fuels and technologies that can meet
5 the more aggressive emission reductions required
6 by 2030 and 2050"? How effective have those
7 projects and programs been? Again, I'm trying to
8 frame this instead of using that metrics where
9 everyone would kind of go, "Oh, it's the metrics
10 guy again." I'd like to just kind of understand
11 a little more. That's all I've got for now.

12 COMMISSIONER SCOTT: Okay. Thank you.
13 Are there other Committee Members? Yes, Steve?

14 COMMITTEE MEMBER KAFFKA: Well, I know
15 we're mostly talking about biofuels, but related
16 to it of course is markets for fuels, in
17 particular compressed natural gas from biogas.
18 And there's an allocation for support for that
19 for vehicles. And I'm wondering to what degree
20 the Commission and the Commission staff would see
21 the need for support for those particular types
22 of investments in fleet infrastructure?

23 For example, to drive the development of
24 biogas production on dairy farms there needs to
25 be a market for the most valuable product, which

1 is often CNG. There's a number of projects
2 developing I'm engaged in, in that part of my
3 work. You know, part of coming to meetings here
4 is working on the methane issue and really demand
5 has to be developed as part of that project to
6 make the goals of the short-lived climate
7 pollution program viable at least to make with
8 respect to dairy farms.

9 And as you noted, there's going to be
10 increasing amounts of biomass, methane generated,
11 from urban residuals. And that's really a very
12 viable program. There's a number very prominent
13 examples now in the state. But in that case
14 again demand needs to be there. And so I'm
15 wondering how the staff is thinking about how
16 that money might be allocated between the
17 immediate creation of a market for fuels that are
18 coming online now versus long-term somewhat
19 ephemeral notions about alternative vehicle
20 types?

21 COMMISSIONER SCOTT: I'm trying to think
22 who on the staff should take that on or we could.

23 MR. BUTLER: Well, I think we do try to
24 consider both the long-term and short-term goals
25 of the program when we're drafting solicitations

1 and how we evaluate projects coming in. And
2 certainly there is an opportunity under another
3 funding allocation, you know, advanced rate and
4 fleet, to potentially help drive those markets
5 and drive that demand to support biomethane
6 production.

7 Certainly our investments in this
8 category, again biomethane is a very low-carbon
9 fuel that we're very supportive of. And
10 especially when we have that fuel go in to the
11 low-NOx engines for the trucks, I mean it is a
12 very -- I see it as a very valuable type of
13 project and I think something we continue to
14 strive to is to move that market forward.

15 Again, we always have to weigh it with
16 the other opportunity costs that we're looking at
17 when we're making the decisions on what we target
18 and what we fund and what we should fund both
19 long term and near term. So we're trying to
20 strike that right balance through the plan and
21 through our funding investments.

22 COMMITTEE MEMBER KAFFKA: As an Advisory
23 Committee Member I'd like you to consider
24 emphasizing, at least in the near term, those
25 kinds of investments to make sure that process

1 proceeds well for both urban and agricultural
2 biomethane centers.

3 COMMISSIONER SCOTT: Okay. Claire and
4 then Jan.

5 COMMITTEE MEMBER JAHNS: Thanks. I guess
6 I'm also a metrics person and I thought those
7 charts were interesting. And I think it would be
8 helpful to know maybe in the next meeting or
9 going forward just to disaggregate some of this
10 information about the market transformation
11 benefits across programs are really interesting.
12 And then in Figure 4 on 29 I expect the rate of
13 change, it's really useful to see them over time,
14 especially if the goals we have are getting more
15 and more and more aggressive, and sooner and
16 sooner. And I expect that the different types of
17 investments have different rates as to whereas
18 they're all kind of bundled here, so that would
19 be interesting to know.

20 And then to also indicate across programs
21 how well a job each of these programs did in
22 terms of leveraging other sources of funding,
23 whether it's other public or other private. And
24 then also and maybe this is -- I was speaking
25 personally -- it would be a Committee education

1 item, but to talk about kind of where on the
2 technology development or market saturation
3 curve, each of these types of investments are and
4 maybe that would be the market transformation.
5 But it seems like we need some moon shots and
6 some steady changes over time and it would be
7 interesting to see is the funding across each of
8 those categories, how to balance that especially
9 looking at carbon neutrality.

10 COMMISSIONER SCOTT: Thanks.

11 Jan?

12 COMMITTEE MEMBER SHARPLESS: Yes. So in
13 reading the report on page 74, you cover the E85
14 category. And we've been funding that for
15 several years. My question is what is the
16 rationale to continue to fund it? Why do we need
17 to fund it in 2019-2020?

18 COMMISSIONER SCOTT: We're not funding
19 E85.

20 COMMITTEE MEMBER SHARPLESS: Okay. It
21 looked like it was combined in a category, so it
22 wasn't clear to me. It's just in the report to
23 indicate that it's one of the many fuels out
24 there.

25 MR. BUTLER: Well, I think ethanol is a

1 gasoline substitute that would be eligible under
2 that category and probably eligible under our
3 funding solicitations. The question is how
4 competitive is it according to our criteria? Is
5 there really a need for the state investment?
6 That is one of the things we --

7 COMMITTEE MEMBER SHARPLESS: Well, that
8 would be my question. So it's in the report, but
9 it didn't really indicate that you would not be
10 funding it. It sort of sounded like it was one
11 of the categories that could be funded.

12 MR. BUTLER: Yeah. In prior investment
13 plans we have funded specifically E85 ethanol
14 projects. Here, there's not a specific carve out
15 for gasoline substitutes, so again I think it's
16 an eligible type of biofuel, but how it competes
17 with the other opportunities that come in when we
18 have competitive solicitations may be a trend.

19 COMMITTEE MEMBER SHARPLESS: So they
20 could apply, but they would be evaluated based on
21 your criteria?

22 MR. BUTLER: Based on the criterion in --
23 go ahead, Charles.

24 MR. SMITH: This is Charles Smith. So
25 the reference to E85 specifically on page 74 is

1 more in reference to the volume of ethanol that
2 is in the transportation market to give the
3 readers a sense of the scale of the ethanol
4 market as a whole, not as a specific callout to
5 E85 refueling infrastructure as a project type
6 that we were proposing to fund.

7 COMMISSIONER SCOTT: This is Janea, maybe
8 we need a sentence or two to clarify that, so
9 that the reader will know what we mean here.
10 And I want to just welcome Tyson Eckerle who has
11 also joined us. Good morning, welcome. And then
12 Thomas and then Steve.

13 COMMITTEE MEMBER LAWSON: Good morning.
14 I had a few comments. One is so obviously it's
15 clear that there is no funding for natural gas
16 vehicles in this particular proposed plan. And I
17 think to piggyback on Steve's point if we're
18 going to spend \$20, \$25 million a year on getting
19 these bio-projects up and running, and some of
20 those will be renewable natural gas projects from
21 dairies. It's been clear that one of the things
22 that they're going to need is to be able to use
23 this as transportation. And that automatically
24 means we need to ensure that there's more natural
25 gas vehicles on the road in the heavy-duty truck

1 sector. And so my question and my issue is how
2 do we -- the plan doesn't really connect those
3 two things. It seems disconnected.

4 I will also say that one of the things
5 that anecdotally we've been -- we as an industry
6 have been responded to, is that there's no demand
7 for these vehicles and I believe that that's not
8 true. And I think that the current CEC program,
9 NGVIP, has a wait list. And so my question is if
10 there's a wait list, which I think is over \$3
11 million at \$25,000 a vehicle, so quite a bit of
12 vehicles, why are we not at the very minimum
13 funding the people that want and have already
14 gone through the process of accessing the program
15 to get those trucks on the road? So that's one
16 question.

17 The other question I have is that there's
18 quite a bit of references in some of the other
19 sections about legislation that impacts kind of
20 what's driving some of these discussions. And on
21 page 69 in related state policy there's an
22 absence of probably about four or five bills
23 since 2013, which is the reference here that I
24 think also do quite a bit to impact what we do
25 with low NOx vehicles as well as biofuels.

1 AB 2061, which was passed last year,
2 provides a weight exemption, which allows
3 alternative fuel vehicles, zero and near zero, to
4 get a 2,000-pound weight exemption, which I think
5 is a hurdle being removed for adoption of those
6 vehicles.

7 SB 1440, which encouraged the CPUC to
8 begin to look at RNG pipeline issues, which I
9 think will also impact dairy projects on what
10 they're trying to do.

11 SB 1383 we talked about, but we didn't
12 talk about that the working groups are now
13 finalizing. And I know because I sit on some and
14 have spent some time there and they'll be making
15 recommendations. And one of those categories is
16 renewable natural gas as a transportation fuel
17 and how the state should best go about doing
18 that.

19 Then obviously SB 1201, which talks about
20 the clean heavy-duty vehicle projects with some
21 of these other agencies.

22 So some of that needs to be in here,
23 because what it does is it paints a different
24 picture than I think what we have here that there
25 hasn't been any activity from the Legislature on

1 what to do with these projects since 2013, which
2 isn't true. So that's one comment, so I'd like
3 to see it in that section be a little more
4 robust.

5 My third comment is about the reference
6 to a particular report on page 66. And I think
7 to Joe's point, as an Advisory Committee Member
8 we strive as we are doing a hundred different
9 things, but also to be engaged on our own issues.
10 You know, I would appreciate a little bit more
11 interaction with staff during the drafting of
12 this report. So quoting a report that is
13 negative or says that there's no fuel supply or
14 is not going to be a fuel supply to me seems a
15 little biased.

16 I think that there are quite a bit of
17 industries out there, people who are working in
18 and around this industry that you could talk to,
19 to figure out what the actual numbers are and
20 what the actual projections are. And if you're
21 going to quote a report from an advocacy
22 organization then I think you should at least
23 provide that counterpoint. And so that's
24 something I think is important.

25 And then my last question is on the

1 workforce development, which is something we've
2 talked about for quite a bit, I saw there was
3 some contracts and projects related to a couple
4 of community colleges, which I think is great.

5 One of the things that we talked about
6 last time was the impact on alternative fuels
7 training in the Central Valley specifically,
8 right? Getting those folks that are working in
9 oil right now on refineries and other types of
10 things, getting those folks trained on
11 alternative fuels, because there is I think a
12 nexus there.

13 I know Cummins Westport, which is a joint
14 venture that obviously manufactured the low-NOx
15 engine has quite a few training centers all
16 around the state and the U.S., because they're
17 teaching their folks who used to work on the
18 diesel engine how to work on the natural gas
19 engine, which is similar, but has some obviously
20 unique aspects to it. And I think that that
21 similar type of thing is something we should be
22 encouraging, because I think that at the end of
23 the day no matter what happens with fleets the
24 percentage of how these particular transportation
25 alternative fuel opportunities penetrate. It's

1 important that we educate the next generation,
2 because there's going to be a huge gap.

3 And if you're talking about building
4 infrastructure you're talking about servicing
5 these vehicles, especially in areas that haven't
6 really been exposed to alternative fuels it's
7 going to be key. And I think it's going to help
8 with the public's perception of what alternative
9 fuels can do. And so trying to find that
10 alternative to the argument that alternative
11 fuels kills jobs, this would be a direct counter
12 to that.

13 So those are some of my comments and so I
14 would hope that we can get some changes in here.
15 And I really would like to hear about the funding
16 the wait list. Thank you.

17 COMMISSIONER SCOTT: Thank you.
18 Let me get more of the comments in, so I had
19 Steve next and then Andy

20 COMMITTEE MEMBER KAFFKA: I always enjoy
21 these discussions that seem to arise from biomass
22 or alternative fuels arena almost at all of our
23 meetings. Let me preface what I'm going to say
24 by saying that this transformation of a
25 transportation system is an extraordinarily

1 complicated and uncertain benchmark. And I know
2 that now state policy currently, and decisions by
3 the Governor's Office and others, have put an
4 emphasis on zero emission vehicles and battery
5 electric vehicles and hydrogen fuel cell
6 vehicles. I know that's really the reality and
7 that's an important public goal that I fully
8 support.

9 At the same time I don't want the Energy
10 Commission to lose track of both the short-term
11 and the long-term benefits of biomass use. We
12 talk about air quality as a co-benefit that
13 drives this EV program. There are many other co-
14 benefits in other state programs that only
15 biomass energy and biomass fuels can support
16 through the Climate Pollution Plan, the Natural
17 and Working Lands Program, the Healthy Soils
18 Program, a desire to reduce forest fires and so
19 on.

20 And there by way of anecdote I've been
21 attending the Advanced Biomass Meeting in San
22 Francisco, which is going on currently these
23 three days. And yesterday, a company announced
24 what I think is a significant breakthrough in the
25 use of cell wall or cellulosic biomix. I think

1 they finally figured out how to valorize lignin,
2 which has been the thing that's been holding back
3 all of that progress. We just say where the
4 miscellulosic biomix is, it's really been a
5 lignin problem. It's a California company.
6 That's the good news. The bad news is the first
7 commercial-scale project is being built in
8 Estonia, which is nice. I mean I'm sure it'll be
9 great for the EU and the Estonians.

10 But the AB 118 Program is a key and
11 unique feature of California governance that
12 supports instate development. We cannot lose
13 sight of that. Its' potential for helping us
14 deal with our dead tree problem, with changes in
15 forest health conditions that we anticipate to
16 occur in terms of climate change, and many other
17 co-benefits really up to water supply and so on.
18 That's just in that one sector.

19 The other feature is that it's only
20 biomass that can contribute to carbon removal,
21 and carbon capture and storage. That's a
22 significant important thing. At this IEA meeting
23 yesterday the general consensus was that biomass
24 use has to increase by three to five times
25 worldwide including carbon capture and storage

1 removal to be able to meet worldwide climate
2 goals. So I just wanted to reiterate and mention
3 those very large important goals associated
4 particularly with the biomass and alternative
5 fuel supply related to them.

6 The transportation market is the key to
7 the realization of those benefits and at some
8 future point I think there should be greater
9 balance in terms of the programs and investments.

10 COMMISSIONER SCOTT: Andy and then Joy
11 and Brian, I do see you.

12 COMMITTEE MEMBER PANSON: Since there
13 were some comments about the need for the vehicle
14 incentive funding in the natural gas space to go
15 along with the fuel production, I just wanted to
16 remind people that we do have considerable
17 vehicle incentives through the California Air
18 Resources Board's programs, our HVIP and other
19 programs as well. I think that HVIP has funding
20 for zero emission, hybrid, low-NOx, nature gas.
21 And I think right now there's something close to
22 \$200 million available. Not for any one
23 particular fuel or technology, but just across
24 this background of technologies.

25 And our two programs work together, so

1 people may not see natural gas vehicle
2 investments in this plan, but they're definitely
3 in California's portfolio of enhancements.

4 I know it's reflected in the plan,
5 because it's in the advanced vehicle section.
6 We're talking about the fuel production section
7 and maybe it wasn't mentioned there, but since
8 the point came up I wanted to make sure I got
9 that out there that there was considerable
10 funding available in that space.

11 COMMISSIONER SCOTT: Yeah. No, thank you
12 for that and that was our thinking as well. I
13 think there's \$125 million in the Clean Truck and
14 Bus Program, which is more money than this entire
15 program has to go to those types of engines, so
16 in context is. So thanks for pointing that out.
17 Let me turn to Joy and then Brian.

18 COMMITTEE MEMBER ALAFIA: Thanks, so I
19 just wanted to share that I support the funding
20 for the low-carbon fuels production and supply in
21 this program and wanted to share some
22 developments as it relates to propane. And kind
23 of tie-ins perhaps with the ARFVTP program in
24 particular.

25 As some of you may know propane will be

1 included in LCFS in 2019, and that also includes
2 renewable propane. The goal in including propane
3 in the program was strategic, allowing propane to
4 be recognized as an endorsed fuel if you will for
5 a number of various programs that are looking to
6 fight against overall emissions, greenhouse gas
7 emissions.

8 So it was a long journey for us, but
9 could yield tremendous opportunities if you're
10 looking at a cost per reduction strategy. And
11 pleased to share that this week we received our
12 first drop of renewable propane in California.

13 So with all of that we also have ultra-
14 low NOx engines, not sure if that's on folks
15 radar. Two manufacturers produce ultra-low NOx
16 engines at the .02 standard, so we're hopeful
17 that raising the tides for biofuels will also
18 include opportunities for renewable propane.

19 COMMISSIONER SCOTT: Thank you.

20 Brian?

21 COMMITTEE MEMBER GOLDSTEIN: This is a
22 little bit off of my question or comment earlier
23 about whether or not we could use funding going
24 into biomethane to then produce renewable
25 hydrogen. And to build off some of the comments

1 of my colleagues here, it seems like there are a
2 couple of factors that we're facing in increasing
3 renewable fuel production in this state are scale
4 and costs reduction. And we're still looking at
5 14 billion gallons of gasoline produced a year in
6 California.

7 So it occurred to me that, you know,
8 perhaps at least looking into the impact of being
9 able to use some of these renewables as a
10 component of producing gasoline in the short
11 term, knowing that the SUVIS Program (phonetic)
12 brings the most valuable use to those fuels
13 actually sending them outside of the refining
14 sector. But in the interim their refineries are
15 producing so much hydrogen already. They're
16 producing a ton of natural gas. They're using a
17 ton of natural gas already. The most recent
18 numbers I've seen from NREL said if you
19 substitute renewable hydrogen for conventional
20 hydrogen at the refinery level that you can
21 reduce the GHG emissions of the refinery itself
22 by up to 45 percent.

23 So it seems like incentivizing the
24 refineries to utilize biomethane and renewable
25 hydrogen would be way to load that scale to lower

1 the costs. Also to help the refineries kind of
2 begin the transition over to renewable fuels and
3 then knowing that any renewable hydrogen or
4 biomethane that those guys are producing, would
5 be much more valuable used in a fuel cell
6 electric vehicle or vehicle that can use the
7 biomethane, because of the LCFS Program.

8 So it seems like maybe embracing
9 refineries a little bit and trying to incentive
10 them to use renewable components as part of the
11 fuel that we know isn't going away on the short
12 term, might help us all achieve those economies
13 of scale and the actual production scale that we
14 need for those types of fuels.

15 COMMISSIONER SCOTT: Any of the members
16 on the phone, Irene or Ralph? You're unmuted on
17 our end, so just feel free to jump in. I want to
18 periodically turn to you just in case you're
19 feeling shy, but do I have any other comments
20 from the Advisory Committee Members on this?

21 Yes, Claire?

22 COMMITTEE MEMBER JAHNS: I would be
23 remiss if I didn't mention since Steve brought up
24 the Natural Working and Lands work, that we had a
25 workshop on the Natural and Working Lands

1 Implementation Plan in this very room last week.
2 And, Simone, (phonetic) we're doing sort of a
3 greenhouse gas emission analysis looking at the
4 implementation of conservation and all types of
5 restoration programs and the impact of net
6 emissions over time.

7 We've actually working with folks from
8 the Energy Commission to look at opportunities to
9 increase biomass utilization, bioenergy and what
10 that does to kind of the overall greenhouse gas
11 emissions and sequestration profile of these
12 activities. And someone asked a question, what
13 about biofuels, are you looking at biofuels? And
14 we said no, because we don't really have that
15 technology yet for cellulosic material yet. But
16 I know it was pointed out by folks from the Air
17 Board who are on the dais with me, that that kind
18 of cross-sector analysis of opportunities to
19 reduce greenhouse gas emissions and actually
20 reduce negative emissions is definitely going to
21 be on the docket for the next Scoping Plan and
22 for the Executive Order, which hopefully is
23 carried through to the next Governor.

24 And so while it would be perhaps ahead of
25 this program to really make big pushes in that

1 space before that work comes out and the analysis
2 is done, that I think that's on the horizon. And
3 it would be interesting to know if there are
4 opportunities to co-fund projects and can site
5 that with CAL FIRE, working with the forest side
6 as well as the fuel side.

7 COMMISSIONER SCOTT: Great. Any other
8 comments from Advisory Committee Members on this
9 proposed allocation? Brian, I'm assuming you're
10 still up from previously?

11 COMMITTEE MEMBER GOLDSTEIN: Sure.

12 COMMISSIONER SCOTT: Okay. Just
13 checking.

14 All right, so I have in the room a
15 comment from Ryan Kenny. Yeah, hi Ryan, come up
16 to this microphone here if you don't mind? And
17 if you have a business card that you could give
18 to our court reporter she would very much
19 appreciate that to make sure your name is spelled
20 correctly.

21 MR. KENNY: Okay. Hi. Good morning,
22 Commissioner Scott, staff and members of the
23 Advisory Committee. I'm Ryan Kenny with Clean
24 Energy. We're the nation's largest provider of
25 renewable natural gas transportation fuel. And I

1 have a few comments and a few questions and maybe
2 staff could complete and gather their views when
3 I'm finished. But I'd like to talk about both
4 the NGV incentives and infrastructure and also
5 the low-carbon fuel production and supply.

6 Dealing with NGVs and infrastructure, of
7 course we've got zeroed out the last two years
8 including this proposed plan. And one thing that
9 we are concerned about is not just the money; I
10 think Andy mentioned the multitude of funds
11 available for heavy-duty natural gas vehicles.
12 But also mentioned too, having been zeroed out by
13 the CEC would basically continue to cede
14 jurisdictional influence and authority to ARB.
15 And we are concerned about details of those
16 funds.

17 For instance, we have spent a lot of time
18 over at ARB expressing that we need to have a
19 \$60,000 minimum voucher to cover the
20 incrementals. And we've spent a lot of time in
21 meetings and testimony and right now the maximum
22 that's allowed is 45,000 in the new spending
23 plan. To ARB's credit, they are having a Natural
24 Gas Vehicle Work Group in December to discuss
25 increasing that amount. But the industry has

1 provided a lot of feedback and the frustration by
2 the industry is very acute that EVs get a lot of
3 preference and benefit of a doubt. But when it
4 comes to natural gas vehicles, demand is
5 continued to be suppressed.

6 Last year, in the Funding Plan \$18
7 million could have been used for heavy-duty
8 natural gas vehicles. And at a \$40,000
9 incremental that should have been a maximum of
10 450 vehicles funded. Instead it was 69, so we
11 think a \$5,000 increase is not enough to really
12 incentive the marketplace. And again, it goes
13 back to the role and influence of the CEC to have
14 a voice in that discussion. Obviously, that's
15 going to drive RNG production and sales and
16 that's very important to the industry to get that
17 incremental higher.

18 It's also important to mention too that
19 near-zero strategies do drive the LCFS and 90
20 percent of the LCFS is biofuels. And also it's
21 important to have market certainty, so the
22 policies that we're talking about today getting
23 the discussion going over the next few months are
24 important to our industry.

25 I'll also mention too with low-carbon

1 fuel production and supply, as some of you know
2 there was a serious attempt last year to change
3 the statute of this AB 118 Program and eliminate
4 biofuel production incentives and replace it with
5 EV charging. And we're very concerned about that
6 of course going forward, not just to our
7 industry, but also the entire biofuels industry,
8 which was very active in the Legislature to
9 prevent that last year.

10 So this year obviously a \$5 million
11 reduction, at the starting point of today we
12 don't know where that's going to go when these
13 discussions are over. We're only a quarter of
14 the overall pot. We'd like to see that increase
15 obviously to at least 25 million and keep the
16 precedent that biofuels are important to the CEC.

17 We're also concerned about any GGRF
18 offset use as we talked about earlier. Half of
19 last year was from GGRF and that's such a
20 politically volatile pot of money we want to make
21 sure that the full amount is funding by the
22 ARFVTP Fund.

23 So those are just our comments. We'd
24 like to again to summarize, keep it at \$25
25 million for low-carbon fuel production and

1 supply. And to see some funding for NGV use and
2 infrastructure to at least provide some
3 jurisdictional voice in those overall
4 discussions. So thank you.

5 COMMISSIONER SCOTT: Thanks.

6 I have, I think, all the three are on the
7 WebEx. The question is from Linda Urata. And
8 shall I just read it on to the record, is that
9 okay?

10 MS. URATA: "Biomass closure in Delano
11 used to take 300 tons per day of wood waste.
12 Will there be any points for projects that
13 replace closed biomass plants, maybe in a
14 disadvantaged community? I'm not sure if this
15 extra credit is necessary without studying."

16 COMMISSIONER SCOTT: So I think that's
17 something that our staff will be taking under
18 consideration as they develop the solicitation
19 for the biofuels dollars. So and they've heard
20 me say this, and please once we've gotten that
21 workshop scheduled participate and help provide
22 us data and information, so that as we're shaping
23 what the solicitation looks like we have this at
24 the forefront.

25 Then the next one is from Norma McDonald.

1 MS. MCDONALD: "What percent of awards
2 were actually dispersed versus projects that were
3 awarded, but never transpired?"

4 COMMISSIONER SCOTT: We're going to have
5 to look into that. I don't have that off the top
6 of my head, but yeah so let's get the right
7 number then we can circle back on that one.

8 And then I have Nina, is that Babiarez,
9 she doesn't have a question on this card. Would
10 you like to speak?

11 MS. BABIARZ: Yes, well good morning.

12 COMMISSIONER SCOTT: Good morning.

13 MS. BABIARZ: This is Nina Babiarez with
14 the SCRTTC, the Southern California Regional
15 Transit Training Consortium. And our
16 organization has grown to reflect the growing
17 need of workforce development and training. This
18 includes new course development.

19 And I'd like to discuss as we expand this
20 into the electric vehicle discussion, that the
21 data is often the case that while we're moving
22 into the advanced electrical courses required,
23 new course developments for electric vehicles,
24 the high-voltage requirements and charging
25 infrastructure, we need to remember that as we

1 move into opening job creation and opportunity to
2 the disadvantaged communities that many of these
3 students do not have the prerequisite courses
4 necessary to move into the advanced electrical
5 courses.

6 And that training also needs to be given
7 consideration for additional funding, so that
8 those new participants have the prerequisites and
9 the foundation required to meet the advanced
10 electric courses with the safety issues as well.

11 COMMISSIONER SCOTT: Great. Thank you.
12 Do I have any other public comments on low-carbon
13 fuel production?

14 Joe?

15 COMMITTEE MEMBER GERSHEN: Ryan's
16 comments reminded me of one thing, a clarifying
17 thing I forgot and you may have answered it
18 already. And I apologize if I missed it, but it
19 says the total is 95.2 million, and I'm just
20 curious maybe that's where our other \$5 million
21 comes from. Wherever just that 4.8 million, I
22 thought it was 100 million, but maybe I missed
23 something?

24 COMMISSIONER SCOTT: The 4.8 million goes
25 to pay for the Energy Commission staff that works

1 on the Transportation Program.

2 COMMITTEE MEMBER GERSHEN: You guys get
3 paid? (Laughter.)

4 COMMISSIONER SCOTT: They do because they
5 do such a great job.

6 COMMITTEE MEMBER GERSHEN: Thank you.

7 COMMISSIONER SCOTT: Thomas, we'll get an
8 answer to your question on the Natural Gas
9 Program. I just don't have it right this minute.
10 Okay. And I'll like to welcome Eileen Tutt, good
11 morning.

12 Okay, so let's see, oh I have one more
13 low-carbon from Temesgen Garoma.

14 PROFESSOR GAROMA: Yes. Thank you for
15 giving me the opportunity. I'm faculty in the
16 College of Engineering at San Diego State
17 University. We recently are actually in the
18 process of completing a project from the low-
19 carbon fuel funding.

20 And you know, on that area, I think on
21 the feedstock I just would like to comment that
22 yes we do understand that there are some
23 limitations on the type of feedstocks to be used.
24 For example, from the food source corn, and they
25 are not funded through this funding. But there

1 are other feedstocks out there, for example algae
2 biomass. Algae, in fact the project we are
3 completing is on algae.

4 But the most recent funding source to
5 just give you as an example, GFO-18-602, the
6 demonstration-scale solicitation. We did submit
7 on that funding for algae as a feedstock for
8 biofuel production, but we got a comment saying
9 algae doesn't qualify as one of the feedstocks.
10 I think what we suggested is as long as it is not
11 competing with a food source opening the
12 feedstock would be a good idea. And algae have
13 some real benefits. For example, it can be grown
14 in recycled water, so it can be grown in recycled
15 water, so there is one benefit there. And also
16 it can capture CO2 emissions from point sources
17 such as power plants and other industries.

18 So we are hoping in the future
19 solicitations we know the feedstocks could be
20 open and as inclusive as possible. Thank you.

21 COMMISSIONER SCOTT: Thank you.

22 Thomas?

23 COMMITTEE MEMBER LAWSON: To follow up on
24 my earlier comment about the workforce money, I
25 just want to get a clarification. So the 5

1 million, how is that divided between
2 manufacturing and workforce, that is a good
3 question. And is there a plan for that? Is it a
4 big pot of money and first come, first serve or
5 how does that work?

6 And then do we have, and we've heard from
7 Southern California and some other places, what's
8 the status of reaching out to folks and
9 organizations in Fresno and Stockton and some of
10 these other areas, Bakersfield?

11 COMMISSIONER SCOTT: So can I ask you to
12 hold those questions until we go to the
13 manufacturing and workforce discussion but
14 remember them.

15 And so let me check on low-carbon fuels.
16 We've heard our public comment. I have heard
17 from all the Committee members. It is 5 minutes
18 to 12:00. We still have about four or five
19 categories to discuss. Do you want to do another
20 one and then break for lunch? Should we break
21 for lunch and then finish the rest this
22 afternoon? Committee Members what's your
23 thoughts here?

24 COMMITTEE MEMBER SHARPLESS: I think we
25 should go through another one first.

1 COMMISSIONER SCOTT: Keep going? All
2 right, let's do it. So our next category is the
3 Electric Vehicle Charging Infrastructure and who
4 is it? It's Brian will present on that.

5 Brian?

6 MR. FAUBLE: Good morning, is this thing
7 on? All right, so no pressure to talk fast to
8 get us to lunch or anything, so I'll try and make
9 up some time. So my name's Brian Fauble, I am
10 with -- we have a new name, it's the Electric
11 Technology and Planning Unit, so we do a lot of
12 things I guess and I'll just get right into it.
13 So this slide kind of is going to show you over
14 the years what we've done and how we've evolved
15 in the EV Unit.

16 Back in 2010, we partnered with the
17 federal government on the frontload plug-in
18 electric vehicle charging infrastructure. This
19 included the EV Project, which was a large-scale
20 plug-in electric vehicle infrastructure
21 demonstration project funded by DOE.

22 In 2012 the Commission focused on
23 regional planning.

24 (Off mic colloquy regarding audio.)

25 MR. FAUBLE: In 2012, the Commission

1 focused on regional planning to prepare regions
2 in California for plug-in electric vehicles. We
3 continued to provide support for the installation
4 of charging infrastructure as well and there was
5 a focus to upgrade or retrofit Legacy chargers
6 from the early 1990s and 2000s.

7 In 2014, the focus was increasing the
8 number of chargers that were publicly available,
9 as well as identifying the ones that met specific
10 needs such as workplace and along corridors and
11 multiple-family unit housing.

12 In 2015 and '16, the focus shifted to
13 move to DC fast charging along corridors, and
14 completing California's portion of the West Coast
15 Electric Highway. We released two grant-funding
16 opportunities aimed to facilitate interregional
17 travel within California as well as to and from
18 Nevada, Arizona and Oregon.

19 In order to target funding to move the
20 needle to reach the Governor's goals we needed a
21 new mechanism to install electric vehicle
22 charging infrastructure much more quickly and
23 effectively.

24 In 2017, the Center for Sustainable
25 Energy was awarded a grant agreement to implement

1 streamlined ARFVTP incentives for EV charging
2 infrastructure to simplify the funding process
3 and accelerate charger deployment compared to
4 previously used grant solicitations.

5 As a result, the ARFVTP has provided
6 nearly \$95 million in funding awards for the
7 deployment of roughly 8,800 charging outlets
8 statewide. You can see the spread here of the
9 chargers on the map. Please note that the map
10 does not show chargers that were installed in
11 residential homes as well as -- I'm sorry,
12 residential homes, which account for roughly
13 4,000 chargers in the private category.

14 As mentioned in the previous slide,
15 recognizing the need to be nimble and flexible in
16 the deployment of charging infrastructure, the
17 California Electric Vehicle Infrastructure
18 Project or CALeVIP aims to provide targeted
19 charging infrastructure incentives funding
20 through a simplified funding process to
21 accelerate the deployment.

22 I think everybody knows what this map
23 looks like. It's a graph that illustrates the
24 progress the state and the nation have made with
25 EV adoption. This is back as of September 2018,

1 so it's a couple of months old, but estimated to
2 have roughly 474,000 PEVs in California. And to
3 support the future vehicles the state will need
4 to do a lot more infrastructure to support those.

5 In response to the Governor's Executive
6 Order B-16-12, which called for 1.5 million ZEVs
7 by 2025 on California roadways the Electric
8 Vehicle Infrastructure Project or EVI-Pro Model
9 was developed in collaboration with the National
10 Renewable Energy Laboratory, NREL. The EVI-Pro
11 Model analyzes regional demand and quantifies the
12 types, locations and quantities of chargers
13 needed to support the 2025 electric vehicle
14 population. And it does this also down to a
15 county level.

16 Energy Commission staff is establishing a
17 streamlined method for collecting data from
18 public networked electric vehicle chargers to
19 better understand the use of employed and future
20 chargers as well. The usage data will provide
21 insight of how public stations are used by public
22 or sorry by plug-in electric vehicle drivers to
23 help enhance EVI-Pro, the model, for future
24 evaluations.

25 Staff is currently working on the model

1 to update it in response to the new Executive
2 Order B-48-18, which calls for 5 million by
3 20130.

4 So into my pet project, CALeVIP. Again
5 CALeVIP, not CALE VIP, not CALE E VIP, not E-V-I-
6 P, not EVIP, CALeVIP. It's easy to chant if
7 everybody wants to get into it as well. Nobody
8 ever does though.

9 COMMISSIONER SCOTT: It's CALeVIP.

10 (Laughter)

11 MR. FAUBLE: So to provide a more focused
12 plug-in electric vehicle infrastructure projects
13 that will target gaps in charging availability
14 the Center for Sustainable Energy again was
15 awarded funding to implement CALeVIP.
16 CALeVIP offers incentives for the purchase and
17 installation of these EV charging
18 infrastructures.

19 The goal of CALeVIP again is to implement
20 targeted and central projects throughout
21 California to address a specific region's
22 electric vehicle charging needs with a new
23 mechanism that speeds up the installation,
24 reporting and funding through a streamlined
25 process. CALeVIP is overall a multi-purpose

1 website that has resources available for
2 businesses, business owners to help them
3 determine if EV charging is right for them. What
4 power level of charging is right for me? Where
5 is the best place to install them on my property?
6 Who do I need to talk to get these chargers
7 installed?

8 The website also is the house and home to
9 all of these individual incentive projects, which
10 is where the applicant will want to go to view
11 each project's requirements, the eligibility, and
12 even send in the online application. The entire
13 application process is online and easy to manage.
14 Even after the application has been approved and
15 your project is active, the applicant has an
16 online portal to submit all their documents and
17 manage the progress of the installation. Once
18 the applicant finishes their installation, the
19 charger is in operation and all the required
20 documents have been filed online, CSE will issue
21 the rebate within 15 days.

22 Today CALeVIP has two active incentive
23 projects, the first being the Fresno County
24 Incentive Project, which launched in December of
25 2017 and offers rebates for the purchase and

1 installation of just Level 2 charters within
2 Fresno County. The project launched with \$4
3 million available for rebates.

4 The second project is the Southern
5 California Incentive Project, which launched in
6 August 2018 and offers incentives for the
7 purchase and installation of DC fast chargers in
8 Southern California, specifically the Counties of
9 Los Angeles, Orange, Riverside and San
10 Bernardino. This project launched with \$29
11 million available for incentives.

12 We recently just announced our plans for
13 our 2019 CALeVIP Project Roadmap. It does
14 include four incentive projects in 2019. All the
15 projects will have the same eligibility and
16 requirements. All the projects now will offer
17 both Level 2 and fast chargers, so there won't be
18 either/or anymore. The applicant will still have
19 the choice to say, "I only want to do Level 2, I
20 only want to do fast charger," or they're free to
21 do both.

22 The funding for each incentive project
23 may vary obviously and as well as the incentive
24 amounts may vary still.

25 So you can see on the map, it's kind of

1 color-coded with these bubbles as well, but our
2 first project will be the Sacramento County
3 Project and it will have \$14 million available.

4 Our second will be the Northern
5 California including Humboldt, Shasta and Tehama
6 with \$4 million available; the Central Coast of
7 counties of Monterey, Santa Cruz and San Benito
8 with \$6 million; and our San Joaquin Valley,
9 which includes San Joaquin County, Kern County
10 and Fresno County.

11 And to clarify why we're still including
12 Fresno obviously the current Fresno only includes
13 Level 2 chargers. When we launch this, we will
14 be merging the existing Fresno into this new one
15 to expand it, to allow fast chargers.

16 Other work we do in the EV, Technology
17 and Planning Unit, we still work with general
18 infrastructure deployment through solicitations.
19 We look at innovative mobility projects. We
20 funded a solicitation that did four awards for
21 innovative car sharing with ZEVs. I think we did
22 four awards and three were EV and one was
23 hydrogen. We also work with NREL and EV charging
24 providers to improve our data and collection
25 analysis for future information in how to always

1 make better projects.

2 We also work closely with many other
3 organizations that are doing great work to deploy
4 EV charging throughout California in order to
5 leverage each other's knowledge and current work.

6 And so again our proposed 1920 funding is
7 \$32.7 million. Thank you.

8 COMMISSIONER SCOTT: Great. Thank you,
9 Brian.

10 Do we have questions from the Advisory
11 Committee members on his presentation? Yes,
12 Steve and then Eileen.

13 MR. KAFKA: Just it's not really a
14 question, it's just a comment. And I'm very
15 guilty of this myself, but when you put graphs on
16 figures then I can't read them either in the
17 handout or on the screen, so just a caution for
18 future presentations. If it's important show it,
19 sorry.

20 COMMISSIONER SCOTT: No, it's good to be
21 able to see the information. Eileen?

22 COMMITTEE MEMBER TUTT: Thank you,
23 Commissioner.

24 I guess I have a couple of comments. One
25 is I noticed in the document there wasn't a

1 mention, and I could have missed it, because I
2 didn't read it as thoroughly as I should have,
3 but there wasn't a mention of all to 6-17 work
4 going on and the amount of money that's being
5 invested. And I think that's really important.
6 I think from a community perspective it's very
7 important and an electrification perspective.
8 The investment and all of the programs that are
9 being developed as a part of 6-17 are pretty
10 critical.

11 I also want to say that I really
12 appreciate the clarification on how to pronounce
13 Cal-e-vip, V-I-P, sorry. (Laughter.) I was
14 saying Cale-vip. So I just want to laud the
15 staff. Every year this program gets better, in my
16 opinion more transparent and more usable. And
17 the CALeVIP, has -- I've just heard a lot of good
18 things about it, so I'm really impressed by it.
19 I think it's much more streamlined. It's a lot
20 easier to access and I mean I think as we move
21 towards more immediate and heavy-duty
22 electrification that kind of approach, which is
23 more like an HVIP or the light-duty one, I should
24 know that, anyway. CVRP, I block it all times
25 here except budget, but anyway so CVRP and HVIP I

1 really like the way you've structured this
2 program. I just think it's really impressive.

3 I also think the funding amounts, I'm not
4 going to complain about that, is really good. I
5 have one maybe clarification question about in
6 the electric vehicle charging infrastructure
7 funding is that also for medium and heavy-duty,
8 or is that just light-duty or both?

9 COMMISSIONER SCOTT: Yes, so the charging
10 infrastructure will also have -- well, it'll do
11 light-duty, medium-duty and heavy-duty
12 infrastructure. And we wrote that, it is in
13 there somewhere, but maybe we need to bold it.

14 COMMITTEE MEMBER TUTT: Yeah. Okay, well
15 I mean I think I read it and then when I went
16 back to look for it I couldn't find it. And then
17 I will just say that if that is the case just
18 know that the amount of funding that's going to
19 be needed in the medium and heavy-duty over the
20 next few years is going to be incredibly high.

21 And so I think we will need to think
22 about how to augment that and maybe even break it
23 out in the future, but I think that would be hard
24 to do right now. I just feel like as I look at
25 the plans as we go out in the next five years,

1 the utilities are really going to be investing in
2 medium, and heavy-duty, the CARB funding, the VW
3 funding, all of that money is -- and 6-17 money
4 for that matter -- is going to be invested in
5 medium and heavy-duty. And it's going to take a
6 lot to transform that segment.

7 So anyway, thank you, I think the staff
8 did a fabulous job. And now I'll have practice
9 to CALeVIP, but it'll soon be rolling off my
10 tongue much like ARFVTP does now. (Laughter.)

11 COMMISSIONER SCOTT: Great, thank you.
12 And thank you for the nice words to staff who
13 does a fantastic job on this space, so thanks
14 staff for all of your great work.

15 I have, oh, not Thomas?

16 UNIDENTIFIED SPEAKER: No.

17 COMMISSIONER SCOTT: Okay. Jan is next,
18 please and then Tyson.

19 COMMITTEE MEMBER SHARPLESS: Yes in this
20 area, the one place that I think we're falling
21 down, is in the multifamily area. And it appears
22 in the write-up of the staff report that it sort
23 of suggests that in this area recognizing the
24 barriers that you're up against in multifamily,
25 providing charging in multifamily situations that

1 they can go find other charging stations to
2 charge their vehicles. And I would just hope
3 that maybe somebody could get a working group
4 together or something to take this more head on
5 than just to say take the easy route.

6 The Energy Commission has been great at
7 finding ways to break through. And I would hope
8 that maybe in the multifamily area something more
9 could be done, because it is a significant
10 portion of where people live in California. And
11 they shouldn't be left out, thanks.

12 COMMISSIONER SCOTT: Yeah. Thank you. I
13 think two things that we have going in that
14 space, one is the CALeVIP, so we're hoping --
15 maybe hoping is not a strong enough word -- we
16 are wanting to work with multifamily, the owners
17 of multifamily buildings to put the charging
18 right in the spaces. And we're trying to make it
19 more simple through CALeVIP for folks to do that.

20 The other thing that we have is our EV-
21 Ready Communities. It's kind of an EV challenge
22 and so we have funded I think it's ten different
23 communities around California to really decide
24 for themselves and plan where would you put
25 charging in your community? And I certainly hope

1 that those plans come back with some ideas for
2 multifamily housing as well.

3 And then with the idea that they will
4 also work with folks, so let's say I always think
5 of the Energy Commission, but like the Energy
6 Commission and then Fox and Goose and then across
7 the street is the State Capitol. And then go
8 work with those folks to say, "Hey, if I get some
9 additional funds from the Energy Commission are
10 you ready to roll, because I'm coming back to put
11 the chargers in these places that I've identified
12 are key places."

13 So we have a couple of different
14 approaches that we're trying to take to crack
15 that multifamily nut. But you're right, it's
16 incredibly important and it's tricky.

17 And we're also working closely with
18 Commissioner McAllister and his team, because
19 they're looking at multifamily buildings from a
20 different perspective in terms of energy
21 efficiency. And so once we're in we want to kind
22 of get all of those components at the same time.
23 But those are great ideas and something we're
24 very mindful of and hoping to find solutions, as
25 well.

1 Then I had Tyson and then Andy.

2 MR. ECKERLE: Well, thank you, obviously
3 very supportive of this allocation. And I agree
4 MUD is really important and I agree with
5 everything that Eileen said as well.

6 And I just wanted to point out one other
7 thing, the approach is taken that really opens up
8 the market, which is great as it's going deep
9 into the counties, in each of those areas. And
10 just yesterday I was with Sacramento County
11 talking about permit streamlining. And they,
12 because of this money coming into the county,
13 they have more attention on it in wanting to
14 streamline their permitting processes.

15 And so I think it's a good way to help
16 open up the market for other investment to come
17 in as well, so I think it's -- I'm very in
18 contact with Brian about the permit streamlining
19 aspect of it. But I think is another benefit to
20 highlight, so I definitely commend the staff and
21 the Commission on this.

22 COMMISSIONER SCOTT: Great. And I think
23 earlier somebody asked about leveraging, when we
24 put out an Energy Commission dollar how many
25 dollars does that leverage? And we have a

1 general number, but I don't know that we have it
2 specifically for each category, so that's
3 something we should certainly look into. And
4 reminded me of it, because that's what we're
5 always trying to do right, is leverage as many
6 dollars as we can. So it goes in whatever
7 category we're looking to spend it goes farther
8 than just the dollars that we have.

9 MR. ECKERLE: Yeah, I think you can take
10 credit for a lot more in the charging space,
11 especially after you've gone to the community
12 with the streamlining every other charger, it
13 would have benefited from it.

14 COMMISSIONER SCOTT: Thank you.
15 Andy?

16 COMMITTEE MEMBER PANSON: Yeah, I'll keep
17 my comments short, because they really echo with
18 what John and Eileen and Tyson have said. We
19 definitely support these investments. These go
20 hand-in-hand with the vehicle incentives that we
21 provide. You can't do one without the other,
22 there's a continuing extraneous need. And the
23 MUD is a challenge. It's one we need to overcome
24 and we definitely need to continue to champion
25 it, but it's definitely critical to this.

1 And just kind of stepping back and
2 talking across the plan I do want to echo the
3 compliments to the staff for really putting
4 together a thoughtful document. There's a lot of
5 information in here. It's a challenge putting
6 together this plan. There's I think a need that
7 exceeds the amount of funding that's available.
8 I think we can put more money into every category
9 and easily justify that. But I think you've done
10 a nice job of striking a balance to meet the
11 multiple priorities and to continue the progress
12 and the momentum that's been established under
13 previous invested funds. So just compliments to
14 a nice job.

15 COMMISSIONER SCOTT: Thank you.

16 Chris?

17 COMMITTEE MEMBER SHIMODA: So I guess a
18 question and then a statement, can you explain a
19 little bit how CALeVIP, Cale-Vi; right?

20 (Laughter.) How does it interact with the
21 programs that you're seeing emerge from the
22 utilities from the SB 3050 process? I know some
23 of the initial programs that we've seen on the
24 commercial side for instance, they have I think
25 it's going to be called FleetReady for the PG&E

1 territory. In the instance where the fleet says,
2 "Okay. I'm going to get everything behind the
3 EVSC done through FleetReady," but then maybe I
4 want to partially purchase the EVSC with an
5 incentive from the CEC. How do you see those two
6 interacting?

7 MR. FAUBLE: Sure. Yeah, so for all of
8 our incentive projects, when we're developing
9 them we look at what's available in that region
10 that we're going to already. We start that
11 communication and we are 100 percent open to
12 stacking as much as you can get with multiple
13 programs. And that basically comes from us just
14 nonstop sharing information on the applicants,
15 who's paying what? And the goal is we want
16 everyone to get reimbursed as much as possible
17 without profiting off this.

18 So we have great communication with the
19 team, Center for Sustainable Energy does a great
20 job with that.

21 Specifically, there are some programs
22 that we don't want to have a direct involvement
23 with and we can't really as well. Most of
24 CALeVIP is for light-duty vehicles. We do
25 encourage a high-powered fast charger definitely

1 can be used in that purpose, but for these Level
2 2s mainly we do allow fleet. But it is supposed
3 to be light-duty fleet.

4 PG&E's Make Ready for the DC Fast Charge
5 Program definitely is something that we could
6 coordinate with where they do all the make ready
7 and then we'll fund the rest of the installation
8 and the charger itself.

9 Some of the other programs though, there
10 are specific programs that are pretty much
11 mandated as saying we're going to install exactly
12 this number of chargers. Those are the ones that
13 we try to avoid, because we want to leverage
14 opportunities to get additional chargers with
15 funding. We don't want to just make a program
16 that's already going to happen get there faster.
17 We want to encourage additional, so for our
18 CALeVIP Level 2s we are a 1:10 connectors per
19 site. So we're covering some of the ones that
20 the utilities are not covering since they're ten
21 or more.

22 So we really want to make this open to
23 small businesses being able to get a charger that
24 don't have to go through a grant solicitation
25 process anymore that requires filling out a hard

1 proposal and we're covering as much as possible.
2 And then our partners, the utilities, are
3 covering kind of the bigger ones as well, but
4 we're always open to stacking as much funds as
5 possible.

6 COMMITTEE MEMBER SHIMODA: Great, and
7 just one more follow up. I know on some of the
8 prior natural gas incentives, that there was a
9 publically available -- you had to have the
10 fueling infrastructure be publicly available in
11 order to be eligible. How is that working with
12 this program?

13 MR. FAUBLE: Sure, so each technology has
14 different requirements. Our fast chargers we do
15 require to be 24/7 available to the public. The
16 Level 2s are more shared use allowed where it can
17 be private, public, or shared use. Specifically,
18 the only thing a Level 2 cannot be used for is a
19 single-family residence home or dedicated to a
20 single person. So it can't go to the CEO, can't
21 go to a Commissioner sorry and it can't go on an
22 MUD to a single residence private parking. With
23 MUDs everything needs to shared use, open to
24 everybody, but can be fleet public, private or
25 fully commercial.

1 So each technology kind of is different.

2 COMMITTEE MEMBER SHIMODA: So, and I
3 guess this would be the statement, so I think it'd
4 be useful maybe not for this plan, but in future
5 to have more discussion on sort of the
6 differences between light-duty as we move towards
7 the commercial space. Because I think you're
8 going to have some interesting things come up
9 where for instance, charging infrastructure may
10 be behind a fence. But the warehouse operator, a
11 cold storage facility, whoever it may be is
12 making that infrastructure available to vehicles
13 that they don't actually have ownership stake in
14 and things like that. So I think it's going to
15 be maybe different scenarios that you're running
16 into with the light-duty, so I just encourage
17 maybe we talk about that more fully if there is
18 an intent to sort of start looking at the medium
19 and heavy-duty for this allocation.

20 MR. FAUBLE: Sure, and yes, CALeVIP
21 definitely right now is mainly light duty, but we
22 totally have the capability to do medium-duty,
23 heavy-duty projects with their funding. And
24 definitely the requirements could be wide open on
25 those ones.

1 I also kind of wanted to point out on MUD
2 as well, one of the new things we are doing for
3 our 2019 projects is on top of our rebate amount,
4 which mostly is about \$5,000 per connector, so
5 10,000 for a dual, it can do up to five duals, so
6 \$50,000 per site. On a MUD we have a little
7 bonus where you get an additional \$1,000 per
8 connector. We're trying to encourage those that
9 happen more, so now you can get up to \$60,000 as
10 well as we have a \$500 additional bonus if it's
11 in a disadvantaged community.

12 So we have little kickers we're trying to
13 encourage as well as we're working with the
14 housing authorities to make them fully aware of
15 these rebates available.

16 COMMISSIONER SCOTT: Other comments from
17 Advisory Committee Members? Do we have Irene or
18 Ralph, please feel free to jump in if you'd like
19 to say anything. You're unmuted on our end.

20 COMMITTEE MEMBER KNIGHT: Yeah, this is
21 Ralph. I think that the funding allocations are
22 great for this. I think that we're going to see
23 the need for the heavy-duty chargers out there
24 once all these new buses are deployed, electric
25 buses out there, to extend their range.

1 And I think looking back in the years
2 ago, when natural gas was first started, we saw a
3 lot of districts jump into the public
4 availability for charging (indiscernible) for
5 fueling natural gas vehicles. I think the same
6 thing can open up for that. The districts will
7 be able to open charging up to the public and I
8 think it will work very well.

9 Napa is entering more charging stations
10 at their sites where solar's involved, because
11 the current sites are full every day by either
12 teachers or students at school. So we're looking
13 to increase numbers of sites, but doing more
14 sites in town (indiscernible) free chargers too.

15 COMMISSIONER SCOTT: Thank you. I just
16 wanted to make sure, you're going in and out just
17 a little bit, but I think that last pause was you
18 were finished with your comment?

19 COMMITTEE MEMBER KNIGHT: Yes.

20 COMMISSIONER SCOTT: Okay. Great, thank
21 you, Ralph.

22 Irene, any comment? Any other comments
23 from the members around the table on the Electric
24 Vehicle Charging Allocation?

25 All right, I have about five public

1 comments, so we'll take those and then we will
2 break for lunch. So first Ryan Schuchard from
3 CALSTART and then Obrie Hostetter will be right
4 behind Ryan.

5 MR. SCHUCHARD: Good afternoon
6 Commissioner Scott, Mr. Barker, Committee
7 Advisory Members, Ryan Schuchard with CALSTART.
8 Just a few things, first of all it's a great job,
9 we think, in general. We've seen the plan, so
10 far and specifically this category I think
11 staff's done a really nice job of putting it
12 together and being very thoughtful about the
13 approach. We are encouraged to see the continued
14 and increased investment in this particular
15 funding area with SEV infrastructure.

16 Also, it's good to see the inclusion of
17 mobility and some discussion around that. This
18 is an area that's such a fast-changing place
19 where there's going to be a big opportunity to
20 focus on high-miles vehicles where we can get the
21 most bang for buck. So it's overall great.

22 So I guess one potential revision area
23 opportunity, and it's building on some of the
24 things that Eileen and Chris said, on medium and
25 heavy-duty. So we know that medium and heavy-

1 duty is very important to the Energy Commission
2 and anybody just reading through the plan can see
3 that it's sort of scattered throughout, mentioned
4 how important it is.

5 What would be good, I think, would be to
6 have more of an explicit breakout perhaps in this
7 section, but maybe also sort of in front before
8 we get into the individual funding allocations to
9 talk about the idea of the overall distinctions
10 and issues for medium and heavy-duty, as compared
11 to light-duty.

12 So Chris mentioned a few things, but the
13 technology, the operations, behavior, the
14 placements, the financing requirements of medium
15 and heavy-duty are really quite different than
16 light-duty. And just one really obvious thing to
17 those looking at it is for charging a heavy-duty
18 vehicle you have much higher loads per vehicle
19 and you have multiple vehicles in a yard. So
20 we're talking about exponential differences with
21 the kind of charging issues that are associated
22 with medium and heavy-duty.

23 So it just illustrates that we need
24 really specialized strategies for medium and
25 heavy-duty vehicles. And ideally that would be

1 followed through some discussion, which CALSTART
2 and I'm sure others could weigh in on to help
3 develop. That would be followed by a more
4 explicit target for funding this overall, for
5 medium and heavy-duty.

6 And maybe it's a range, but something to
7 provide the OEMs a signal that there's a kind of
8 investment level. And certainly realize that the
9 Commission has a good reason to try to keep
10 flexibility. But I just want to emphasize that
11 overall for the industry it would be very helpful
12 to look at this plan and say we see here what the
13 kind of allocation, or at least the idea of the
14 allocation is for medium and heavy-duty.

15 And I guess I'd just conclude with a
16 question. Maybe there is an idea we can share
17 now and if so I'd love to hear it.

18 COMMISSIONER SCOTT: How we do about
19 medium-duty, heavy-duty or?

20 MR. SCHUCHARD: Like a quantitative
21 target, maybe even a range for the medium and
22 heavy-duty allocation, when you think about this
23 category or as a summary of the whole plan like
24 the allocation for medium and heavy-duty.

25 COMMISSIONER SCOTT: Right, so we have

1 not done a breakdown of 32.7 yet. I think what
2 we would like to do is have some workshops where
3 we talk with folks about what that ought to look
4 like. And then on the medium-duty, heavy duty-
5 component what are the specific things that we
6 need to have in those types of solicitations to
7 make sure that we are getting -- that we're not
8 missing any of the things that you've just
9 mentioned, right? Some of the differences, the
10 financing, all of that, the power draw if you're
11 going to meet in that space as well.

12 You know, just one example of things
13 we're thinking about in that space also is kind
14 of like not wanting to do onesie-twosies, but
15 really do this at scale.

16 So for example if you are at a bus depot,
17 you wouldn't want to have chargers along the
18 wall, for example, right? Because then you could
19 do what four buses, maybe or eight buses or
20 something like that, the way the buses park or
21 the way that you park when you come back with
22 your car at the rental car return. So what is a
23 charging facility for something like that look
24 like? So those kinds of things I think are what
25 we would be thinking about in the medium duty,

1 heavy-duty space and how to design a solicitation
2 around that with the right number of dollars to
3 get some good projects out there.

4 So that's Janea's thoughts on that topic.
5 But we'll circle around with staff some more. I
6 want to make sure we go through the rest of the
7 commenters.

8 MR. SCHUCHARD: Thank you.

9 COMMISSIONER SCOTT: But thank you for
10 that and we'll have lots of additional time to
11 discuss what those solicitations look like.

12 Obrie Hostetter and you'll be followed by
13 Dedrick Roper.

14 MS. HOSTETTER: Thank you Commissioner
15 Scott and thank you Advisory Committee for
16 allowing us to provide comment today. Obrie
17 Hostetter. I'm with Hsubject. To give a little
18 bit of background, Hsubject is an Interoperability
19 or eRoaming provider. We connect the back end
20 systems or operating platforms together, so that
21 EV drivers have a seamless driving experience
22 meaning they can find, locate and access
23 stations. And that also means that you can use
24 your chosen provider's RFID card to access those
25 stations.

1 So we first want to comment on the
2 CALeVIP, the last round of grants for Southern
3 California. And we're really happy to see the
4 inclusion of interoperability and start to see
5 eRoaming being enabled in those grants.

6 We do recognize that the California
7 Resources Board, through SB 454, is also doing
8 some work around interoperability. But again, we
9 do want to commend you for starting to include
10 that.

11 We think the next more seamless
12 experience for EV charging is going to be plug-in
13 charge, or 15-11-8. And so we'd like to see some
14 enablement of the market in the next round of
15 funding for that, meaning you no longer need an
16 RFID card to no longer need an app. You can just
17 take the connector and plug it into the vehicle
18 itself.

19 This standard will also start to pave the
20 way towards other use cases of smart charging,
21 bidirectional charging, inductive charging and so
22 all very much in line with the state's goals.
23 So we look forward to continuing to work with the
24 Commission and we will provide more detailed
25 public comments. Thank you.

1 COMMISSIONER SCOTT: Thank you.

2 Dedrick and you are followed by Adam Mohabbat.

3 MR. ROPER: Good morning.

4 COMMISSIONER SCOTT: Good morning.

5 MR. ROPER: Thanks for the opportunity to
6 speak today, Dedrick Roper with ChargePoint. I
7 lead CALeVIP efforts for ChargePoint and just
8 want to provide some comments from the field on
9 how the program is going. The project really is
10 achieving the goals of the block grant. Nothing
11 against sales people, but the application is so
12 easy a sales person is able to walk a customer
13 through it. We don't need to bring in grant
14 folks to help out with that and it's really
15 increase the discussions around DC fast chargers.

16 Just a couple of data points, prior to
17 CALeVIP opening we were having discussions with
18 customers about 10 to 20 DC fast chargers. Since
19 the program is open we now have a pipeline of
20 hundreds within each county and the deployments
21 are larger. Some customers who we've been
22 working with were looking at electrifying just
23 one site. Just last week, one of those customers
24 went ahead with five sites, ten fast chargers
25 shipped in one week, which is huge improvement.

1 And just also want to comment on the road
2 map and the workshops that Brian led last month.
3 They've really stimulated the conversation in
4 these communities. We're already talking with
5 folks in Monterey County area, Sacramento County,
6 so really appreciate sort of the advanced notice
7 and priming the market and folks are now getting
8 really serious about their deployments next year.

9 And also combining Level 2 and DC fast
10 charging in the same project, I think is a great
11 move. And now you're seeing more folks that are
12 looking to install DC fast chargers co-located
13 with Level 2 charging stations.

14 And I just want to share how great we
15 think this model is. We're working with
16 beneficiaries around the country on their
17 Volkswagen settlement dollars and really pointing
18 to the CALeVIP project as a way to expedite those
19 deployments and it's been very well received.
20 So I just want to congratulate staff on a well-
21 designed program and I'm looking forward to next
22 year.

23 And I just wanted to comment on the
24 multifamily conundrum there. We were awarded an
25 ARFVTP grant in 2012 to deploy 206 Level 2

1 charging ports in San Diego County. One of the
2 main takeaways there was that site hosts had to
3 fund their own installation in that project. The
4 sale cycle on that was about two years just based
5 on all the decision makers in the process: the
6 property owner, the property management, the HOA.
7 So we learned a lot of other lessons in there and
8 if there's a workgroup that convenes around
9 multifamily problem, we'd love to be part of
10 that.

11 We incubated a multifamily team that's
12 supports our sales team, so that they are able to
13 help support those longer sales cycles. So I
14 just wanted to share that and offer our support
15 and any efforts to tackle that program. All
16 right, thank you.

17 COMMISSIONER SCOTT: Thank you.

18 Adam?

19 MR. MOHABBAT: Okay. Folks, I'm fully
20 aware that I'm the last thing standing between
21 everyone in this room and lunch, so --

22 COMMISSIONER SCOTT: We've got one person
23 on WebEx.

24 MR. MOHABBAT: So I'll make it super
25 quick. My name is Adam Mohabbat. I'm with EVGo.

1 EVGo is the nation's largest owner and operator
2 of fast charging infrastructure for electric
3 vehicles across the country. I've a really quick
4 comment on CALeVIP. We think it's incredibly
5 fantastic. We're incredibly supportive of it,
6 but with one quick comment. And this was
7 mentioned earlier, is to really is to really make
8 a concerted effort to align CALeVIP with some of
9 the other programs and efforts that are going on
10 across the state, specifically those utility make
11 ready programs.

12 We think it's going to really increase
13 like the efficacy of deployment of fast charger
14 infrastructure and really enable us to deploy in
15 some of those challenging markets. Yeah,
16 fantastic and we humbly offer ourselves as a
17 resource for any further information or data
18 points. Thanks.

19 COMMISSIONER SCOTT: Thank you. We have
20 one comment on the WebEx, so that's from David
21 Greenfader. Is his line open? David, your line
22 is open. Please go ahead and make your comment
23 on the EV charging infrastructure allocation.
24 You're unmuted on our end. Okay, hearing
25 nothing. You are -- and just a reminder to

1 everybody -- oh, are you there?

2 MR. GREENFADER: Can you hear me? I am
3 here.

4 COMMISSIONER SCOTT: Yes. Yes, please go
5 ahead with your comment.

6 MR. GREENFADER: Thank you,
7 Commissioner. Thank you everybody doing a great
8 job with the CALeVIP and for this. My comment is
9 really short. I represent a company called
10 Envision Solar. We manufacture a turnkey off-
11 grid solar electric vehicle charging station. So
12 my question is how CALeVIP and funding is looking
13 at distributed generation like ours with the
14 solar battery and a system that can be moved to
15 different locations or sit permanently as a
16 permanent solution?

17 MR. FAUBLE: Yeah, so right now an
18 application is tied to a physical site address
19 and we do have requirements that all of our
20 chargers have a network agreement for X number of
21 years recharging level. So the expectation is
22 that the charger should stay at that location for
23 that amount of time as well as there'd probably
24 need to be more language about the ability to
25 move it.

1 For CALeVIP, we use the EVI-Pro Model to
2 project what that county needs, so there needs to
3 be real assurance that that charger is not going
4 to be leaving the county, because again these
5 need to serve that county's specific needs.

6 And so as of right now, there is not
7 restrictions that says these would not be
8 eligible. The incentive amounts are the same for
9 all charging technology at this time. But we are
10 also capable of doing more solicitations as well
11 that can be specific to innovative technology in
12 the future that might be more adaptive or
13 specific for this type of technology as well.

14 MR. GREENFADER: That's great to hear. I
15 appreciate that.

16 COMMISSIONER SCOTT: Thank you. Okay, so
17 we will -- oh, I'm sorry. Thomas, please go
18 ahead.

19 COMMITTEE MEMBER LAWSON: I just have a
20 quick question. I know that in the document on
21 page 31 or 32 it mentions a couple of other
22 initiatives. Are there other programs and other
23 agencies that fund EV charging?

24 COMMISSIONER SCOTT: Yes, in addition to
25 the ones that are listed here?

1 COMMITTEE MEMBER LAWSON: Yeah, because
2 obviously the Volkswagen Dealers are not
3 necessarily a program, but I was just wondering
4 are there other incentive programs for EV
5 charging infrastructure.

6 MR. FAUBLE: Yeah, so on CALeVIP.org if
7 you go to find a project we'll show and list our
8 active projects as well as ones when they become
9 available. But we also start listing other
10 rebate programs that are in those areas that we
11 are live in. We will eventually will grow that
12 to be just statewide, every program there is.
13 There are a bunch right now, especially in
14 Southern California there's a bunch of Level 2
15 programs.

16 San Joaquin Valley, APCD also has the
17 Charge Up! Program that offers rebates. And we
18 actually partner with them on our Fresno one.
19 They offer rebates for the Level 2s and fast
20 chargers. And we definitely work together to co-
21 align our requirements, but LADWP, a lot of the
22 POU's as well in SoCal have them.

23 COMMITTEE MEMBER LAWSON: Well, you can
24 put together multiple programs for solicitation?

25 COMMITTEE MEMBER LAWSON: Correct. Yep.

1 MR. FAUBLE: Thank you.

2 COMMISSIONER SCOTT: Okay and with that
3 I think we are finished discussing the \$32.7
4 million allocation for electric vehicle charging
5 infrastructure. It is 12:40. Let's come back,
6 can we do 1:30? So please come back at 1:30.
7 There's a food truck right outside if you don't
8 want to go anywhere and some restaurants right
9 near the Commission.

10 But we'll see you all at 1:30. Thank
11 you.

12 (Off the record at 12:38 p.m.)

13 (On the record at 1:36 p.m.)

14 COMMISSIONER SCOTT: Welcome back after
15 lunch. We are just getting to our chairs here in
16 the room, so give us just about 30 more seconds
17 to get settled and then we will continue our
18 conversation.

19 I'd also like to note that Peter Cooper
20 has now joined us.

21 Welcome, Peter.

22 COMMITTEE MEMBER COOPER: Thank you.

23 COMMISSIONER SCOTT: All right. So there
24 was a question earlier about the dollars that we
25 have leveraged. And the staff put together this

1 over lunch to show you all, so let me have them
2 walk through that real quickly. And then we will
3 turn to our next Investment Plan allocation
4 discussion.

5 MR. SMITH: Sure.

6 COMMISSIONER SCOTT: So Charles?

7 MR. SMITH: Thank you, Commissioner
8 Scott.

9 So this pie chart compares to slide
10 number 21, for those of you who have the packets.
11 So slide number 21 was the ARFVTP funding. And
12 this constitutes the match funding that was
13 specifically included in those agreements. So
14 again, this only includes like the contracted
15 match, so there are a lot of investments that are
16 being -- happening in all of these fields that
17 are not captured here.

18

19 But the big takeaways, the total match
20 funding is a little over \$700 million, so just
21 about one-to-one with our own investments
22 overall. And then you can also see that the trio
23 of biofuel types, biomethane, ethanol and
24 biodiesel, constitute a relatively larger share
25 of the match funding which kind of makes sense,

1 given that those are more commercially-mature
2 pathways relative to say hydrogen which
3 represents a smaller wedge of this donut chart
4 compared to the ARFVTP funding chart.

5 So that's all that we wanted to present.

6 COMMISSIONER SCOTT: Thank you so much
7 for pulling those numbers together. We will make
8 sure that that is up in the docket so folks can
9 have access to it and, potentially, when we do
10 the revision to the report, include that -- some
11 of that information in there, as well.

12 So thank you very much for that, Charles.

13 Let us now turn to -- wait, now I lost my
14 place -- okay, our Hydrogen Refueling
15 Infrastructure conversation. And Phil is going
16 to kick that off for us please.

17 MR. CAZEL: Good afternoon. My name is
18 Phil
19 Cazal and I'm the Hydrogen Unit. And we'll go
20 through these here.

21 So as was mentioned earlier, Hydrogen's
22 \$20 million, the allocation comes from --
23 directly from the language in AB 8. And so also
24 -- and there's the goal of the 100 stations. And
25 so to reach that goal of 100, you know, the \$20

1 million allocation is what we've been working on.

2 Also mentioned earlier is the new
3 Executive Order which sets the new goal at 200
4 stations by 2025. And so we're working to try to
5 get to that goal, as well, beyond AB 8.

6 However, we do -- Staff does believe that
7 with the \$20 million allocation per year that we
8 will reach the 100 station goal by the end of --
9 or by January 1st, 2024, which is the end of the
10 current AB 8 program.

11 So another thing, so the numbers you see,
12 the 64 stations supporting 2,400 fuel cell
13 electric vehicles, today there are about 5,300
14 fuel cell electric vehicles in California. And
15 this, you know, the numbers we've funded so far
16 are way ahead of the number of vehicles that we
17 need to serve. And you know, this is because the
18 design of the stations and the way we're rolling
19 them out is purposely to frontload the network.
20 And this also kind of ties into the ZEV Action
21 Plan which calls for, you know, the need for
22 convenient refueling to be available and in place
23 before drivers have the confidence to buy fuel
24 cell electric vehicles.

25 And then of the stations funded so far,

1 we have 12 that are actually in disadvantaged
2 communities, and we expect more. You know, as
3 our funding goes forward, more of those will be
4 in or very close to disadvantaged communities.

5 So some examples of what the money pays
6 for. These are the components that go into a
7 hydrogen station, things like high pressure
8 storage tubes, compressors, dispensers, point-of-
9 sale built into the dispenser so that it's
10 convenient, just like, you know, driving up to a
11 regular gas pump, and then the piping, valves and
12 wiring. And a lot of these things are challenges
13 in the hydrogen area because many of these
14 components have long lead times to be ordered and
15 paid for, you know, to get these stations built.
16 And this is different than components that you
17 would find in a more mature market.

18 So the 64 stations funded to date haven't
19 quite been enough to create economies of scale
20 that could drive these costs down, but we're
21 looking forward to that in the future.

22 And then just a map of the funded
23 stations to date. So we're focusing today on
24 ARFVTP-funded stations. And so you'll hear us
25 say, you know, there are 34 stations that are

1 open retail, 30 more understand construction.
2 And the 34 may be a different number than you've
3 heard because there are actually 35 open retail
4 stations in the state. And the 35th station is
5 actually an older, what we call, legacy stations.
6 It was built back in the day, funded by mostly
7 CARB money. And then Shell paid out of their own
8 pocket to upgrade that station to the current
9 standards, and so we now count that as a
10 publicly-available station that acts just like
11 all the stations that we've funded.

12 And so the other item here is open
13 retail. It's actually a defined term. And that
14 includes things that -- you know, the station has
15 to meet certain standards agreed to by industry
16 and by stakeholders before it gets designated as
17 open retail. And that means, you know, any
18 person from the general public could safely go up
19 to the station and refuel.

20 And then again, the image down to the
21 left is an example of where our stations are in
22 Southern California and the shaded areas are the
23 disadvantaged communities in that area. So it's
24 not zoomed in enough to see which ones are
25 exactly in or out, but it gives you an idea that

1 they're in and around many disadvantaged
2 communities. So we're trying to make that one of
3 our goals, as well.

4 And then this slide, I wanted to throw in
5 there. This is an example of the fuel cell
6 vehicles that are available or will very soonly
7 [sic] be available in the marketplace in
8 California. And I put this in on purpose, just
9 to show that these vehicles look so much better
10 than the EVs that, you know, were shown earlier.
11 So the Toyota Mirai and the Honda Clarity on the
12 right are the ones that are currently out. And
13 on the left over there, the Hyundai Nexo is the
14 new replacement for what Hyundai put out. It was
15 the Tucson Fuel Cell, which was out, I believe,
16 in 2014. And so this is the next iteration of
17 that.

18 And then the Mercedes GLC at the bottom
19 left there, that's just been released in Germany
20 and we're hoping to get that in California very
21 soon. That one's a little different, it's a
22 hybrid. So it's a hybrid that uses battery-
23 electric and fuel cell technology all in one, so
24 it can be charged or refueled.

25 And then of the current activities the

1 first one listed there is the Joint Agency Staff
2 Report. And the title kind of explains what it
3 is, it's an analysis and assessment of, you know,
4 how much money, how much time is it going to take
5 to get to our 100 station goal. And this is
6 something that we have to produce each year. It
7 comes out in December as part of the AB 8
8 requirements to the legislature.

9 And then work on the next hydrogen
10 infrastructure solicitation is ongoing. And
11 Energy Commission staff have held a number of
12 workshops, beginning last November. And we're
13 hoping to get something together and release what
14 we're going to call a Hydrogen Draft Solicitation
15 Concepts document. And we're expecting that will
16 be out in first quarter of 2019.

17 And again, that's what I had for the
18 background. So the \$20 million allocation is
19 what's proposed for 2019-2020 funding.

20 COMMISSIONER SCOTT: Great. Thank you
21 very much, Phil.

22 Do we have questions, clarifying
23 questions from the Advisory Committee Members for
24 Phil?

25 Yes, Steve?

1 COMMITTEE MEMBER KAFFKA: One potential
2 source for renewable hydrogen would be various
3 types of biomass projects or that would convert
4 biomass to hydrogen. And so I'm wondering if
5 you've had any solicitations or have a program
6 for, particularly for trying to solicit renewable
7 hydrogen supplies from those sources.

8 MR. CAZEL: Yeah. That -- under the
9 funding that we have in the Hydrogen Unit, ours
10 is for the light-duty refueling infrastructure.
11 And so the renewable hydrogen portion comes from
12 our, is it called Biofuels now or -- the Low-
13 Carbon Section, so that money is a separate pool
14 now.

15 COMMISSIONER SCOTT: Brian?

16 COMMITTEE MEMBER GOLDSTEIN: Hi. It's
17 Brian Goldstein with Energy Independence Now. I
18 just had a couple of questions.

19 In the materials, there was kind of
20 mention of replacing the O&M funding from this
21 budget with kind of the new LCFS incentive. And
22 I'm wondering what the impact on the overall
23 budget is. Is there, you know, enough to, you
24 know, eke out extra stations there? Could you
25 explain a little bit the mechanism, how that

1 impacts the budget? And then I had a follow-up
2 question, as well, but --

3 COMMISSIONER SCOTT: You want to take
4 that one?

5 MR. CAZEL: Yeah. I can talk a little
6 bit about how we track that.

7 So you know, when we look back and we do
8 our, you know, our Joint Agency Staff Report, we
9 figure in how many stations per year are we
10 getting out of our \$20 million. And figured into
11 that is how much of that is O&M? And so, you
12 know, going forward, if O&M goes over to LCFS,
13 then that changes our projections and how many
14 stations we can get out of our limited funding.
15 That's how we look at that.

16 COMMITTEE MEMBER GOLDSTEIN: Great. So
17 to build on that, there was also mention that
18 there were 111 applicants for the last round of
19 stations, which is great. There's obviously very
20 high demand. And how do you make the decision of
21 when to increase the match share or how to,
22 essentially, take that demand to stretch out the
23 budget a little further and be able to build more
24 stations with some of the applicants putting in
25 more of the funding?

1 MR. CAZEL: Yeah. When we started I
2 think it was a 25 percent match was the
3 requirement back in 2010-ish. Over the years,
4 we've changed the minimum for each solicitation.
5 And then we went backwards, I think it was 80, 85
6 percent, 15 percent, something like that in our -
7 - one of our last solicitations. And we went
8 back and looked at the numbers and we did
9 interviews with, you know, the different
10 stakeholders and builders. And it actually comes
11 out that it's almost 50/50 because they're
12 overspending so much more on match than they
13 thought they needed to build these stations.
14 They're just very expensive to build. So even
15 our funding which we, you know, would like to cut
16 back to get more stations, on the other side,
17 private industry is already kicking in almost 50
18 percent, so --

19 COMMITTEE MEMBER GOLDSTEIN: So it seems
20 that the LCFS rule change will help that case, as
21 well. So I'm assuming you're taking that into
22 consideration. But is the match funding
23 requirement something that, you know, is likely
24 to change or easy to change or is that something
25 that's -- I know for the applicants, it would be

1 a very sensitive topic. But is that, you know,
2 sensitive, I guess, within this budget to start
3 to take a look at increasing match to stretch out
4 the funding?

5 COMMISSIONER SCOTT: So we always have
6 the ability to change the match funding. And
7 that is something that, as we're working to
8 design the next solicitation, that we would
9 certainly talk to folks about.

10 Our staff is also working really closely
11 with Sam Wade and the LCFS team to make sure that
12 we really have a good, and Andy and his team, as
13 well, how we have a really good understanding of
14 the LCFS, how we think that's going to -- what
15 dollars those are going to bring in, how that's
16 going to impact the industry, and then the grant
17 funds. And so to make sure we're getting again
18 kind of that maximum amount from there. And that
19 is ongoing because, as you know, the LCFS was
20 just updated like five weeks ago, so we haven't
21 had a chance to -- well, I haven't had a chance
22 to really sit down and dig in that. I know my
23 team is on top of that.

24 COMMITTEE MEMBER GOLDSTEIN: Great.
25 Thanks. I'm not necessarily advocating for it,

1 just curious about it in the, you know, context
2 of trying to essentially get more stations out of
3 the same amount of money, but thanks.

4 COMMISSIONER SCOTT: Yeah. Janane was
5 next, but then Claire.

6 COMMITTEE MEMBER SHARPLESS: So the 64
7 stations that you currently have funded, are
8 those currently in production?

9 MR. CAZEL: Yeah. Those are --

10 COMMITTEE MEMBER SHARPLESS: Can they
11 produce?

12 MR. CAZEL: No. The 64 is what funding
13 has been awarded. And so out of those, 30 have
14 made it to completion where they're open to the
15 public and -- or 34, sorry. And then the 30 are
16 still in some sort of construction or permitting.

17 COMMITTEE MEMBER SHARPLESS: So what
18 volume currently do we have coming from those
19 hydrogen stations?

20 MR. CAZEL: Volume as far as cars or --

21 COMMITTEE MEMBER SHARPLESS: Output.

22 MR. CAZEL: Output? So think it's 19,000
23 kilograms a day is our 64 -- 17,000, somewhere
24 around there, kilograms per day. And then we
25 figure a fuel cell vehicle uses about 0.7

1 kilograms per day in normal driving, and so the
2 math is, you know, that divided by 0.7 is how
3 many vehicles can be supported by the existing
4 stations --

5 COMMITTEE MEMBER SHARPLESS: I see.

6 MR. CAZEL: -- or the existing funded
7 stations.

8 COMMITTEE MEMBER SHARPLESS: So does each
9 one of these stations that you fund have the same
10 output? Is that one of the qualifying
11 requirements, that they have the same --

12 MR. CAZEL: No.

13 COMMITTEE MEMBER SHARPLESS: -- volume
14 output? No?

15 MR. CAZEL: That's varied, depending on
16 the solicitation. So back when this was, you
17 know, getting off the ground the minimum was 100
18 kilogram per day requirement. It was 180, and
19 then we had a split last time. We had, you know,
20 a section for up to 180 and a section for, you
21 know, over 300, over 299. And what we're hearing
22 is that the larger stations are going to be
23 better off because they're going to be able to
24 cash flow better sooner with that kind of volume.

25 COMMITTEE MEMBER SHARPLESS: I'm just

1 trying to get some idea. We have the number 100
2 out there, stations that are going to be
3 available for cars coming out in the near future.
4 And I didn't know whether that 100 was equivalent
5 to so many gallons, or however you measure
6 hydrogen, to the number of cars. So somebody
7 picked the number 100. Did that equate to a
8 certain level of -- a certain volume of output,
9 as well, in order to make this kind of, in a
10 business case, that this is going to turn out to
11 be a viable investment?

12 COMMISSIONER SCOTT: So that's a great
13 question. This is based -- I think this was on
14 the Energy Independence Now study, right, that
15 the Fuel Cell Partnership put together, a study
16 several years ago, actually, that said the State
17 of California needed a backbone of about 100
18 stations to kickstart this market, so that's what
19 that's tagged to.

20 I don't recall whether that was tagged to
21 these 100 stations will provide X amount of fuel.
22 I think it was actually more in -- I might have
23 Bill come up and say a word. I think it was
24 tagged to locations around the state so that
25 enough people could actually get to stations

1 versus, oh, we need this much fuel.

2 But, Bill, do you mind if I ask you to
3 come up and just say a quick word on that, since
4 we've got the Fuel Cell Partnership person here?

5 COMMITTEE MEMBER SHARPLESS: I just
6 would -- I would just say that I think that would
7 be helpful in the discussion, so that we would
8 have some context of knowing that we not only
9 will have 100 stations, but we will have the
10 volume from those stations to support whatever
11 the assumption number of cars that are going to
12 be out there in X period of time.

13 COMMISSIONER SCOTT: Yes. And we have
14 that information, as well, both the Energy
15 Commission and Air Resources Board put together.
16 We've got two different reports under Assembly
17 Bill 8. The first one comes out in the
18 summertime, June or July. Air Resources Board
19 does that one, it's how many vehicles the OEMs
20 anticipate coming over the next three years. And
21 sometimes it goes out a little bit farther than
22 that. The Energy Commission then puts together
23 how much fuel would be needed for that. And so
24 we've got a great graph, it's not here, but it
25 tracks how many cars we think are coming, how

1 much fueling is there. So we do have that
2 information but it's not right here in this
3 presentation.

4 COMMITTEE MEMBER SHARPLESS: It's just
5 sort of that the \$20 million is kind of a solid
6 number every year to meet this 100 station goal.

7 COMMISSIONER SCOTT: The legislature put
8 that in AB 8.

9 COMMITTEE MEMBER SHARPLESS: I know.

10 COMMISSIONER SCOTT: So they said Energy
11 Commission, you shall put \$20 million to hydrogen
12 until you get to 100 stations, and so that's what
13 we're doing.

14 COMMITTEE MEMBER SHARPLESS: So between
15 the financing issue and how you write the
16 criteria and what the volume should be, I think
17 is an important factor that we all should know as
18 to whether or not we're going to meet the mark.

19 COMMISSIONER SCOTT: Right, and we're
20 tracking that. But let me let Bill talk for just
21 a moment about the 100 stations.

22 MR. ELRICK: I'll be quick because you
23 had it right. The 100 stations was from 2012
24 when we were looking at how to start the market.
25 And the idea behind the Roadmap in 2012 was a

1 bunch of analysis from folks in this room and
2 others. To get the market started we needed 100
3 stations so that people could go buy their cars
4 in these early cluster markets and start to use
5 them as their everyday cars.

6 The reality of it was the automakers are
7 already committed to production numbers. And we
8 were learning how to put these out, and so the
9 first cars came out when there were two retail
10 stations. So there was never a capacity number
11 associated with the 100. It was get 100 points
12 on the map first and that will allow these cells
13 to initiate. We went ahead anyway. You know, we
14 were all committed to this process.

15 And so now, I think to your point about
16 numbers, we're able, and CEC and CARB are both
17 tracking that capacity to go along with it. And
18 then, and I can save this for later, we're
19 looking at that next step which is what is, one,
20 self-sufficiency so this market can go on its own
21 and, two, what are both the coverage, which is
22 what that 100 meant, and the capacity to support
23 a big car market?

24 COMMISSIONER SCOTT: Thank you for that,
25 Bill.

1 Claire, and then Joe.

2 COMMITTEE MEMBER JAHNS: Sure. I was
3 just -- kind of just maybe think about, and it
4 doesn't necessarily have to only apply to this
5 program, but would be there an opportunity to,
6 instead of doing grants from sort of a bid or
7 reverse auction where your existing grant,
8 there's like a ceiling?

9 COMMISSIONER SCOTT: So under AB 8, we do
10 have the ability to use various financial
11 mechanisms, like a loan-loss reserve or block
12 grants or solicitation kind of grants. There's a
13 whole list of those things, so we'd have to look
14 and see whether that fits in. And as we're
15 having the workshop with the hydrogen industry
16 and others who are engaged in this field, figure
17 out what's the best mechanism to move the -- most
18 smartly move the dollars but also get those
19 stations built. Yes.

20 Joe, and then Tyson.

21 COMMITTEE MEMBER GERSHEN: Great. Could
22 you review, I was trying to take notes and I
23 missed it, was it 19,000 kilograms a day that
24 each station would put out? And I thought I
25 heard you say 0.7 kilograms per vehicle is what's

1 needed. So I'm just --

2 MR. CAZEL: Yeah. So it's -- I think
3 we're close to 17,000 gallons per day --

4 COMMITTEE MEMBER GERSHEN: Gallons or
5 kilograms?

6 MR. CAZEL: -- I'm sorry, kilograms --

7 COMMITTEE MEMBER GERSHEN: That's okay.

8 MR. CAZEL: -- per day for the whole
9 network as funded. So the --

10 COMMITTEE MEMBER GERSHEN: For the whole
11 network?

12 MR. CAZEL: -- so the 64 stations and --

13 COMMITTEE MEMBER GERSHEN: So divided by
14 0.7 --

15 MR. CAZEL: Yeah.

16 COMMITTEE MEMBER GERSHEN: -- is 20 -- so
17 20 -- just over 24,000 vehicles.

18 MR. CAZEL: Right, so that's the 24,000.

19 COMMITTEE MEMBER GERSHEN: And what's the
20 capacity of the 30 stations that are out for --

21 MR. CAZEL: Of the 64.

22 COMMITTEE MEMBER GERSHEN: Sixty-four?

23 MR. CAZEL: Correct.

24 COMMITTEE MEMBER GERSHEN: And so when
25 Jan was asking about output, I think you were

1 talking about capacity. But the current output
2 is obviously much lower. There's not that many
3 vehicles out there.

4 Do you know what the output is right now,
5 I mean what actually is being consumed?

6 MR. CAZEL: Yeah. We have data that we
7 collect every quarter from the stations that
8 we've funded.

9 COMMITTEE MEMBER GERSHEN: And the last
10 quarter was roughly?

11 COMMISSIONER SCOTT: Jan, do you want to
12 come up and address that?

13 MR. CAZEL: I don't know the totals. I
14 don't know the quarter-by-quarter totals. It
15 will be in our --

16 COMMITTEE MEMBER GERSHEN: Quick
17 question, just as a consumer, what's the gasoline
18 gallon equivalent of, you know, like a per-gallon
19 cost of that? What's being charged to consumers?

20 MR. CAZEL: Yeah. I think today, \$16.00
21 a kilogram is around \$8.50 a gallon --

22 COMMITTEE MEMBER SHARPLESS: Yeah.

23 MR. CAZEL: -- equivalent.

24 COMMITTEE MEMBER GERSHEN: \$8.50 a
25 gallon?

1 MR. CAZEL: It's pretty high. Yeah.

2 COMMITTEE MEMBER GERSHEN: And is that
3 similar to like some of the range of gallons? In
4 other words, is \$8.50 a gallon --

5 MR. CAZEL: Yeah. Yeah. So a fuel cell
6 vehicle filled up will go 300 miles. And so
7 that's --

8 COMMITTEE MEMBER GERSHEN: So it's --

9 MR. CAZEL: -- similar to --

10 COMMITTEE MEMBER GERSHEN: -- it's like
11 expensive, compared to gasoline, the petroleum
12 equivalent?

13 MR. CAZEL: Yeah.

14 COMMITTEE MEMBER GERSHEN: That's all.
15 Okay.

16 MS. BARONAS: So, Joe, the Q3 data is in
17 now, and so it's 2,200 --

18 COMMISSIONER SCOTT: Oh, Jean, will you
19 say who you are, just for the folks on the phone
20 please?

21 MS. BARONAS: I'm so sorry. Thank you.
22 Jean Baronas, California Energy Commission.

23 Q3 data is in now and we have 24
24 kilograms a day being dispensed network-wide.
25 One developer with 19 stations last Thursday and

1 Friday dispensed 1,700 kilograms over 19 stations
2 in one day. So those are the record numbers now.

3 COMMITTEE MEMBER GERSHEN: Okay. Okay.
4 Thanks.

5 COMMISSIONER SCOTT: Thank you.
6 Tyson?

7 MR. ECKERLE: Maybe just building on that
8 conversation, so I think you're seeing within the
9 network, again, I think about 5,000 fuel cell
10 vehicles. And so in those core areas, you're
11 seeing an over-strip of supply. So like in
12 Anaheim, for example, this station was built at
13 180 kilograms a day. They're seeing, I think
14 this last week, it was 270 kilograms they put
15 through that system.

16 So in this core market the demand is
17 there. Really, we're constrained by the number
18 of stations. So as each station comes there's
19 more cars coming into the market, so it's
20 working. And then also for the cost of fuel. So
21 right now the automakers include that in their
22 lease prices. But the long-term solution is
23 volumes bringing that cost down, so --

24 COMMITTEE MEMBER GERSHEN: Automakers are
25 sort of subsidizing?

1 MR. ECKERLE: Yeah, that's right, because
2 it's -- \$8.50 is a hard value proposition right
3 now; right?

4 COMMITTEE MEMBER GERSHEN: Yeah. Yeah.
5 Yeah.

6 MR. ECKERLE: Right.

7 COMMITTEE MEMBER GERSHEN: But -- so if
8 you buy one of these cars, you're basically
9 getting free fuel?

10 MR. ECKERLE: That's right.

11 COMMITTEE MEMBER GERSHEN: For what
12 period?

13 MR. ECKERLE: For about three years, give
14 or take. But then just, obvious, I guess, with
15 that is voicing Trump support. I mean, there's a
16 lot of momentum that's happening within the fuel
17 cell industry. And I think Bill will probably
18 talk about the Roadmap revolution, so I won't
19 steal your thunder. But I think there's a lot of
20 opportunity and this is one of the fundamental
21 building blocks of our network and success.

22 COMMITTEE MEMBER GERSHEN: And what
23 happens to those vehicles when they come off
24 lease after three years?

25 MR. ECKERLE: That's a good question, so

1 they're just starting to come off lease. And I
2 don't know if they've announced. Like Toyota,
3 for example, has just come off lease with some of
4 their vehicles. And I think they're developing a
5 program to keep them in service.

6 COMMITTEE MEMBER GERSHEN: Thank you.

7 MR. ECKERLE: I really don't want to
8 speak for Toyota.

9 COMMITTEE MEMBER GERSHEN: Oh, me
10 neither.

11 COMMISSIONER SCOTT: Other comments from
12 the Advisory Committee on the \$20 million
13 allocation for hydrogen refueling infrastructure?

14 And let me make sure that folks on the
15 phone have an opportunity to weigh in, as well.
16 We've still got Ralph Knight and Irene Gutierrez
17 on the phone.

18 And you're unmuted on this end. So
19 again, feel free to just jump in, as well.

20 Casey, were you about to say -- okay,
21 just checking.

22 Brian, yes, please.

23 COMMITTEE MEMBER GOLDSTEIN: I just
24 wanted to make one more quick comment to Bill --
25 on Bill Elrick's comments about the number of

1 stations that we were targeting back in 2012.

2 So you know, I don't think we were
3 pinpointing a specific number of cars that those
4 stations would service. But I wanted to remind
5 the group that our overall goal as a state, I
6 think was one-and-a-half million ZEVs at that
7 time period. So we're obvious, you know,
8 shooting for a much higher number right now and
9 the number of stations that we set a goal for,
10 you know, five or six years ago I think is now
11 something that needs to be updated.

12 All right. Thanks.

13 COMMISSIONER SCOTT: Thank you.

14 Other comments from the Advisory
15 Committee? Okay.

16 I have a few public comments. First,
17 Raul Renaud. And you will be followed by Ryan
18 Schuchard.

19 MR. RENUAD: All right. Thank you,
20 Commissioner Scott. Raul Renaud. I'm the
21 retired CEC -- I guess I've been retired for
22 about two years from here.

23 I drive a Honda Clarity fuel cell
24 vehicle. And I just wanted to speak and thank
25 the Commission for its efforts to get zero-

1 emission vehicles of all kinds on the road. I
2 mean, that's really important. But I wanted to
3 give you a little, maybe, outside perspective on
4 the hydrogen vehicles particularly.

5 One of the things I'm doing in retirement
6 is I volunteer at events where people come and
7 test drive, you know, ride-and-drive events.
8 They test drive zero-emission vehicles. And most
9 of the time those are battery cars. And most
10 people come back and they really liked driving
11 it, it was zippy and fun.

12 And then they start -- we start talking
13 about, well, you know, so what would it take to
14 get you to drive home in this car today? And we
15 start talking about the charging and the maybe
16 putting something in your house. And they -- you
17 can see their faces start to fall a little bit.
18 And you're realizing you're asking them to change
19 their behavior in a lot of ways.

20 And if I then say, well, what if I told
21 you there's a type of zero-emission vehicle that
22 goes as far as your gasoline car, 350 miles, it
23 refuels in five minutes, and you don't have to
24 look for charges or put on in your house, you
25 just go to the gas station to fill it up? They

1 say, well, great. Where can I get that.

2 And so, you know, then it comes up, well,
3 where are the stations? And, of course, that's
4 clearly where we're still, you know, working on
5 that.

6 But I can tell you that if we're looking
7 at getting people into zero-emission vehicles,
8 I'm convinced that the less we have to change
9 their behavior, the better. And if we can build
10 up this network of stations, too, for hydrogen
11 vehicles, I think those are the ones that more
12 people are going to want to go for, especially,
13 you know, Americans with the big cars. They like
14 their SUVs. They like their pickup trucks. And
15 you show them, you know, a Nissan Leaf and
16 they're thinking, well, I can't use that. Why
17 should I give up my Suburban?

18 So I just think that you're doing a great
19 thing by continuing with this program. I wish
20 the funding could be greater. I understand it's
21 constrained. Maybe that law can get changed,
22 will be changed in the new administration. We'll
23 see.

24 But the other thing I wanted to point out
25 was from the new -- the draft, the staff report.

1 The tables six and eight both show from NREL data
2 that hydrogen really has a far greater potential
3 to displace petroleum and reduce GHGs and other
4 pollutants over any other type of zero-emission
5 vehicles, and especially batteries.

6 So I think just based on kind of a bang-
7 for-your-buck scenario, you're also doing a very
8 good thing and a wise thing by funding the
9 Hydrogen Program, and I thank you for it.

10 COMMISSIONER SCOTT: Thank you.

11 I have Ryan Schuchard, followed by Jaimie
12 Levin.

13 MR. SCHUCHARD: Commissioner, Advisory
14 Members, I just want to express our support for
15 this plan and the allocation and mention a point
16 related to a point earlier on medium and heavy
17 duty.

18 If we can end up putting in, kind of in
19 the prelude of the plan, here's our kind of
20 overall push on medium and heavy duty, this would
21 be a good component of that to mention because
22 this is highly relevant for medium and heavy
23 duty.

24 So support the plan. I think it's done
25 well.

1 COMMISSIONER SCOTT: Thank you.

2 So Jaimie Levin, followed by Bill Elrick.

3 MR. LEVIN: Commissioner Scott, Members
4 of the Advisory Committee, Jaimie Levin with the
5 Center for Transportation and the Environment.
6 We're a nonprofit that manages a number of
7 projects funded largely by CARB, by CEC, the
8 Department of Energy, building fuel cell buses,
9 fuel cell trucks, Class 6 and 8 trucks, also
10 battery-electric trucks. And we're building
11 stations. We're working with some of the
12 developers of light-duty stations, but we're
13 actually involved right now building heavy-duty
14 transit bus fueling stations with capacity or
15 1,000 to 1,500 kilograms a day. This is being
16 funded in large part through CARB and through
17 their efforts.

18 But we want to emphasize that in order to
19 move this further towards commercialization,
20 especially in the transit arena and in the
21 trucking arena with large fleets, we need more
22 funding for infrastructure. The vehicles are
23 proving their value, their performance
24 capabilities, but we need more funding towards
25 infrastructure.

1 And I noticed on page 51 there is a
2 reference to CEC's commitment to medium- and
3 heavy-duty infrastructure. CT would go on record
4 saying we do not want to compete with the money
5 that is available for light-duty stations as
6 dictated by the legislation. This references the
7 possibility of using some of those funds. We
8 would not support that. It's really important
9 that light-duty fleets roll out in volumes with
10 that because that will help the cost of hydrogen
11 come down overall, even especially as a
12 supplemental to heavy-duty applications.

13 There's also reference to using the
14 Advanced Freight and Fleet Technology funding.
15 Later I'll speak about some additional
16 technologies which I think are prime for
17 demonstration to further advance the
18 commercialization of fuel cells. So there's kind
19 of a competitive situation at play and we
20 certainly want to make sure, you know, we all
21 want more money, but we want to make sure we move
22 down the path, both on the infrastructure side,
23 as well as on the vehicle side, to get this to
24 commercialization.

25 We are getting very, very close in the

1 heavy-duty sector. Very excited about it. And
2 so we really push, please, putting more funding,
3 finding funding.

4 And by the way, we do talk to the
5 legislature on a regular basis because that's
6 where we all get our funding from.

7 Anyway, thank you very much for your
8 time.

9 COMMISSIONER SCOTT: Thank you.

10 I have Bill Elrick, followed by -- that's
11 the last one in the room, and then we'll go to
12 the WebEx.

13 MR. ELRICK: Thank you. And I want to
14 thank this, the CEC, the Commissioner, the
15 Advisory Committee, and really the staff for all
16 the work for -- we support this \$20 million
17 allocation that's proposed, but also the hard
18 work that's gotten us to this point.

19 You know, as mentioned earlier, we
20 finally are seeing the early market success take
21 root. And it's been a little slower than we
22 imagined and had hoped, but we can feel it and we
23 can see it and we see measurable success. And
24 what it's also showing us is the next step is
25 both harder and greater and more important.

1 And so it was alluded to earlier and I
2 will submit it formally to the docket, but we
3 recently published the follow-up to the Roadmap
4 document in 2012 which was how to get started,
5 now it's what does success look like? And in a
6 nutshell the vision document, the revolution, as
7 we called it, is a 2030 timeframe, a million
8 vehicles, 1,000 stations, and it's a self-
9 sustaining market, one that we can see and
10 applaud the ARFVTP Program for being such a great
11 success to kick this off. And then we can back
12 out and say thank you very much. So I'll submit
13 that later.

14 But it's really now about scaling up
15 because this is a business-based -- a business-
16 case based ZEV market opportunity. And so we
17 want to reach this as soon as we can. We're
18 looking forward to reengaging or continuing the
19 engagement with CEC on some of the new mechanisms
20 we may try to make this transition happen faster.
21 Because the quicker we can do it the quicker
22 we're going to see value in this program for the
23 public, for the benefits of health and home, as
24 well as for a business case where this can turn
25 it into an industry that we take the alternative

1 off this fuel opportunity.

2 And so I'll just say in closing, thank
3 you very much for this program. Thank you very
4 much for this allocation. We look forward to
5 finding and new and improved ways to do more with
6 it. And we'll continue in engagement with you
7 every step of the way.

8 COMMISSIONER SCOTT: Thank you.

9 Let me turn to our WebEx. We have Wayne
10 Leighty please. And you are un-muted.

11 MR. LEIGHTY: Yes. Hello. Can you hear
12 me?

13 COMMISSIONER SCOTT: Yes. Hi Wayne.

14 MR. LEIGHTY: Hi, Commissioner Scott and
15 Members of the Advisory Committee. I'm Wayne
16 Leighty, Business Development Manager for Shell
17 Hydrogen North America. We are operating some
18 hydrogen refueling stations now and developing
19 more. I wanted to offer just some context on the
20 prior conversation around the value proposition
21 on the fuel.

22 Of the current market price that was
23 quoted, you can think of roughly half of that is
24 in the station cost, the capital in operating,
25 and roughly half of that in the delivered supply

1 of hydrogen. And then I would encourage you to
2 think about hydrogen infrastructure as where
3 solar and batteries were 20 years ago, at the top
4 of a very high and steep cost curve.

5 The history of the grant funding
6 solicitations from the Energy Commission show how
7 the cost is coming down. And in Shell, we've
8 just taken another 50 percent of the cost out of
9 the stations, the capital and operating.

10 So one of the ways we think about it is
11 that we have a challenge in front of us to get to
12 something like parity on the cost of the fuel at
13 roughly 1/1000th of the scale that exists in
14 gasoline and diesel. That's a challenge that
15 we're working on.

16 The flip side of the challenge is an
17 opportunity. If we are starting from very little
18 infrastructure for hydrogen refueling station
19 than the supply, it creates an opportunity for
20 rapid progress in the renewable content and the
21 decarbonization of that supply.

22 So the role of policy to enable that kind
23 of progress to accelerate and scale this sector
24 is tremendous, for example, in the recent LCFS
25 rulemaking and then your activities through the

1 ARFVTP Program.

2 Thank you very much.

3 COMMISSIONER SCOTT: Thank you.

4 I have, also on the WebEx, Gastana Slimon
5 (phonetic).

6 MR. SLIMON: Thank you. Can you hear me?

7 COMMISSIONER SCOTT: Yes.

8 MR. SLIMON: Perfect. Thank you,
9 Commissioner Scott and the CEC. Again, my name
10 is Gustana. I'm from FirstElement Fuel. We are
11 a counseling company.

12 We wanted to thank you for your
13 investment in the hydrogen refueling
14 infrastructure. Thanks to your funding, we have
15 19 operating stations, and we plan to build
16 another 12 in the next year. We have completed
17 over 230,000 cells, relieving 50 million gasoline
18 miles and saved over 33 million pounds of carbon
19 dioxide.

20 We think we have penetrated the private
21 funding market by making the business case for
22 hydrogen fuels to compete with gasoline. We're
23 excited for the funding that you're providing and
24 have provided and we look forward to the next
25 solicitation.

1 Thank you.

2 COMMISSIONER SCOTT: Thank you.

3 I don't have any other public comment,
4 but I do have an Advisory Committee comment.

5 Thomas?

6 COMMITTEE MEMBER LAWSON: Yeah. I was
7 doing some math. And those that took the SAT, it
8 wasn't my strongest point. I'm more of a writer.

9 But I guess, you know, I'm looking at the
10 numbers here. And when you do a little bit of
11 equation, you know, \$120 million spent since
12 2012, about 64 stations. To get to 200, you need
13 roughly \$375 million, divided by 20 you get,
14 there's roughly -- you know, 2036 is when we'll
15 arrive, or something like that, at 200 stations.

16 My question is, and I missed part of it
17 so maybe this was already addressed, what is it
18 that the industry sees as key events that are
19 going to happen to make that acceleration?
20 Someone was talking about 1,000 stations by 2030
21 which doesn't pencil out.

22 But I just wanted to know, what is it
23 that's going to allow this acceleration to happen
24 if this is the path we're on? What is the -- you
25 know, those pivotal moments that need to happen?

1 COMMISSIONER SCOTT: We do have a couple
2 of industry folks here who could make take that
3 on. We heard from Wayne from Shell on the
4 fueling side. That's a really, really big
5 question.

6 I mean, I think from the Energy
7 Commission side, what we're looking at is trying
8 to get to a level of scale that starts driving
9 the cost out of some of these. And our recent
10 study has shown that, you know, 100 stations
11 isn't enough to really start driving the costs
12 down. Although, I will say we have -- the first
13 round of stations that we funded at around \$2
14 million a station, they were about 100 kilograms
15 a day. We're now funding about the same level,
16 \$2 million per station or so, and they're 300
17 kilograms a day. So we are actually starting to
18 see, even in the small realm of the 64 funded,
19 costs coming down in that way.

20 We've got a terrific report that we put
21 together at the end of the year, so it's due to
22 the legislature in December, so the team is
23 currently working on it. But from last year's
24 draft, it kind of tracks what some of those costs
25 look like and where we need to drive those down.

1 So I'd be happy to share that with you.

2 And maybe, I don't know, Tyson or Andy,
3 if you guys want to weigh in a little bit on this
4 or not?

5 MR. ECKERLE: I think you said it well.
6 And the cost report that the team has put
7 together is really helpful

8 But really, I think the key fundamental
9 thing, and you heard Michelle talk about it, is
10 scale; right? And I think that scale drives the
11 costs out of the equation.

12 Bill had said, you know, that 1,000
13 station, million cars, we expect that the network
14 will be self-sustaining at that point for the
15 most part. It might still need some support in
16 some like far-out markets, you know, frontier
17 markets type of thing.

18 So that's really what it is and it's the
19 commercial, like industrial gases, at scale,
20 hydrogen is really cheap. But when you buy a
21 little thing like this it's, you know, very
22 expensive, so that's the main thing

23 COMMISSIONER SCOTT: We'll make sure to
24 get you that report, as well.

25 COMMITTEE MEMBER LAWSON: Great. Thank

1 you.

2 COMMISSIONER SCOTT: You're welcome.

3 It seems I have one more public comment
4 from Bill Leighty on the WebEx.

5 Please go ahead, Bill.

6 MR. LEIGHTY: I'm in Alaska. Can you
7 hear me?

8 COMMISSIONER SCOTT: Yes.

9 MR. LEIGHTY: Good. I wanted the
10 (indiscernible) 1/1000th (indiscernible) of where
11 we --

12 COMMISSIONER SCOTT: I sort of hear him.

13 MR. LEIGHTY: -- need to be to be really
14 competitive with gasoline and other fuels.

15 I have submitted three written comments
16 to you today, I hope they're useful to you, three
17 different submissions. One of them was a poster
18 that I composed that I've presented at several
19 energy conferences based on some work done in a
20 white paper by (indiscernible) transportation
21 studies at UC Davis. Following that, in a
22 particular scenario that they had added, if
23 California gets a (indiscernible) 80 and 50
24 ambitions by the year 2050, there will be a
25 bigger demand in California for renewable source

1 CO2 emission-free hydrogen fuels for
2 transportation than for electricity for the grid.
3 So we need to pay attention to that to help our
4 friends in wind and solar see that they need to
5 start, you know, thinking beyond electricity, as
6 you folks are doing as well.

7 And that eventually leads us to have a
8 scenario of 7 million tons per year of high-
9 purity hydrogen transportation fuel from CO2
10 emission-free sources needing a pipeline
11 infrastructure. And that's going to be a huge
12 fight but one that we should begin thinking about
13 at this time if we're ever going to take this to
14 a scale that you folks call it. For example,
15 from that new Palen Wind Plant to the east of
16 Palm Springs, how are we going to get that to the
17 markets of the ports, other than via pipelines?

18 So thank you very much.

19 COMMISSIONER SCOTT: Thank you. Okay.

20 So I believe that's our last public
21 comment. Yeah. Okay.

22 Any other Advisory Committee comments on
23 the \$20 million allocation for hydrogen refueling
24 infrastructure? All right.

25 So with that, let us now turn to

1 Manufacturing and Workforce Development. And
2 Larry Rillera is going to present that to us.

3 MR. RILLERA: Good afternoon everyone.
4 My name is Larry Rillera. I'm staff with the
5 Fuels and Transportation Division. I will be
6 speaking on activities in the areas of our
7 advanced technology manufacturing and workforce
8 activities.

9 The ARFVTP manufacturing portfolio
10 includes 18 active and completed projects valued
11 at over \$43 million. The suite of products in the
12 portfolio includes battery technologies, electric
13 powertrains, zero-emission trucks, buses and
14 motorcycles, and electric vehicle charging
15 equipment. The ARFVTP manufacturing investments
16 have resulted in the creation and/or retention of
17 over 600 jobs in California. The manufacturing
18 workforce is critical to the ZEV market as low-
19 production volumes require considerable labor.

20 ARFVTP workforce service delivery has
21 been through the state agencies noted here. Each
22 contract with these entities provide specific
23 workforce training and development.

24 I would also note a new partnership the
25 Energy Commission has with Cerritos College

1 Foundation. Cerritos is orienting nearby high
2 school students in advanced vehicles
3 technologies. In addition to serving students in
4 disadvantaged communities, Cerritos College is
5 leveraging relationships with OEMs, original
6 equipment manufacturers, and dealerships for
7 future jobs once these students complete their
8 education.

9 As a sidebar, there was a comment I will
10 make and address now with respect to workforce
11 training in the biofuel sector, I believe it was,
12 in the Central Valley. We have had direct
13 investments in companies, biofuel production
14 companies. Calgren comes to mind. They've
15 received two funding workforce training
16 investments under our ARFVTP.

17 Success of ARFVTP manufacturing and
18 workforce projects can be measured in several
19 ways. Proterra, an all-electric transit bus
20 manufacturer, was awarded \$3 for a manufacturing
21 plant. Proterra established a new line in the
22 City of Industry to be closer to customers,
23 leverage investments in battery technology, and
24 to help scale up their operations and products.

25 Efficient Drivetrains Inc, or EDI, is

1 another recipient of our ARFVTP manufacturing
2 funds. They manufacturer plugin hybrid and all-
3 electric powertrains for the non-light-duty
4 market. Cummins Incorporated, a global OEM,
5 recently announced the acquisition of EDI.

6 As was mentioned before, Cerritos College
7 is leveraging a new ARFVTP investment aimed at
8 the high school students.

9 With respect to the engagement by Staff,
10 externally we engage both on the manufacturing
11 side and on the workforce side with a whole suite
12 of entities. Listed here, Meeting of the Minds
13 is a yearly gathering of thought leaders from
14 California and beyond. In a session titled
15 Skills for a Zero-Emissions Future, a panel that
16 included the Energy Commission, the Port of Long
17 Beach, Long Beach City College, and the U.S.
18 Department of Labor, described the partnership in
19 the assessment of needed skills of freight
20 workers.

21 The Los Angeles Economic Development
22 Corporation hosted an event for advanced
23 transportation technology suppliers and workforce
24 entities. Discussions included workforce needs
25 of advanced transportation startups and labor to

1 support supplier scale-up.

2 Staff also participated in the Education
3 Services Committee of the Southern California
4 Regional Transit Training Consortium. Discussion
5 centered on workforce needs of transit agencies
6 as they move to advanced technologies and zero-
7 emission vehicles.

8 In August, Commissioner Scott led a
9 Technology Merit Review Workshop to highlight
10 lessons learned from ARFVTP manufacturing
11 projects. Two of the findings to emerge from the
12 workshop included the acquisition of one of our
13 ARFVTP companies by a large global OEM, EDI by
14 Cummins.

15 A second observation from the Merit
16 Review Workshop was the securitization of new and
17 large capital investments into our ARFVTP
18 companies. As an example, Meritor invested
19 significantly in TransPower, one of our portfolio
20 companies.

21 The Governor's Executive Order on ZEV
22 Infrastructure specifies that state entities are
23 to, quote, "recommend actions that boost zero-
24 emission vehicle infrastructure to strengthen the
25 economy and create jobs in the State of

1 California," unquote.

2 To this end the Energy Commission hosted
3 a roundtable discussion in Long Beach that
4 focused attention on actions the state and local
5 governments could take to expand or recruit
6 California-based manufacturing in all or part of
7 the ZEV infrastructure supply chain. Some of the
8 findings from this roundtable included California
9 is the largest state market for ZEVs with
10 significant future growth opportunity, especially
11 in the freight and transit platforms. Secondly,
12 ZEV markets are growing rapidly and the state
13 must prepare. And third, California's market is
14 an important drive for ZEV infrastructure
15 companies to consider when choosing where to
16 manufacturer. However, it is not the only factor
17 as ZEV infrastructure companies also look
18 nationally and globally.

19 Prospectively, Staff is currently
20 focusing on the next manufacturing solicitation.
21 In October, Staff conducted a webinar on pre-
22 solicitation concepts for a ZEV infrastructure
23 manufacturing solicitation. Over 100
24 stakeholders attended. The purpose of the
25 webinar was to engage in discussion with

1 manufacturers interested in partnering with the
2 Energy Commission to scale their technologies and
3 to help ensure a health ZEV infrastructure supply
4 chain to help meet the state's goals. The
5 solicitation is planned for release this calendar
6 year.

7 Workforce initiatives under a near-term
8 consideration and investment includes training
9 school personnel on zero-emission bus and
10 infrastructure maintenance and operations. A
11 second initiative is to include, as eligible,
12 workforce training and development in the
13 aforementioned manufacturing solicitation. Staff
14 is also assessing potential opportunities with
15 new and existing workforce partners.

16 The 2019-2020 Investment Plan proposes a
17 \$5 million allocation for manufacturing and
18 workforce development. I would note that Staff
19 is not proposing a defined split between
20 manufacturing and workforce. As noted earlier,
21 Staff will continue to engage with stakeholders,
22 explore opportunities, and then make decisions
23 and recommendations once the funds become
24 available.

25 Thank you.

1 COMMISSIONER SCOTT: Thank you. Okay.

2 So Advisory Committee members, questions
3 for Larry or discussion on the \$5 million
4 allocation for manufacturing and workforce
5 development?

6 Thomas?

7 COMMITTEE MEMBER LAWSON: Thank you very
8 much. I wanted to, I think, reiterate my
9 question from earlier. I made some notes so I
10 have a little bit more, I think, thought --
11 fleshed out question.

12

13 So we noticed that the allocation for
14 this particular potential has gone down; right?
15 And so now we're dealing with \$5 million. And I
16 saw that we had some agreements with some other
17 colleges and community colleges. I think that's
18 great.

19 My question is with, you know, trying to
20 get the most bang for our buck, I would imagine
21 that there are some programs that we could invest
22 in directly in the Central Valley, San Joaquin
23 Delta College or Fresno Community College, that
24 have types of programs that, you know, already do
25 something similar. And we want to help some of

1 these folks get certified to work on some of
2 these new technologies.

3 So my question is, you know, for
4 instance, I would imagine, you know, half-a-
5 million dollars in Fresno could go a long way for
6 a community college, you know, versus, you know,
7 trying to spend a \$1 million or \$2 million in
8 maybe Los Angeles or something like that.

9 So I know that you don't have specific
10 allocations. But my question then, I think, is
11 what has been the specific outreach to those
12 actual colleges down there? And are they
13 positioned to take advantage of this?

14 MR. RILLERA: Sure. Thank you, Thomas.
15 If I understand correctly, one of them would be
16 the leverage of this \$5 million. And I think to
17 your point of leveraging existing relationships
18 is critical to these dollars going forward, this
19 is an important amount but it is a meager amount.

20 And so to the extent that these entities
21 that you've mentioned, not just within the San
22 Joaquin Valley but we also have investments in
23 workforce in the Imperial Valley and other areas
24 where there is relatively still high unemployment
25 and there's disadvantaged communities that could

1 benefit from these limited funds.

2 Staff continues to meet with those
3 entities and explore the relationships that they
4 have on the ground now, where we can continue our
5 investment. We will continue to do this as this
6 Investment Plan moves forward and as a practical
7 purpose, not just by ourselves. We do this in
8 concert with our state agency partners, as well.
9 We certainly welcome that relationship with our
10 state agency partners, as well as the local and
11 regional entities, as well.

12 And in San Joaquin, not just San Joaquin,
13 as I had mentioned, there are other areas of the
14 state, we also have outreach to disadvantaged
15 communities that could accrue the full benefit of
16 not just the investments but the technologies, as
17 well.

18 MR. SMITH: And, Larry, maybe you could
19 back a few slides to the workforce funding table
20 where we listed all the agreements that we have.

21 MR. RILLERA: That's me.

22 MR. SMITH: There we go. So the fourth
23 or fifth one there, the Advanced Transportation
24 and Logistics Initiative, formerly CETI, formerly
25 ATRE, that is actually a collection of community

1 colleges. And so we provided funding for
2 workforce training opportunities through a lot of
3 different campuses. I'm sorry, I don't recall
4 which campuses precisely were participating, but
5 I want to say it was maybe a dozen or so.
6 Fifteen? Thank you. So we can follow up with
7 you if you're interested on which campuses
8 specifically were involved in that.

9 MR. RILLERA: Along those lines as well,
10 as well, Charles and Thomas, the last entry,
11 which is another meager investment of \$200,000-
12 or-so with the Cal State University of Long Beach
13 is to look at freight workforce, not just at
14 seaports but land ports. So now we're talking
15 about an area of California that has not
16 traditionally received investment focused for
17 workforce and development.

18 COMMITTEE MEMBER LAWSON: Thank you.

19 COMMISSIONER SCOTT: Thank you. Oh,
20 okay. I thought you had a couple.

21 COMMITTEE MEMBER LAWSON: No.

22 COMMISSIONER SCOTT: Okay. Peter, and
23 then Casey.

24 COMMITTEE MEMBER COOPER: Okay. Thank
25 you. I have a couple --

1 COMMISSIONER SCOTT: You need to get to a
2 mike so the folks on the WebEx can hear you.
3 It's right next to you. There you go.

4 COMMITTEE MEMBER COOPER: All right.
5 Thank you. So first of all, I want to say thank
6 you for including mention of the apprenticeship
7 model at the bottom of page 56. As I've
8 mentioned a number of times, I think this is a
9 really good model to address some of the employer
10 needs in the state. In fact, just at our past
11 panel meeting, I had the president of Applied
12 Material pull me aside and say I'm really
13 interested in this kind of training to meet our
14 workforce needs. We don't have time to wait for
15 somebody to get through the college system and a
16 four-year degree. They need to grab them right
17 away and train them on the shop floor. So again,
18 the mention of apprenticeship model on the bottom
19 of page 56, I think that's great.

20 And there's also mention of the model of
21 the Santa Clara Valley Transit Authority for
22 public transit. And I believe that that's a
23 really good model that can be built upon. I
24 think there's a lot of demand throughout the
25 state and that the Energy Commission shouldn't

1 lose sight of that opportunity. It's also not
2 just to address the needs of the transit
3 agencies, but also to support social mobility and
4 accrue really strong career pathways with good
5 wages for a lot of workers in that area.

6 So that was the one point I wanted to
7 make.

8 I also wanted to address the overall
9 funding amount. I am a little bit concerned that
10 the funding amount is decreasing over past years
11 at a time when we're trying to further strengthen
12 the infrastructure for electric vehicles and
13 hydrogen in the state. So that is one concern of
14 mine.

15 We have demand from IBEW, electrical
16 worker, journeyman. EVITC is a charging -- they
17 do the work on charging centers for electric
18 vehicles. And they have a huge demand, and so I
19 see that as ramping up.

20 So besides the decrease in the amount, I
21 also am a little bit worried about -- and maybe,
22 Larry, you can address this and kind of clarify.
23 The \$5 million, I think you said that it wouldn't
24 be bifurcated between the manufacturing and the
25 workforce. So what happens if there's a scenario

1 where a manufacturer, you have so much demand for
2 manufacturing early on and there's none left for
3 workforce?

4 MR. RILLERA: So this will be our first
5 time in which we will address this sort of
6 bifurcated or this allocation where there are two
7 areas of mutual interest, the manufacturing and
8 the workforce. This is not new to the Investment
9 Plan nor the Energy Commission as we have done
10 this previously in our demonstration of medium
11 and heavy duty and our manufacturing initiative
12 and other areas.

13 I had mentioned a webinar that we had
14 conducted where we posted up on the wall, public
15 participation of over 100 where we introduced
16 workforce training and development funds would be
17 available, if there was some interest for the
18 companies to explore. And so this will be our
19 first foray, if you will, into combining both the
20 manufacturing funds and initiatives with our
21 workforce funds.

22 When it gets to zero, we will look at
23 that. I'm not too sure we're quite there yet.
24 There's needs across the Board and we haven't
25 heard them -- we've heard them equally for the

1 manufacturing initiative and for the workforce
2 initiative, so --

3 COMMITTEE MEMBER COOPER: Okay. Thanks.

4 And one of the items I wanted to mention
5 regarding the apprenticeship model and kind of
6 going back to that on page 56 is that we often
7 have situations where employers come to us and
8 they want to do training for a whole suite of
9 skills and not any specific one. So I'm hoping
10 that there's more latitude to try to address the
11 whole array of training that's needed to support
12 apprenticeship programs, as well as support some
13 of the employers that maybe have some more
14 generic training to do that's coupled with the
15 training that's specific to the EV and hydrogen
16 sectors. So that's just another comment.

17 And lastly, I know -- let me see, on the
18 bottom of page 54 of the report, some of the
19 events that are hosted by the Energy Commission,
20 I wanted to highlight one that I thought went
21 particularly well that was a coordinated effort
22 by the Energy Commission, ETP working with the
23 L.A. Economic Development Corporation, LAEDC.
24 And this was for employers that are in this EV
25 field. They are doing manufacturing and they're

1 looking at their supply chain.

2 So what we did was we brought together a
3 number of the employers in the area. We listened
4 to some of their needs and challenges that they
5 face regarding the skills in the workforce they
6 need. And then we had, towards the end of the
7 event, a panel of state and community college
8 folks to talk about resources available to them.

9 So, you know, I think this was a really
10 good first step in that area. I want to thank
11 Tyson Eckerle for moderating the event regarding
12 resources available for the employers. And I
13 would add that that be added to be the Investment
14 Plan reference to that event.

15 So, yeah, I think that there's a lot of
16 work going on in this area, a lot of positive
17 things, but there are some areas that we need to
18 work on, as well.

19 COMMISSIONER SCOTT: Thank you.

20 I have Casey, and then Andy.

21 COMMITTEE MEMBER GALLAGHER: Hello. Good
22 afternoon. Thank you, Commissioner Scott and the
23 CEC Staff. I'm Casey Gallagher with the
24 California Labor Federation. And I have several
25 questions and a few comments.

1 Yeah, first of all, I would like to echo
2 what Peter and Thomas said on the combination of
3 both manufacturing and workforce and figure out
4 how that was really going to play out.

5 Also, on top of it, that as manufacturing
6 and workforce has been combined into one
7 component in the last plan and kind of figuring
8 out, what is -- is this a sort of trend of how
9 the two were supposed to work together or if
10 they're complementary or it's going to be two
11 separate, splitting up the funding bifurcations
12 Peter mentioned? Because ultimately I see a
13 workforce component do everything within this
14 plan, it will, as for expanding technology,
15 creating new visions of what a zero-emission
16 California should look like, we also have to
17 train workers.

18 And the best way of doing that is, as
19 what is mentioned in the workforce section, as
20 the apprenticeship model of both focusing on
21 supply and demand, not just creating a massive
22 supply, people trained up and skilled that
23 possibly someone might not be able to use, but
24 actually creating a partnership between labor
25 management partnerships, which we all can try to

1 create in California of focusing on both
2 opportunities for people from these communities,
3 but also filling the needs of employers as things
4 expand.

5 So basically my questions are based along
6 kind of interested in why the decrease in
7 funding? And also, how is this combination
8 really working out of manufacturing workforce?

9 COMMISSIONER SCOTT: On the funding
10 component, in the '18-19 budget, we had a few
11 extra dollars which was great, so I think we had
12 about \$165 million. This year we're back to sort
13 of regular where we have \$95 million. So
14 percentage-wise, it's about the same amount but
15 that's why you see the decrease there.

16 And let me let Larry jump in as to how he
17 envisions the workforce fitting with the
18 manufacturing.

19 MR. RILLERA: I think if there was a
20 statement that I could allude to that would
21 capture the analogy and the need, it would be
22 this, when I meet with manufacturing companies,
23 specifically those corporate partners that are
24 building their businesses in California, I ask
25 them, what does your employee, what does your

1 staffing look like? What are your issues? And
2 it will be, invariably, we have 70 folks aboard
3 right now and 70 vacancies. So there's a need,
4 not just for this near-term get them aboard, you
5 know, customize them to the way they build their
6 technologies, but also to look at it for the
7 longer-term supply as they start to scale those
8 technologies.

9 So using the existing relationships we
10 have with ETP and the other state partners is
11 critical, as is exploring new opportunities to
12 leverage the dollars that we do have available
13 for programs and organizations that have been on
14 the ground in the places where we want to see
15 some activity going.

16 COMMITTEE MEMBER GALLAGHER: Thank you.
17 And that was going to be one of my additional
18 questions, if this is focusing on helping already
19 established manufacturers become more sustainable
20 or is it focused more on startup sort? Just kind
21 of figuring out who the -- who is the priority of
22 this fund?

23 MR. RILLERA: So I think one of the ways
24 I can respond thoughtfully would be we have a
25 ten-year history with our ARFVTP manufacturing

1 portfolios. And the focus has been predominantly
2 on the vehicle side and we have little on the
3 infrastructure side.

4 Given the articulations by the Governor
5 and the state towards zero-emission
6 infrastructure, we're starting to shift that a
7 little bit, not omit our previous investments
8 because they're maturing, and that was part of
9 the message from the earlier -- my earlier
10 presentation is that there were exit strategies
11 that are now happening to these companies.
12 They're either being acquired or there's been
13 significant capital infusion to these companies.
14 They're still in California and they're still
15 scaling. But now we're meeting a brand new
16 audience, if you will, and having to support them
17 with all of our resources, here at the Commission
18 anyways, on the manufacturing and on the
19 workforce. They have a need for both of those
20 now in the near term as they're leaving their
21 innovation and moving into a maturation, if you
22 will, of their company and their technologies.

23 COMMITTEE MEMBER GALLAGHER: That's
24 really helpful. And it would be great if within
25 the plan itself if you include the slide that

1 actually have all the different workforce
2 partners because that took a lot of work,
3 actually tracking all that down. And I think as
4 someone who dabbles in research themselves, yeah,
5 I believe that it's something that would be great
6 to show what exactly -- like what are you trying
7 to achieve during the workforce development
8 component of that in like supporting
9 manufacturing?

10 Because, yeah, you talk to the BYDs, the
11 Proterras, any of them in the realm of -- they're
12 always looking for somebody. And, also, the
13 workforce is changing and they are developing
14 apprenticeship programs. So any way you can
15 actually support them in their efforts of
16 creating sustainable apprenticeship programs or
17 of that would be extremely helpful.

18 Thank you.

19 COMMISSIONER SCOTT: Thank you.

20 I have Andy, and then Eileen.

21 COMMITTEE MEMBER PANSON: I just wanted
22 to add, every time we have a workshop or a
23 meeting on our heavy-duty incentives or on our
24 advanced technology regulations, it comes up, you
25 know, what about workforce training? We need --

1 you know, that's a significant barrier. We need,
2 you know, a trained workforce that needs to go
3 hand in hand with the infrastructure and vehicle
4 incentives. So we, you know, applaud you for the
5 work you've done in this area.

6 I think it also leads to a broader point
7 about just overcoming barriers to heavy-duty
8 vehicle adoption. You know, we've heard, you
9 know, today there's, you know, obviously the up-
10 front costs aren't the only thing. There's the
11 workforce. We've heard about infrastructure.
12 There's just the inherent lack of familiarity or
13 comfort with new technologies.

14 I think now with an increasing amount of
15 a number of commercial offerings in the heavy-
16 duty space. It's a good time to, you know, probe
17 a little more deeply and look at, you know, what
18 are some of the barriers facing fleets as they're
19 making, you know, decisions on, you know, where
20 to go with their fleets and considering advanced
21 technologies.

22 To that end, CARB is going to be in a
23 workgroup to -- focusing on barriers to fleets
24 adopting heavy-duty technologies. That's
25 something we definitely want the Energy

1 Commission to be in partnership with us on.
2 We've reached out at the staff level. It's
3 something we talked about when we took our
4 funding plan to the Board just last month. And
5 we're, you know, getting organized to launch that
6 effort and we're hoping to have a kickoff meeting
7 in December. We're starting to work with -- Hal
8 (phonetic) started to help us organize that.

9 So I just wanted to put that out there as
10 a preview of coming attractions. And we
11 definitely expect to be working with you as we
12 move forward.

13 COMMISSIONER SCOTT: Thank you for that
14 preview. And, yes, we'd be delighted to partner,
15 so keep us posted.

16 Eileen, and then Jan.

17 COMMITTEE MEMBER TUTT: Thank you,
18 Commissioner. Eileen Tutt with the California
19 Electric Transportation Coalition. I just want
20 to echo something Thomas said, and that is I
21 think we've been doing this, Commissioner, you
22 know we've been working in disadvantaged
23 communities in Southern California.
24 Particularly, we've been partnering with the
25 faith communities. And this workforce training

1 issue and development of workforce in these
2 communities, it's a top priority. And so as this
3 state moves towards a cleaner transportation
4 sector, I think these communities are saying make
5 sure you don't forget that jobs in our
6 communities are paramount. Like this transition
7 cannot result in more jobs leaving our
8 communities and going to other wealthier or more
9 technology-advanced or more educated communities.

10 And so I think this funding, particularly
11 directed towards these low-income and
12 disadvantaged communities and helping -- because
13 this transition, I have no -- I mean, we've done
14 an analysis, it will create jobs. And where we
15 need to create jobs is in some of these
16 communities that are really suffering.

17 And so I would hope that -- and, you
18 know, I'm going to just make a plea. I know
19 you're coming to one of our events. And I think
20 I'm going to need you to talk about this because
21 these faith leaders and these communities,
22 they're very connected to their communities and
23 they can help connect, you know, the job trainers
24 with the job seekers.

25 And so I just, I think maybe part of this

1 workforce development component and manufacturing
2 is an education component. And I know Air
3 Resources Board, and you all know this
4 yourselves, the more you move this money into
5 kind of hard to reach places the more you have to
6 do the outreach to those communities.

7 And anyway, I'm just going to say I
8 really applaud -- I mean, when I first started on
9 this Committee there wasn't any money for this
10 allocation. And I just think you guys have done
11 a fabulous job with it. And maybe we can take it
12 up to the next level and really do a little bit
13 more pushing it into areas. Rather than waiting
14 for people to come to you, like find communities
15 that really need this. And I know you'll hear
16 from some later this month.

17 COMMISSIONER SCOTT: Excellent. Thank
18 you for that.

19 I did want to just -- I had a chance to
20 go visit the -- so the Cerritos Community
21 Colleges is funding some high schools around the
22 area. And so I had a chance to go to three of
23 the high schools and see what they're doing there
24 and it's really exciting. I mean, they've had a
25 chance to -- the Energy Commission funding has

1 added the electric car component to several of
2 the auto shops. And it's just really exciting
3 because it's learning how to work on the electric
4 cars, the -- I can't think of the right word, but
5 you know, like the electric things that make it
6 actually go, right, the system. I'm talking
7 about the system.

8 UNIDENTIFIED MALE: (Off mike.)

9 Drivetrain?

10 COMMISSIONER SCOTT: No, it's not the
11 drivetrain. But the, yeah, like the power
12 electronics kind of component, but that's not
13 quite the right word for it in electric vehicle
14 space. But they're looking at the software.
15 They're looking at the materials and light
16 weighting and all kinds of stuff. And the
17 students are so excited about it. And a lot of
18 the students are students who might not have been
19 so well in school but they recognize that to be
20 able to work in this space that they think is
21 really exciting, oh, I've got to go back and I do
22 need to learn that math. I have to go back and I
23 do need to learn this topic of that topic, which
24 they may not have been interested in before.

25 And so the students were very engaged and

1 enthusiastic. And their teachers were just
2 incredibly inspirational. I was like, gosh, I
3 want to go back to school.

4 And so I take your point, though, it's
5 very important for us to get all of this, these
6 components, into the communities. And it's -- I
7 appreciate the work that we can all do together
8 to identify folks because in the energy space
9 people are either they love energy or they don't
10 talk about energy at all and there's no in
11 between. And so trying to figure out how to
12 really bring new and broader communities into the
13 conversation is something we're always looking
14 at, as well, so very excited about that.

15 Jan, and then Peter.

16 COMMITTEE MEMBER SHARPLESS: Well, it's
17 actually been helpful to be last because the
18 questions I had have been addressed well by some
19 of the previous speakers.

20 And the training component, I clearly
21 understand. I mean, I know what you're trying to
22 accomplish. I know what the need is out there.
23 And I think that given the conversations around
24 this table that things are happening that are
25 supposed to be happening and that outreach is

1 necessary.

2 It would be probably helpful if the
3 report in that section was enhanced a bit to put
4 some of this meat on the bones of what exists.

5 The manufacturing component is still
6 somewhat of a mystery to me. I mean, I can't
7 quite figure out whether, Commissioner Scott, if
8 you were trying to achieve your ultimate desire
9 in this section, whether it would be you looking
10 at someone and saying what we're attempting to do
11 is to keep manufacturing in California by doing
12 X, or whether it is that we have demonstration
13 projects that need to be brought to
14 commercialization so we're doing Y, or whether
15 it's a combination of these things? And if
16 that's the case, this isn't very much money to do
17 that kind of thing.

18 So could somebody sort of enlighten me,
19 what you think you're going to accomplish with a
20 small amount of money in this large, large
21 category of potential possibilities?

22 COMMISSIONER SCOTT: That's a fantastic
23 question. We could put the entire program towards
24 manufacturing and it wouldn't be very much money
25 in this space. It is -- some of the examples

1 that Larry provided, we are looking to keep or
2 encourage the manufacturing of these clean
3 technologies in California. So previously -- and
4 usually what it is, is it's just enough money to
5 leverage, not that these aren't real dollars, but
6 to leverage real dollars in this space.

7 So for example, we provided a \$3 million
8 grant to Proterra to bring their manufacturing
9 here. Obviously, \$3 million is not enough for a
10 bus company to bring -- but they were able to
11 say, hey, the State of California is excited
12 about this. They're wanting to see this
13 technology. They're willing to put some money
14 behind it. And that's the reason why need to
15 build our manufacturing in California. And then
16 they were able to raise the rest of the dollars
17 and all of that to be able to build that facility
18 there. But it was kind of that, oh, you know,
19 it's been vetted through the state. People in
20 the state believe in this, they're behind it.
21 It's more than, and that's what we're able to do
22 with just this limited amount of dollars in that
23 space.

24 And then as Larry mentioned, sometimes
25 these are small startup companies and their

1 technologies get picked up by bigger companies.
2 And so we're trying to kind of encourage the
3 innovation.

4 And then with the focus on
5 infrastructure, we took some time to really do
6 some workshops last year and this year to see on
7 the infrastructure side what's really needed in
8 California? And it's kind of an interesting
9 question because these are global businesses.
10 And so some of it is kind of that last in-time
11 component -- wait, is that the right description?
12 It's the one where you need it right away and so
13 it's much better if it's here in California than
14 if it's in Germany or Japan or wherever it is and
15 you have to ship it in, so that type of thing.

16 And on the infrastructure side a lot of
17 it also was in the kind of electrical
18 engineering, software engineering. As it turns
19 out, these companies are stealing the best people
20 from each other, but we need more to come into
21 that space. So it's a pretty broad segment that
22 we're hoping, just with the few dollars, we can
23 leverage many, many more dollars to come into the
24 space.

25 COMMITTEE MEMBER SHARPLESS: So some of

1 the projects you would be looking at would be
2 projects that if the state gave a small amount of
3 money, it might bring in private investment?

4 COMMISSIONER SCOTT: Yes.

5 COMMITTEE MEMBER SHARPLESS: Without it,
6 it wouldn't?

7 COMMISSIONER SCOTT: Correct. You
8 know --

9 COMMITTEE MEMBER SHARPLESS: So you're
10 looking at maybe three projects?

11 COMMISSIONER SCOTT: Right. It's not
12 very many. And this, also, this is another one
13 for the context setting, both on the
14 manufacturing side and on the workforce training
15 side. There are other programs in the state and
16 that's their whole job, is to do that. But we
17 want to make sure that that transportation
18 component isn't being lost, so that's another
19 piece of it.

20 I had Peter and then Casey.

21 COMMITTEE MEMBER COOPER: Okay, just
22 briefly. So I'm actually very interested in how
23 it's going to go with the Cerritos College
24 Foundation. This is pretty exciting to see if
25 we're able to engage with some of the high school

1 students and if there's something that comes out
2 of that so we can learn from it and maybe have a
3 model where it connects with employers that, for
4 example, ATPE and other state agencies are
5 engaged with their regular workforce. So that is
6 very interesting to me.

7 And I also wanted to mentioned regarding
8 outreach to the manufacturing -- manufacturers in
9 this state, ETP is doing -- has more money now
10 than it's ever had, probably, in 15 years at
11 least. Because of the state of the economy, we
12 have about \$115 million and a large chunk of that
13 goes to manufacturing. And so there is this kind
14 of overlap with the CEC interests and funding and
15 which I think is a good thing. So we just did
16 fund Applied Material with our core funding.

17 And so, as you know, even if the Energy
18 Commission dollars are not able to reach some of
19 these manufacturers because it's so sparse, so
20 little, there are other funding streams that may
21 be able to pick up some of the slack.

22 COMMISSIONER SCOTT: Casey, and then
23 Chris.

24 COMMITTEE MEMBER GALLAGHER: Thank you.

25 So one of the things I wanted to add is I want to

1 commend you all for adding a workforce
2 development component in this because, yes, it's
3 very important. Those times are changing and for
4 the better.

5 However, even though \$5 million is really
6 not the largest amount of money in the world, but
7 put in the right places it could definitely do a
8 lot -- do quite a bit for social good, especially
9 for if you're focusing on the already established
10 apprenticeship programs or already set up
11 training programs that need to either advance or
12 up-skill the focus on these new technologies.

13 And also, I'm happy to participate in any
14 kind of workshop you ever want to do on workforce
15 and economic development.

16 COMMISSIONER SCOTT: Great. Thank you
17 for that. And also, if you know great programs
18 that we really ought to be thinking about, oh, we
19 can put a few dollars in and it will really
20 leverage it, let us, please, let us know that
21 also.

22 COMMITTEE MEMBER GALLAGHER: Will do.

23 COMMISSIONER SCOTT: Thank you.

24 Chris?

25 COMMITTEE MEMBER SHIMODA: So I'm hoping

1 I'll learn a little bit from maybe some of the
2 light-duty folks about how this workforce
3 development program is going to be applied.

4 So I met a young man who just got
5 discharged from the military who's at UTI up the
6 road at I-5 doing his diesel technician
7 certifications. And you know, he's going to walk
8 right out of that program and go work for a
9 dealership and, you know, have a job pretty much
10 immediately.

11 In the heavy-duty space, we're really not
12 going to see a real saturation of these vehicles
13 right off the bat; right? So I'm thinking for
14 the folks in the light-duty space or for CEC
15 Staff, what is the model developing for how
16 people with those specialized skills on the
17 battery-electric vehicles, I mean, a Tesla is one
18 thing, but just for the general light-duty
19 manufacturer, how is it that you make the
20 traditional workforce development model where the
21 local WIB has to have that employer relationship
22 to offtake the workforce, where your local
23 dealership or your local service network may not,
24 you know, have a need for a 100 of these folks?
25 They may train, you know, 20 or 30 techs

1 throughout their network and they sort of rotate.
2 I'm guessing that's how they do it.

3 Do you guys have any idea how that's
4 being handled in the light-duty space, where
5 there's at least more vehicles to work on
6 currently?

7 MR. RILLERA: Sure. Thank you, Chris,
8 for the comment. Let me fold that in a couple of
9 different ways.

10 One of them would be there's some lessons
11 to be learned by the -- through the CVRP, and
12 HVIP right behind it. And Andy can speak to
13 this, as Staff is spending a lot of time with the
14 ARB and the technology people over there on that
15 uptake, and workforce is one of those areas with
16 respect to the manufacturers or any of the other
17 innovation companies that participate through a
18 product that goes into a CVRP-eligible entity.

19 So that's one of the areas we can kind of
20 look at and model and then take lessons learned
21 and move forward.

22 The second one, what we've implemented
23 here in our medium- and heavy-duty demonstration
24 has been to expand that demonstration to look at
25 not just in an incubator or a lab sort of effort

1 but in a real-time evaluation and analysis of the
2 skills for the manufacturing, for the
3 construction and installation, for the operation
4 of the vehicles, as well as the infrastructure.
5 And we see this through our Port Long Beach
6 Project and we see this through a few of the
7 others in the medium- and heavy-duty space, as
8 well.

9 So we're very early in this trend
10 analysis, if you will. But certainly, those
11 lessons learned are something we will be bringing
12 not just to the Investment Plan and expressed
13 there, but also in the solicitations going
14 forward, as well.

15 COMMITTEE MEMBER SHIMODA: So just to
16 follow up to that, so I guess that is smart to
17 follow. The people who are qualifying for the
18 vouchers are, obviously, putting the products out
19 and need the service networks to accompany them.
20 And maybe this is something to follow up on.

21 As far as making sure that, like, for
22 instance, I know that there is an agreement
23 between Change and Ryder right now where Ryder is
24 going to be doing the servicing of those vehicles
25 that they're taking on as part of their leased

1 fleet to make sure that if there is a workforce
2 development goal there, letting the people who
3 are going to be -- because I think the
4 manufacturing stuff is great, you know? But as
5 far as really good paying jobs that, you know,
6 folks are going to need to get retrained for,
7 diesel technicians just come to mind because I
8 just talked to one, the sales -- or excuse me,
9 not the sales, but the service networks may be
10 something that the traditional WIB model might
11 not be great. It's sort of connecting the
12 potential employers with, you know, where the
13 money flows through this process. It's just
14 something to follow up on.

15 MR. RILLERA: Yes. Thank you for that
16 comment. We are also, as Staff, looking at not
17 just the service delivery but the existing
18 instruments between the manufacturer and the
19 producer of the technologies and the consumer,
20 the adopter of those technologies. An area, as
21 an example, would include the warranty. What can
22 you fold into there as an adder, if you will, to
23 the technology and ensuring not just technology
24 survival, but that the incumbent staff who are
25 responsible for the operation and maintenance of

1 that fleet continues to be trained and educated,
2 not just for the product but how you do the
3 updates since they will be done remotely, and all
4 the other incumbent technology issues that are
5 associated with ZEV deployment.

6 Thank you.

7 COMMISSIONER SCOTT: Tyson?

8 MR. ECKERLE: Great. Well, obviously,
9 this is a really important section and there's
10 not enough money to go around. I just want to
11 encourage the staff to work -- so we've had some
12 turnover at GO-Biz, but we get a lot of these
13 companies coming in and they tell us about what
14 workforce needs and manufacturing needs. I know
15 we've collaborated on supporting companies here.

16 So I think I'd just encourage -- we have
17 had new staff come in who will -- should be there
18 for the long term. And so I definitely want to
19 make sure we solidify those relationships because
20 we get a lot of companies coming in.

21 COMMISSIONER SCOTT: Yeah. No. That
22 sounds great. Thank you for that, for that
23 offer. We'll have to put a little staff-to-staff
24 meeting together.

25 Other comments from the Advisory

1 Committee?

2 Do I have folks on the phone? Ralph or
3 Irene want to weigh in? Okay.

4 So I have a couple of public comments
5 here on our \$5 million allocation for
6 manufacturing and workforce development, starting
7 with Dave Anderson, followed by Jaimie Levin.

8 MR. ANDERSON: Good afternoon. How are
9 you?

10 COMMISSIONER SCOTT: Great. I think that
11 might be off.

12 MR. ANDERSON: Is it a little off? It's
13 there.

14 COMMISSIONER SCOTT: Oh.

15 MR. ANDERSON: There you go. Dave
16 Anderson from Lion Electric Bus and Truck.

17 First of all, thank you for everything
18 you're doing for many, many years for the CEC. I
19 recognize it over and over. And Committee
20 Members and this Advisory group, thank you.

21 I was looking at slide 65 and it had to
22 do with the workforce and the workforce regarding
23 school bus replacement and support or things like
24 that. We're looking at training people in our
25 facility as an OEM and developing talent in the

1 local areas in the state, but to bring people
2 onboard. And we are finding a shortage, just
3 like you said earlier, it's a huge shortage.
4 We're at that right now, so we're looking at
5 that.

6 Our new facility just opened last Friday
7 in Natomas. And we had a lot of people there, it
8 was a lot of fun. But we have 2 million miles on
9 our buses now. And we're also building trucks.
10 So we're doing a lot of things to take the
11 emissions out of the equipment and make it a
12 greener, safer place for people, especially for
13 kids, so we're excited. And we chose Sacramento
14 as our first place and our hub.

15 So we're really excited and we thank you
16 again for everything you've done from a funding
17 standpoint, and we're looking forward to the
18 future.

19 COMMISSIONER SCOTT: Thank you.

20 Jaimie Levin, followed by Jay Friedman.

21 MR. LEVIN: Yeah. Jaimie Levin.

22 Commissioner Scott, Members, I wanted to bring to
23 Staff's attention what AC Transit has been doing
24 in this arena as an end-user. They actually
25 established the first heavy-duty diesel

1 apprenticeship program to bring new employees in
2 who really don't know much about engines and over
3 a four-year period develop them into journey
4 workers in diesel mechanics as diesel mechanics.
5 They've expanded that to deal with all facets of
6 hydrogen fuel cell, hydrogen supply systems,
7 battery systems because they're also getting
8 battery-electric buses, batteries are also on
9 their buses, fuel cell systems, the powertrain
10 for electric motor drive. And they now have,
11 just in the last several years, over 15,000 hours
12 of employee training with about 180 mechanics.

13 So I think it would be really good to
14 talk to them. Sal Llamas, who's the COO, is very
15 proud of this program.

16 And they're not unique in this regard.
17 If you look at transit, large fleets, L.A. Metro,
18 San Diego, VTA, they have their internal
19 training. And so I think there's ways to
20 leverage this little bit of money to what exists
21 already in these training programs with big fleet
22 operators.

23 Thank you.

24 COMMISSIONER SCOTT: Thank you. And I'll
25 have Larry follow up with you, maybe, to get that

1 contact information.

2 Jay?

3 MR. FRIEDMAN: Commissioner Scott,
4 Members of the Advisory Committee and,
5 especially, thanks to Staff, as well.

6 On behalf -- I'm here -- I'm Jay Friedman
7 from Zero Motorcycles. And on behalf of Zero
8 Motorcycles, I'd like to just thank everyone --
9 excuse me -- and express our support for the
10 ARFVTP. I will never get that, like it will
11 never roll off my tongue. So, Eileen, don't
12 worry. And just really talk a little bit, just
13 for a minute, about what a difference it's
14 actually made for Zero Motorcycles.

15 We received just under \$5 million in
16 funding over the last almost ten years. And
17 we've really been able to leverage that into tens
18 of millions of dollars of private capital. The
19 fact that the Energy Commission was willing to
20 make commitments initially on R&D, and then
21 eventually on, with two grants, on manufacturing
22 expansion has made a tremendous difference to our
23 business and allowed us to grow. And we're
24 continuing to grow. We're still sub-scale. But
25 when I say we're sub-scale, it just means we're

1 not yet profitable.

2 And so one of the things we're really trying
3 to do is get to that point in time.

4 Right now we've sold over 10,000
5 motorcycles. These are all -- every one of them
6 has been manufactured in California. We are the
7 second largest producer of electric vehicles in
8 the State of California behind Tesla, who now
9 sells more than that every month, which that's
10 what we want to get to.

11 But I think that, you know, from a jobs
12 standpoint, it's really important to think about
13 the fact that we have really, indeed, leveraged,
14 you know, training and hiring workers in this,
15 you know, new technology. And it's been very,
16 very important to participate in this program.

17 As we look to the future, we would really
18 like to encourage you. We're not done yet, I
19 guess is one of the things I would say. We have
20 a proposal. Right now we understand the shifting
21 of the program and also the lack of funding. You
22 know, it certainly needs more funding and we
23 would encourage that. You know, supporting EV
24 infrastructure manufacturing in the state is a
25 very, very important thing. We need more

1 infrastructure out there, you know, to power our
2 bikes. And everyone needs more infrastructure
3 for all the vehicles that are out there.

4 At the same time, one of the things that
5 we were hoping to do was it's very hard for us to
6 do incremental increases in manufacturing on sort
7 of I guess what I would call almost subsidiary
8 products. And one of the products that we want
9 to do is expand with DC Fast Charging on our
10 bikes. We actually had DC Fast Charging on our
11 bikes in 2013 and the networks were very immature
12 and not up to standard. That's actually changing
13 now, finally, but it's one of those things.

14 So we're now actually revisiting that in
15 a better way. And we were hoping to seek
16 manufacturing funding. Currently, we are in
17 eligible for that manufacturing funding because
18 it's an on-vehicle product, even though it has to
19 do with infrastructure and expanding that.

20 So as we look to the future, it may not
21 happen in this round, but in future rounds we'd
22 encourage more money and that small companies,
23 and we are still small, still need additional
24 support to grow. And we're able to leverage
25 things like private capital and make that work,

1 but the further commitment from the State of
2 California for, you know, the importance of this
3 kind of manufacturing is just really
4 appropriated.

5 And again, I really do want to just shout
6 out to Staff because they've just been
7 phenomenal, absolutely phenomenal in working with
8 this.

9 Thank you.

10 COMMISSIONER SCOTT: Thank you.

11 And thank you, phenomenal Staff.

12 That's all the public comment I have on
13 the \$5 million allocation for manufacturing and
14 workforce development. Okay.

15 So let us go on to our, I think it's our
16 final topic, Advanced Freight and Fleet
17 Technologies, and Wendell is going to do that for
18 us.

19 MR. KRELL: Thank you, Commissioner
20 Scott, and good afternoon everyone. My name is
21 Wendell Krell and I'm with the Advanced Freight
22 Technologies and Planning Unit. And as
23 Commissioner Scott mentioned, this is the last
24 presentation. And what you probably don't know
25 is one slide was taken out of my presentation

1 this morning, so I'm hoping this is going to be
2 the best overall presentation, and the shortest.

3 I will be speaking to you today about the
4 activities related to the Advanced Freight and
5 Fleet Technologies funding during the 2017 and
6 2018 fiscal year, and up to today.

7 From July of 2017 through today, Staff
8 continues interagency and industry stakeholder
9 committee work in an effort to meet the
10 Governor's Executive Orders. Staff is also
11 working with interagency California
12 Sustainability Freight Action Plan Working Group
13 to produce the 2018 Progress Update that is
14 called for in the plan.

15 In addition to continuing prior year
16 projects, Staff also released two grant funding
17 opportunities and worked toward five projects for
18 a total of nearly \$40 million. The ongoing
19 projects are the Advanced Cargo Handling
20 Demonstration at the Port of Los Angeles, the
21 Zero-Emissions Terminal Equipment Transition at
22 the Port of Long Beach, and the Advanced Freight
23 Demonstration Project in conjunction with the
24 South Coast Air Quality Management District in
25 Southern California.

1 Each of these projects include new
2 exciting components that will improve
3 California's freight movement system, including a
4 state-of-the-art automatic smart charging system.
5 This technology is the first of its kind and it's
6 being installed at the Port of Los Angeles. This
7 system is expected to be safer and a more
8 efficient way to charge battery-electric
9 equipment.

10 Another ongoing project is the Natural
11 Gas Vehicle Incentive Project which helps to
12 lower vehicle emissions in California by
13 replacing older, less efficient vehicles. Since
14 the beginning of the program these incentives
15 have led to the purchase of nearly 1,000 natural
16 gas vehicles.

17 In addition to prior year projects, Staff
18 released a grant funding opportunity which
19 targeted freight movement from ports to
20 distribution centers. The applicants'
21 submissions included a great variety of projects
22 that met the solicitation scope requirements,
23 included a great variety of -- excuse me -- met
24 the scoping requirements of either being new or
25 upgrades to existing refueling infrastructure for

1 battery-electric or hydrogen fuel cell freight
2 vehicles.

3 The three projects recommended for
4 funding include numerous technologies and a wide
5 range of team members all coming together to
6 provide refueling infrastructure that directly
7 supports freight movement. And these projects
8 build upon technologies in use today include fuel
9 from renewable sources and demonstrate new and
10 incentive components.

11 One demonstration is the first ever
12 dynamic forecasting tool which will be part of
13 the Port of Long Beach project and will be used
14 to help understand infrastructure requirements,
15 as well as predict costs. Each of these projects
16 will produce a minimum of 12 months of valuable
17 data collection and each will benefit nearby
18 disadvantaged communities.

19 During this period, Staff continued to
20 work on natural gas vehicle programs by releasing
21 a second grant funding opportunity and awarding
22 two contracts to fund two different incentive
23 programs. Combined, these two projects will
24 ultimately put over 220 new low-NOx trucks on the
25 road, increasing the total of natural gas vehicle

1 purchases supported by recent programs to more
2 than 1,200.

3 In addition to the administration of
4 active projects, Staff is continuing to support
5 many efforts underway worldwide to positively
6 affect the freight industry and aid in the
7 commercialization of zero equipment -- zero-
8 emission equipment available here in California.

9 In current -- in regard to current year
10 funding, we're working diligently to identify
11 current needs related to freight vehicles and
12 infrastructure to draft the scope of the next
13 grant funding opportunity. The Staff proposal
14 for Budget Year 2019-2020 is \$17.5 million.

15 And this concludes the Advanced Freight
16 and Fleet Technologies portion of the
17 presentation.

18 Do you have any questions?

19 COMMISSIONER SCOTT: That was very quick.
20 Thank you, Wendell. This is yet another really
21 exciting area that we're delighted to be funding.

22 So let's open it up for Chris.

23 COMMITTEE MEMBER SHIMODA: So I don't
24 want to steal Thomas' thunder here, but just a
25 little bit of, you know, history and context on,

1 you know, AB 118 and the reauthorization and sort
2 of where we've been and where we're going.

3 So you know, I can tell you, having been
4 involved in the reauthorization efforts, there
5 really was a lot of discussion about the AB 118
6 pot money as supporting fleet vehicle turnover to
7 alternative fuel vehicles. This was even pre
8 low-NOx. So that was a major component of sort
9 of the story of how this pot of funding got
10 reauthorized. And I see sort of a movement away
11 from that in the last two plans.

12 And part of what's in this narrative,
13 just as far as there are new pots of money that
14 are going towards the deployment of the ultra-
15 low-NOx natural gas products, I can tell you that
16 we worked with Thomas' predecessor on SB 1204
17 back in 2013 where the expectation was the
18 funding from the HVIP program, we were actually
19 the ones that recommended that the low-NOx
20 engines be funded through HVIP, it was meant to
21 be an in-addition-to what was happening under
22 118. It was never meant to be a replacement for.

23 So just some of the context, that even
24 though we do acknowledge that there are knew pots
25 of funding through the Air Resources Board's

1 programs, the discussion was always, you know, we
2 want sort of a broad portfolio of different
3 funding sources, different delivery methods of
4 incentives. And I just see sort of a movement
5 away from that in the last couple of plans.

6 So just, you know, again, not to steal
7 Thomas' thunder, I'm sure he's going to, you
8 know, address this issue.

9 But you know, that being said, we do want
10 to support, you know, these types of programs for
11 the broad subset of alternative and advanced
12 vehicle technologies. We are fuel neutral, so
13 I'm not saying take anything away from what
14 you're doing on zero but just consideration of
15 we'd appreciate something on fleet deployment
16 still being included in the plan.

17 COMMISSIONER SCOTT: Thank you.

18 Thomas?

19 COMMITTEE MEMBER LAWSON: Good afternoon.
20 So a couple questions on the solicitation on
21 slide 72. Do we know the status of that \$16
22 million? Is that all the way out the door or are
23 these what we think is going to be funded, these
24 numbers of trucks? I'm sorry, I'm on -- we have
25 a recent -- mine is a recent solicitation.

1 MR. BUTLER: Seventy-three.

2 COMMITTEE MEMBER LAWSON: Sorry, 73.

3 Yeah, that one. So it says \$16 million for, you
4 know, 80 and 140.

5 MR. BUTLER: Right. So my understanding
6 is that those funds have been out the door and
7 have incentivized those vehicles and those
8 vehicles are on the road.

9 COMMITTEE MEMBER LAWSON: Great. So when
10 did that solicitation go out, like the timeframe
11 from when it went out until --

12 MR. BUTLER: I'm looking to Staff. Yeah,
13 Tim, if you can address that, that would be
14 great.

15 MR. OLSON: Yeah. This Tim Olson here at
16 the Energy Commission.

17 That money was deployed to the two Air
18 Districts in April 2018. And I think they
19 started their programs in -- so there's a
20 contract signing, Commission approval, contract
21 signing, all that, and I think they started
22 deploying in mid-September.

23 So the first day with South Coast, that
24 \$8 million was used up. That's the demand for
25 that. And the San Joaquin, it took a week. And

1 these numbers are -- that means the purchase
2 orders are in. Remember, it also takes about 210
3 days to build the vehicles. So they're going to
4 be on the road gradually over time in 2018-2019.

5 COMMITTEE MEMBER LAWSON: Great. I want
6 to publicly thank Tim. We've spent a lot of time
7 together talking about the Natural Gas Vehicle
8 Incentives Project and some of the issues that,
9 you know, I think cropped up last year, you know,
10 trying to make sure that program is successful
11 and, you know, ensuring that we had the right
12 things in place. And so I appreciate all his
13 work and all the meetings that we've had and
14 phone calls around that.

15 And so I guess my -- I asked an earlier
16 question. You know, what we're talking about in a
17 short amount of time, you know, able to spend \$16
18 million because of the demand, especially in
19 these two areas which we know have severe air
20 quality issues, so what are we doing with the
21 people on the current NGVIP waiting list; right?
22 So this is separate, right, then? This is a
23 separate solicitation from that? The current
24 NGVIP Program does not have funds allocated to it
25 right now; is that my understanding? Is that

1 correct?

2 MR. OLSON: Yeah. So, Thomas, given your
3 comments from now about a year ago, we did a deep
4 dive in that and did some analysis of where the
5 money flowed and how much was available. And as
6 of today, we spent and allocated \$21.8 million.
7 So remember, this is a parallel program going in
8 conjunction with the air district. We've
9 deployed money in three different places and
10 we've spent \$21.8 million through UC Irvine as
11 the administrator, and that's since around
12 October 2015, so over three years, incentivized
13 1,000 trucks. And still, that contract with UC
14 Irvine ends June 2019, so we have this system
15 kept open and we have a wait list of about \$3
16 million of requests. But we've zeroed out the
17 entire fund in that original allocation.

18 COMMISSIONER SCOTT: Thank you for that,
19 Tim. I think this is something that we need to
20 think about on the Energy Commission staff what
21 this looks like.

22 I mentioned it a little bit earlier, I
23 think, when Ryan Kenny made his comment from
24 Clean Energy. The thought was that because Air
25 Resources Board has \$125 million in this space,

1 eking out a few million here, there's just -- the
2 \$125 million is so much more. It's more money
3 than this entire program has. And so we were
4 thinking that was the right mechanism for the
5 low-NOx natural gas engines.

6 As you all know, we worked closely with
7 South Coast and SoCalGas to actually build those
8 low-NOx engines and do the research behind it,
9 both with our Pure Natural Gas Program and
10 through ARFVTPs that were supported of those
11 engines. It just seemed that there's such a
12 large pot of money over at Air Resources Board,
13 and I know that's not all towards natural gas.

14 But let me take that back with the staff
15 and think about that. And I appreciate your
16 point about wanting the -- and I think Ryan made
17 it, as well, earlier, wanting the money for the
18 engines coming from different agencies, not all
19 from one agency, and that that was part of the
20 history. So I appreciate that point, as well.

21 COMMITTEE MEMBER PANSON: I think --

22 COMMITTEE MEMBER LAWSON: Yes, Andy, go
23 ahead, and then back to Thomas.

24 COMMITTEE MEMBER PANSON: I just -- with
25 respect to the vehicles on the waiting list from

1 the program that doesn't have funding, it would
2 be interesting to dig a little there. Like are
3 those still on the waiting list? If they are, do
4 they know that there's the HVIP money available?
5 Have they gone to the HVIP?

6 So if there are people on a waiting list
7 because they don't know that there's other
8 funding available, that's a terrible situation
9 which we should remedy as quickly as possible.
10 So I definitely want to make -- we should work
11 together to make sure we understand what's up
12 with that waiting list and make sure we can -- in
13 addition to the HVIP funding, there are the
14 various district pots. We want to make sure that,
15 you know, if there are people waiting around
16 thinking there's no money, we can direct them to
17 places, and let's make sure we do that.

18 COMMISSIONER SCOTT: Yeah, thank you. Thank you
19 for that offer. That's kind of what I was
20 thinking as well.

21 Thomas, back to Thomas.

22 COMMITTEE MEMBER LAWSON: And I
23 appreciate that and with the NGVIP Program there
24 is some issues with people getting on the wait
25 list, so then things expiring and so it'd be

1 interesting to who is still on and who is still
2 waiting. That'd be great. I'd love to hear back
3 on that.

4 Me, I just wanted to I guess follow up on a
5 conversation that started a year ago in a staff
6 report when we were talking about this, I think,
7 which was the initial justification for zeroing
8 out the program was that there was no interest in
9 the program. And which just from my
10 conversations on the ground and also in turn with
11 the industries is obviously not true with the 16
12 million going out the door in less than a week.
13 That's not true. I think that there were some
14 fundamental issues with the program and have been
15 working with Tim and staff to try and figure
16 those out as the program begins to expire.

17 I do think though that the air quality management
18 districts that are on the ground may be better
19 suited to be able to deal with this and that may
20 be a better path in the future. Clearly they
21 were able to take in and get out money very
22 quickly and get it into the hands of the folks
23 that wanted it. Some of that didn't happen in
24 the last program and I think that that was
25 unfortunate.

1 So yeah, I think that that's important
2 that we really take a look at some of these
3 programs before we kind of paint broad brushes
4 that things are wanted or not needed. And I
5 don't necessarily think that those conclusions
6 were done in a right way and so obviously that
7 started a conversation last year, which we're
8 obviously continuing.

9 So the wait list is important and I would
10 love to, whatever you need from me, and I know
11 that from Tim that UCI is doing a survey with
12 these fleets. And so that may be a question to
13 add to that survey if it already hasn't started
14 to kind of figure out where they are. I will say
15 though there are some fundamental differences
16 between NGVIP and HVIP, so there still will need
17 to be some education with folks on the difference
18 in that program. So we want to make sure that
19 they understand that as well.

20 COMMISSIONER SCOTT: Yeah, so on those
21 programs we will, and thank you Andy so much for
22 that offer, Andy and his team will work with Tim
23 and his team to kind of see where we are. And
24 once we've got that information why don't we be
25 sure to circle back, Thomas, with you and with

1 Chris and kind of go from there.

2 Other comments from the Advisory
3 Committee on the Advanced Freight and Fleet 17.5?
4 And I hope we still have Ralph and Irene on the
5 phone, if you are you've been very quiet this
6 afternoon. If you'd like to jump in please do,
7 we of course want to hear from you as well.

8 (No audible response.)

9 COMMISSIONER SCOTT: Okay. So maybe
10 folks are running out of steam, but come on, this
11 is good stuff. (Laughter.) So I don't have any
12 more Advisory Committee comments, so let's turn
13 to the public comment. I just have one and
14 that's from Ryan Schuchard. Oh wait, I'm sorry,
15 I have two and Jaimie, and actually Jaimie's was
16 first, so is that okay? First Jaimie Levin and
17 then Ryan.

18 MR. LEVIN: Thanks, Commissioner. So you
19 heard me speak about the success of the fuel cell
20 in the heavy-duty market and it is phenomenal.
21 There's millions of miles on these vehicles. We
22 have fuel cells on the bus fleet that were
23 supposed to die at 5,000 hours according to the
24 manufacturer. They're still operational at over
25 30,000 hours. We see all these component

1 benefits, but there's room for some improvements.
2 And this program, we consider is very critical,
3 so where can we improve? And it's primarily with
4 the onboard storage and it effects three critical
5 areas.

6 One is range, so with the buses, the new-
7 generation buses, which Andy and CARB has funded
8 I was just recently back at the factory that were
9 building this fleet of New Flyer buses. New
10 Flyer is the largest bus manufacturer in the U.S.
11 We expect a 250 and 280-mile range with heating
12 and air conditioning, that's all very good. That
13 serves most of the public transit needs, but
14 systems like LA Metro, larger fleets, have some
15 routes that are over 300 miles. So we could
16 improve on range there and clearly in the truck
17 market, the Class 8 trucks and the like.
18 So range is one factor.

19 The other is weight, if you have more
20 weight with batteries or hydrogen fuel and
21 infrastructure on board then you carry fewer
22 passengers and you carry less freight.

23 So and the third is the refueling speed,
24 the speed by which you can reenergize your fleet.
25 Very specifically it's a challenge for large

1 transit fleets with 100, 200, 300 vehicles in the
2 yard. So how can we address that? We could add
3 more tanks on the vehicles. That takes more
4 weight and it also takes up more space. It's
5 especially a critical factor with respect to
6 trucks, they don't have as much room on the
7 rooftops as a bus does.

8 The other is higher pressure. We use
9 that in light-duty, 700 bar fueling. That works
10 very effectively when you're only filling 3 or 5
11 kilograms at a time, but trucks and buses will
12 take 35. And our TEC buses, fuel cell buses
13 we're building, will add 55 to 60 kilograms.
14 They're huge challenges being able to fill
15 quickly and keep temperatures low.

16 So a third area that we've been exploring
17 with Lawrence Livermore who, and some of your
18 staff, Wendell was actually one of the staff
19 members that we brought down to Lawrence
20 Livermore National Lab, they are funding by DOE
21 to develop cryo-compression technology, which we
22 believe has a real future. This is in our view a
23 sea change in giving us the range, reducing the
24 weight and improving energy efficiency, the
25 ability to fuel 200 buses within a 5-hour or 300

1 buses within a 5 to 6-hour window that a transit
2 fleet has to fuel.

3 So we need this funding. We wish there
4 was more and we want to work with John and his
5 staff in developing the solicitation, so it does
6 allow competition to fulfill this next step.

7 And just last, I would say CARB's been
8 fantastic with deployments, pilot deployments,
9 but you are the source for demonstration money.
10 And we're ready, given where Lawrence Livermore
11 has gone with R&D. We're ready to take it to the
12 next step towards commercialization, that's
13 demonstration. Thank you.

14 COMMISSIONER SCOTT: Thank you.

15 Ryan?

16 MR. SCHUCHARD: Okay, just a couple of
17 thoughts. We support the general plan for this
18 category, we think it's great. And this freight
19 at the demo pilots here is just so important for
20 investments. And at the risk of saying something
21 that I think everybody here is quite familiar
22 with, we can think of the technology spectrum as
23 going from demos to pilots to market
24 accelerations as far as the incentives go.

25 And if we look at the funding going

1 through the state overall there's just a very
2 large share going to the market acceleration
3 part. And as the organization that administers
4 HVIP we don't have a problem with that and I
5 think most here just need more money. But it's
6 just to say that the demo and pilot part of the
7 programs for the state are just so, so critical
8 to making sure that in the coming years we've got
9 longer range batteries, different configurations
10 with EVs. So just a way to really try to put a
11 point on how important this is to the State of
12 California. And when you think of all of the
13 different baskets of funding this one really is
14 special.

15 And we could spend 10 or 20x literally of
16 the funding that's available, but we know we're
17 constrained by legislative and other hard
18 requirements.

19 I also want to just make one quick point
20 on, so this is called freight and fleet, which I
21 guess is kind of roughly medium and heavy-duty
22 and that's fine. But I think the recent
23 allocations have gone mostly to ports, and we
24 like ports. I think that is maybe partly,
25 because the interpretation is there should be a

1 focus and ports or kind of freight. But I just
2 wanted to say that we really endorse the idea of
3 the beach heads in general. If we're funding in
4 medium and heavy-duty technologies that develop
5 the general marketplace that does come back to
6 freight and ports directly. So just encouraged
7 to have kind of open minds and open hearts to --
8 you know, the beach head is broadly and thinking
9 of that as a strategy to drive port and general
10 fleet zero emission.

11 Thanks a lot.

12 COMMISSIONER SCOTT: Thank you.

13 I don't have any other blue cards in the
14 room. Do I have any comments on the WebEx. They
15 are saying we do not, so let's go just to the
16 next slide there, which will show the proposed
17 funding allocations that we have all talked
18 through this afternoon.

19 I did hear some themes about adding some
20 additional context in various areas of the
21 report, so we will be sure to try and follow that
22 up. Thomas, you listed out a list of
23 legislation, if you could send that to us that
24 would be great.

25 Eileen mentioned AB 617 and perhaps

1 including a paragraph or two there, so maybe
2 we'll work closely with Andy and his team to get
3 that in there. A list of the workforce partners
4 from one of the slides, to make sure that we get
5 that in there.

6 Medium-duty, heavy-duty kind of pulling
7 as a more direct callout in some of the sections,
8 so these are updates and changes that we can
9 certainly make to the report. There were lots of
10 other great information that I heard throughout
11 the day, but I just wanted to hit a couple of
12 them.

13 I just want to say thank you to Patrick
14 and Charles and Jennifer, Taiying, Brian, Phil,
15 Larry and Wendell for their great presentations.
16 We just wanted to make sure that you get some of
17 the expert staff who are enthusiastic about this.
18 They love this work. They do this all day every
19 day, they do a great job at it. So thank you
20 guys for your presentations today.

21 And I also want to say thank you so much
22 to our Advisory Committee Members. We really
23 appreciate the time that you spend with us and
24 the expertise that you bring, the insights, the
25 feedback. Please keep giving that to us.

1 The public comment period still open, but
2 of course you can talk to us about this any time.
3 Our team and I are always excited to do that.
4 Please be sure to take a look at the first couple
5 of pages of the report if you haven't. It
6 acknowledges the great folks who have worked to
7 write this. And then on the second page right
8 behind it acknowledges all of you and your
9 participation, which we really do very highly
10 value.

11 So thanks for spending your afternoon
12 with us and anything else for the Good of the
13 Order?

14 (No audible response.)

15 COMMISSIONER SCOTT: Okay. With that we are
16 adjourned. Thank you, everybody.

17 (The meeting was adjourned at 3:37 P.M.)

18

19

20

21

22

23

24

25

