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BEFORE THE CALIFORNIA ENERGY COMMISSION
ADVISORY COMMITTEE MEETING
AND PUBLIC WORKSHOP

In the Matter of:) Docket No. 16-ALT-02
2017-2018 Investment Plan Update)
for the ARFVTP)

CALIFORNIA ENERGY COMMISSION
FIRST FLOOR
ART ROSENFELD HEARING ROOM
1516 NINTH STREET
SACRAMENTO, CALIFORNIA

THURSDAY, OCTOBER 27, 2016

10:00 A.M.

Reported by:
Peter Petty

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John Kato, Fuels and Transportation Division Deputy Director

Jananne Sharpless, California Energy Commission Former Chair
and Air Resources Board Former Chair

Jack Kitkowski, Air Resources Board

Eileen Tutt, California Electric Transportation Coalition

Howard Levenson, CalRecycle

Peter Cooper, Employment Training Panel

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Brian Goldstein, Energy Independence Now

Claire Jahns (via WebEx), California Natural Resources
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Joel Espino (via WebEx), The Greenling Institute

Simon Mui (via WebEx), Natural Resources Defense Council

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P R O C E E D I N G S

10:05 A.M.

SACRAMENTO, CALIFORNIA, THURSDAY, OCTOBER 27-, 2016

COMMISSIONER SCOTT: Well, good morning everyone. We are going to go ahead and get started. As you all know, this is the first discussion of the Advisory Committee for the Alternative and Renewable Fuel and Vehicle Technology Program. And we will be discussing our Draft Staff Report of the 2017-2018 Update today.

And so thank you so much, Advisory Committee Members, for spending your day with us. We're excited to see you, and looking forward to getting your thoughts on the Investment Plan.

And why don't we go ahead and go around the table and introduce ourselves. Then we'll check to see which of our Advisory Committee Members are on the WebEx or the phone and let them introduce themselves. And then we'll get going.

So I am Janea Scott, Commissioner at the California Energy Commission, and I'm Lead on transportation.

COMMITTEE MEMBER KATO: John Kato, Deputy Director of the Fuels and Transportation Division.

COMMITTEE MEMBER SHARPLESS: Jananne Sharpless,

1 Former Commissioner and Former Chair of the Air Resources
2 Board.

3 MR. KITOWSKI: Jack Kitowski, Air Resources Board.

4 COMMITTEE MEMBER TUTT: Eileen Tutt, California
5 Electric Transportation Coalition.

6 COMMITTEE MEMBER LEVENSON:
7 Howard Levenson, CalRecycle. And I want to apologize. I
8 have to be back at CalEPA for a meeting, but I have -- Tim
9 Hall will make some comments on my behalf later.

10 COMMISSIONER SCOTT: Great.

11 COMMITTEE MEMBER COOPER: Peter Cooper, Employment
12 Training Panel.

13 COMMITTEE MEMBER KAFFKA: Steve Kaffka, University
14 of California, Davis.

15 COMMITTEE MEMBER GERSHEN: Joe Gershen, California
16 Biodiesel Alliance.

17 COMMITTEE MEMBER GOLDSTEIN: Brian Goldstein,
18 Energy Independence Now.

19 COMMISSIONER SCOTT: Great. Welcome all Advisory
20 Committee Members in the room.

21 Do we have Advisory Committee Members who are on
22 the WebEx who would like to introduce themselves? If so,
23 please, we're going to un-mute you. Go ahead and speak up.

24 COMMITTEE MEMBER JAHNS: Claire Jahns here from
25 the California Natural Resources Agency.

1 COMMITTEE MEMBER KNIGHT: Ralph Knight, Napa.

2 MR. ESPINO: Joel Espino with the Greenlining
3 Council.

4 COMMISSIONER SCOTT: Excellent. Any others?

5 Welcome Claire and Ralph and Joel. We're
6 delighted to have you. Thanks for participating by the
7 WebEx.

8 Okay, now I'm going to turn it over to Jacob
9 Orenberg, who's going to kick us off.

10 MR. ORENBERG: Good morning everyone. My name is
11 Jacob Orenberg, and I'm the Project Manager for the 2017-
12 2018 Investment Plan Update for the Alternative and
13 Renewable Fuel and Vehicle Technology Program.

14 As Commissioner Scott stated, the purpose of
15 today's workshop is to discuss the recently released Draft
16 Staff Report of the Investment Plan Update.

17 Before we begin, I need to first make some general
18 announcements, as follows.

19 This workshop is being recorded, and the
20 transcript will be made available on the Energy Commission's
21 website.

22 The restrooms and drinking fountains are located
23 out of the main door to this room and to the left.

24 There is a café on the second-floor atrium which
25 sells coffee, sodas, snacks, and some lunch items.

1 Finally, in the unlikely event of an emergency
2 where we need to evacuate the building, please follow Energy
3 Commission employees to the appropriate exits. We will
4 reconvene at Roosevelt Park, located diagonally across the
5 street from this building. Please proceed calmly and
6 quickly, again, following Energy Commission employees to
7 safely exit the building.

8 To start off, I'd like to thank all of our ARFVTP
9 Advisory Committee Members, both in the room and on WebEx,
10 for their dedication in helping us to develop the Investment
11 Plan and the program, and for generously giving us their
12 time and expertise for another year.

13 Commissioner Scott, did you have any other opening
14 comments you'd like to make?

15 COMMISSIONER SCOTT: I did not. We'll just jump
16 right in.

17 MR. ORENBERG: Great. Thank you.

18 COMMITTEE MEMBER MUI: And apologies. This is
19 Simon Mui with NRDC. I think I may have been on mute.

20 COMMISSIONER SCOTT: Oh, good morning, Simon,
21 welcome.

22 MR. ORENBERG: Good morning, Simon.

23 So I'll jump into the --

24 COMMITTEE MEMBER MUI: Good morning.

25 MR. ORENBERG: Good morning.

1 I'll jump into the presentation now.

2 Our meeting today will follow the agenda on this
3 slide. Right now we'll start the presentation on the
4 development of the 2017-2018 Investment Plan Update.

5 At about 10:45 a.m. we'll move on to the Advisory
6 Committee discussion on each allocation. And this year,
7 Staff will be providing a brief overview of the specific
8 fuel or technology type before we begin each discussion.

9 We will also take public comments after the
10 Advisory Committee discussion of each allocation. Now since
11 we have a lot to cover today, and many interested
12 stakeholders are present, we do ask that you keep any public
13 comments to three minutes or less.

14 At noon we're planning to break for lunch, and we
15 will reconvene an hour later at about 1:00 p.m., at which
16 time we will continue with the Advisory Committee
17 discussion.

18 Finally, we will have another period for public
19 comment at the end of the workshop.

20 To provide some context for the ARFVTP, this slide
21 shows some key statistics for the California transportation
22 sector. Statewide, we have over 28 million light-duty
23 passenger cars and trucks on the road, as well as about 1
24 million medium- and heavy-duty vehicles.

25 In 2014, California generated about 440 million

1 metric tons of carbon dioxide-equivalent greenhouse gases,
2 and 37 percent of this was from the transportation sector.

3 In addition, many regions in California struggle
4 with poor air quality, most notably the San Joaquin Valley
5 and South Coast Air Basins being the only two regions in the
6 country that are in severe non-attainment for federal ozone
7 standards.

8 Finally, the transportation sector consumed 14.5
9 billion gallons of gasoline and 3.6 billion gallons of
10 diesel fuel last year.

11 The ARFVTP was set up to help remedy these
12 problems, and specifically to develop and deploy innovative
13 technologies that transform California's fuel and vehicle
14 types to help attain the state's climate change policies.

15 In addition, we also have the complimentary goals
16 of improving air quality, increasing alternative fuel use,
17 reducing petroleum dependence, and promoting economic
18 development.

19 The ARFVTP was established by California Assembly
20 Bill 118 back in 2007. The program is funded through a
21 small surcharge on California vehicle registrations, which
22 gives us a budget of up to \$100 million per year, depending
23 on how much is collected from the surcharge. Originally the
24 program was scheduled to end this year. However, California
25 Assembly Bill 8 extended it through January 1st, 2024.

1 This slide shows many of the state and federal
2 policies and regulations which guide the program. These
3 include greenhouse gas reduction policies, air quality
4 regulations, petroleum reduction, and renewable fuel goals,
5 and zero-emission vehicle regulations. These policies and
6 regulations guide the development of the Investment Plan and
7 the funding allocations, and in turn the ARFVTP helps the
8 state meet these goals.

9 The annual Investment Plan Update serves as the
10 basis for all solicitations, agreements, and other funding
11 opportunities for each fiscal year. The document is vetted
12 through a public review process that involve four iterations
13 of the document, and two meetings with the Advisory
14 Committee, one of which we're holding today. The
15 allocations described in the Investment Plan are for general
16 project categories, and provide an overview of the status of
17 the fuel or technology type and its potential over the
18 coming fiscal year. The specific requirements of what we
19 will ultimately fund are determined by each funding
20 solicitation, and not by the Investment Plan.

21 To date, the Energy Commission has provided over
22 \$620 million in funding through the ARFVTP. About 24
23 percent of this has gone to biofuel production and
24 distribution. Another combined 34 percent has gone to
25 electric vehicle infrastructure, light-duty electric vehicle

1 incentives, medium- and heavy-duty demonstrations, and
2 electric vehicle and component manufacturing. Eighteen
3 percent of the funding has gone to hydrogen refueling
4 infrastructure and vehicle demonstrations, 16 percent to
5 natural gas fuel and infrastructure and vehicles, and 1
6 percent to propane vehicles. The remaining seven percent
7 was to projects that either incorporate multiple fuel types
8 or do not address specific fuel types.

9 The schedule we'll be following for the 2017-2018
10 Investment Plan Update is outlined on this slide.

11 We released the Draft Staff Report on October
12 17th. And, of course, we're holding the first Advisory
13 Committee meeting today.

14 We will release the revised Staff Draft by January
15 10th, and hold a second Advisory Committee meeting in late
16 January or early February.

17 After reviewing and incorporating comments from
18 both workshops, we expect to release a Lead Commission
19 Report in March, and seek business meeting approval for the
20 final document in April.

21 On this slide are a few of the consideration worth
22 mentioning which have had a notable impact on this
23 Investment Plan Update.

24 In June, ARB reached an agreement with Volkswagen
25 regarding the sale of diesel vehicles that violated emission

1 tests. The deal includes \$800 million over a period of ten
2 years that will go toward zero-emission vehicle programs,
3 including electric vehicle charging stations, and possibly
4 hydrogen refueling infrastructure. We expect this to have
5 an impact on our infrastructure funding strategy once the
6 agreement is finalized and the investments begin, though we
7 don't know exactly when that will occur yet.

8 In addition, the legislature allocated \$368
9 million dollars in greenhouse gas reduction funds to the Air
10 Resources Board, and \$150 million of this is earmarked for
11 Low Carbon Transportation Investments Program. Some of the
12 sectors funded with these investments overlap with ARFVTP
13 activities, which I will discuss later in this presentation.

14 Also, in July the California Sustainable Freight
15 Action Plan was published with the intention of improving
16 freight efficiency, transitioning to zero-emission vehicles,
17 and increasing the competitiveness of California's freight
18 system. The ARFVTP is expected to take a major role in
19 carrying out the strategies and actions assigned to the
20 Energy Commission in the plan.

21 Also in July, ARB released the 2016 Annual
22 Evaluation Report for Hydrogen Development -- I'm sorry,
23 Deployment. And last December the Energy Commission
24 released the first Joint Staff Agency Report on Assembly
25 Bill 8. Both of these reports will provide guidance to the

1 Energy Commission for hydrogen refueling station deployment.

2 This slide shows the layout of the Investment
3 Plan, which is divided into chapters based on the supply
4 chain stage. The program covers nearly the entire supply
5 chain for alternative fuels, from production to distribution
6 infrastructure to vehicles. The remainder of this
7 presentation will follow this outline, as well.

8 The first category in the Investment Plan is
9 biofuel production and supply. To start, I'll review the
10 graph on this slide, which illustrates the progress
11 California has made in just four years. The graph shows the
12 total volume of alternative fuel recorded under the Low
13 Carbon Fuel Standard, excluding gasoline and diesel. The
14 total volume increased from nearly 1.6 billion gallons in
15 2011, all the way up to nearly 2 billion gallons in 2015, and
16 this equals about a 25 percent increase.

17 Biomethane, biodiesel and renewable diesel have
18 all seen large increases in volume during this time, on the
19 order of tens of millions of gallons or gallon equivalents.
20 And this is the kind of study progress that we want to see
21 with ARFVTP investments in this sector.

22 For the purposes of the ARFVTP, we define biofuels
23 as non-petroleum diesel and gasoline substitutes, as well as
24 biomethane. This year's Investment Plan Update continues to
25 leave funds in this category open to multiple fuel types and

1 development stages, including both pre-commercial and
2 commercial-scale projects.

3 This category has two parallel goals, one of which
4 is to continually drive improvements in the cost
5 effectiveness of these projects. This ultimately will take
6 the form of low cost commercial-scale biofuel facilities.
7 The second goal is to encourage the use of more advanced
8 pathways and feedstocks for biofuel production. Examples of
9 such projects might include pre-commercial renewable
10 gasoline production, or projects that utilize woody biomass
11 as a feedstock.

12 The program has a sizeable allocation for biofuels
13 because of their large potential to reduce greenhouse gas
14 emissions and petroleum use, both in the present day and in
15 the future. For Fiscal year 2017-2018, we are proposing to
16 maintain the biofuel production and supply allocation at \$20
17 million.

18 This graph, which was prepared by the California
19 Plug-In Electric Vehicle Collaborative, illustrates the
20 progress our state and our nation have made with electric
21 vehicle adoption.

22 The nationwide monthly sales of EVs are
23 represented with the blue columns. And as you can see, the
24 rate of sales continues to increase year after year.

25 Cumulative California sales, shown with the green

1 line, are also steadily increasing and have reached almost
2 240,000 vehicles as of early October. Continued statewide
3 investments and chartering infrastructure will be needed to
4 keep pace with the increasing number of EVs on the road, and
5 also to meet the goals of the ZEV Action Plan which seeks to
6 have sufficient infrastructure for 1.5 million zero-emission
7 vehicles by 2025.

8 Now in addition to the ARFVTP, several other
9 organizations will be providing significant funding for EV
10 charging infrastructure in the coming fiscal year. Both
11 Southern California Edison and San Diego Gas & Electric have
12 started programs to install utility-owned charging
13 infrastructure within their respective service territories.
14 And PG&E is currently seeking approval from the Public
15 Utilities Commission for their own program.

16 In addition, as I previously mentioned, Volkswagen
17 has reached an agreement with ARB to provide \$80 million a
18 year for ten years to fund zero-emission related vehicle
19 programs.

20 Given the scale and the scope of these other
21 programs, we are planning to make ARFVTP investments in this
22 area much more targeted, and to focus on both geographic
23 areas and sectors that aren't covered by these other
24 programs. Some examples of the investments made include
25 projects that target smaller metropolitan areas that lag

1 behind early adopter communities in chartered deployment, or
2 fund infrastructure for new mobility services such as EV car
3 and ridesharing projects.

4 For the coming fiscal year, we're proposing a \$17
5 million allocation for the electric charging infrastructure
6 category. Despite the large expected investments from the
7 utilities in the Volkswagen settlement, we see a continued
8 need for this funding given the amount of infrastructure
9 required to meet the goals of the ZEV Action Plan and the
10 need to support projects not covered by larger programs.

11 The graph in this slide, which was prepared by ARB
12 for their annual evaluation report, provides context for
13 hydrogen refueling station deployment efforts. In this
14 graph the green bar represents the station capacity of
15 stations funded to date, measured in the number of vehicles
16 which can be supported. The dashed red line represents the
17 number of hydrogen fuel cell vehicles projected to be on the
18 road. The purple bar represents the projected station
19 capacity of stations funded by our future investments.

20
21 As you can see, the report is projecting that the
22 currently funded infrastructure will be sufficient until
23 about 2019. But even with the projected infrastructure, the
24 state may experience shortfalls in hydrogen refueling
25 capacity as early as 2021.

1 For Fiscal Year 2017-2018 we're proposing to
2 continue with a \$20 million allocation for hydrogen
3 refueling infrastructure. This is the maximum allowable
4 under Assembly Bill 8, and is consistent with the
5 recommendations in the 2016 Annual Evaluation from ARB.
6 Based on past and projected station costs, this allocation
7 should be enough funding for eight or nine stations, plus
8 operations and maintenance support.

9 We expect a continued need for O&M funding to
10 support the business case of station developers since the
11 deployment of hydrogen vehicles is still in its early
12 stages. The need for O&M funding should dissipate as more
13 hydrogen fuel cell vehicles are on the roads.

14 For natural gas fueling infrastructure, private
15 fleets are largely able now to independently finance their
16 own natural gas fueling stations. Given this, the ARFVTP
17 natural gas infrastructure funding will continue to be
18 prioritized for our school districts and other municipal
19 public fleets which have restricted access to capital. When
20 provided to schools in particular, this can have the added
21 benefit of reducing school children's experience to toxic
22 air pollutants from older diesel buses.

23 For the coming fiscal year, Staff is proposing a
24 \$2.5 million allocation for this category, which maintains
25 the prior year's funding levels. Based on prior requests

1 for funding, we believe this will be sufficient to meet
2 demand.

3 For natural gas vehicles, we are seeing continued
4 demand for incentive funding through our Natural Gas Vehicle
5 Incentive Project. And the Energy Commission recently
6 approved over \$11 million in funding for additional
7 incentives.

8 However, the economics of natural gas for
9 transportation have changed recently, primarily because of
10 the sustained drop in the price of diesel fuel. As a
11 result, the retail price of natural gas was actually higher
12 than diesel this year.

13 Fossil natural gas, however, still provides a 15
14 percent reduction in carbon intensity compared to diesel
15 fuel. And biomethane is estimated to reduce carbon
16 intensity by up to 50 to 125 percent below that of diesel.

17 Low-NOx engines have also been made available this
18 year. And these reduce nitrous oxide emissions to 90
19 percent below that of an equivalent modern diesel vehicles.

20 Furthermore, when biomethane fuel and low-NOx
21 engines are combined, the life-cycle vehicle emissions are
22 near or equal to those of an equivalent zero-emission
23 battery or fuel cell electric vehicle. For these reasons,
24 continued support for natural gas vehicles is important in
25 the coming fiscal year.

1 For Fiscal Year 2017-2018 we propose maintaining
2 the allocation for natural gas vehicles at \$10 million.
3 Going forward the ARFVTP may consider limiting vehicle
4 incentives to low-NOx engines if an appropriate low-NOx
5 engine is available for the specific vehicle type and weight
6 class.

7 The chart on this slide illustrates the amount of
8 funding available for alternative fuel medium- and heavy-
9 duty vehicles from various regional and state sources. The
10 funding amounts listed here are for Fiscal Year 2016-2017
11 and have already been approved.

12 I want to clarify that the funding in this chart
13 doesn't cover the 2017-2018 Investment Plan Update that we
14 are discussing today.

15 In the chart the Energy Commission's funding is
16 highlighted in blue. The Air Quality Management District
17 funding is shown in green. And ARB's funding is shown in
18 red. Substantial funding is available in this sector, and
19 the ARB's portion is the biggest change since Fiscal Year
20 2015-2016 they didn't receive any cap and trade funding for
21 these purposes. While most of these sources of funding have
22 at least some similarity with each other, very few of them
23 have direct overlap.

24 For 2017-2018 we have renamed and reconfigured the
25 former medium- and heavy-duty vehicle technology

1 demonstration and scale-up category. This was done to
2 better fit the needs and opportunities in this sector, given
3 the substantial funding now available from ARB. The new
4 category with the much more succinct name of advanced
5 freight and fleet technologies still focuses on on-road
6 medium- and heavy-duty vehicles, which we define here as
7 Class 3 through 8 vehicles with a gross vehicle weight of
8 over 10,000.

9 In addition, this category also focuses on non
10 road-freight vehicles, for example, cargo handlers,
11 forklifts and drayage trucks which aren't registered for
12 road use but serve similar purposes or support the above
13 referenced medium- and heavy-duty vehicles.

14 Also, we expect to continue with non-propulsion
15 projects, such as autonomous vehicles and intelligent
16 transportation systems for the vehicle types I just
17 mentioned.

18 Finally, fueling infrastructure projects are
19 expected to take a major role in this category during the
20 coming fiscal year. These fueling projects will exclusively
21 support the types of freight and fleet vehicles under this
22 category.

23 And similar to last year, implementing the
24 California Sustainable Freight Action Plan and working with
25 the California Ports Collaborative is expected to be a major

1 focus of this category.

2 Despite the large amounts of funding available
3 from other sources, we do expect to continue to fund
4 advanced technology freight and fleet vehicle
5 demonstrations, largely because of the ARFVTP has been a
6 stable source of funding for these projects since the
7 inception of our program.

8 For the coming fiscal year we're proposing an \$18
9 million allocation for the advanced freight a fleet
10 technologies category, which is \$5 million less than last
11 year's medium- and heavy-duty scale-up category. This
12 reduced funding level will provide support to this sector
13 and assist in the implementation of the Sustainable Freight
14 Action Plan, while taking into account the substantial
15 funding available from other sources.

16 For Fiscal Year 2017-2018 we're also proposing to
17 reintroduce the manufacturing allocation. We haven't
18 provided funding under this program for a dedicated
19 manufacturing allocation since the category was merged into
20 the medium- and heavy-duty scale-up category in Fiscal Year
21 2015-2016. The absence of a dedicated manufacturing
22 category, however, excluded projects for alternative and
23 renewable light-duty vehicles, vehicle components, vehicle
24 accessories, and standalone manufacturing projects.

25 During last year's Investment Plan development

1 process, several stakeholders and manufacturers requested
2 that we reintroduce funding to this category. We found that
3 there aren't any sources of incentive funding for
4 manufacturing within California quite like this.

5 So for the coming fiscal year we are proposing a
6 \$5 million allocation for this category, and we expect this
7 will be able to fund one or two projects. These projects
8 will indirectly support the other ARFVTP categories, as well
9 as the general goals of the program, and are expected to
10 create jobs and economic benefits within the state.

11 Finally, I'm going to provide a summary of the
12 remaining related needs and opportunities categories. These
13 allocations are meant to support alternative fuels and
14 advanced technology vehicles beyond what is proposed in the
15 previous categories.

16 The emerging opportunities allocation is largely
17 set aside for project types that weren't anticipated during
18 the Investment Plan development process. In the past this
19 category has also targeted federal cost-sharing projects to
20 bring federal grant money to California.

21 We're proposing an allocation of \$4 million for
22 this category. And this is based on some anticipated
23 federal cost-share opportunities we're foreseeing in the
24 coming fiscal year, as well as a possible renewable hydrogen
25 production demonstration project which may be funded from

1 this category.

2 Our workforce training and development activities
3 are continuing with interagency agreements which also
4 support the California Community College system. ARFVTP
5 efforts in this area may also expand to address career paths
6 of high school students and young adults.

7 For Fiscal Year 2017-2018 we're proposing a \$3.5
8 million allocation on the anticipated need of the agreements
9 and activities.

10 Finally, we have a regional readiness category
11 which helps local agencies prepare for and expedite the
12 deployment of alternative fuel vehicles. This category had
13 about \$4 million in reserve at the state of the fiscal year,
14 which should be sufficient to cover demand for the current
15 and upcoming fiscal year. Because of this, we're not
16 proposing funding for this category in 2017-2018, but we may
17 reconsider in 2018-2019.

18 Those are all of the categories that we're
19 proposing funding for in this version of the Investment
20 Plan.

21 At this point I'm going to turn the microphone
22 over to my colleague, Charles Smith, who is going to discuss
23 benchmarking and benefits analysis for the program.

24 Charles?

25 MR. SMITH: Excuse me. Thank you, Jacob.

1 So as some of you here might recall, we held a
2 public workshop in August on this subject. And I'm going to
3 give just a quick recap of that here. But if you're curious
4 for additional details, you can find them on our all-fuels
5 website's workshops and notices page.

6 So there are a couple of ways that we're looking
7 at measuring and evaluating our program and individual
8 projects. We start with the benefit cost score, which was
9 established in statute by AB 8 in 2013. This provision
10 requires us to give additional preference to projects with
11 greater GHG emissions reductions per program dollar in our
12 competitive solicitations. And we've been including this
13 element accordingly, among others, in our score and
14 criteria.

15 We've also been historically required to include
16 an evaluation of our program in the Commission's Biannual
17 Integrated Energy Policy Report, or IEPR. We've published
18 four additions to date, one in each odd-numbered IEPR year,
19 as well as one in the 2014 IEPR Update. The Benefits Report
20 includes, among other things, the expected benefits of our
21 projects in terms of air quality, petroleum displacement,
22 and, of course GHG reductions.

23 This slide captures some of the results from the
24 2015 IEPR Benefits Report, calculated with the assistance of
25 the National Renewable Energy Laboratory. You can see the

1 range of GHG emission reductions associated with our
2 projects in the blue and orange wedges on the left. On the
3 right the petroleum displacement from fuel production, fuel
4 infrastructure, and vehicle projects are shown in red, blue,
5 and green, respectively. And finally, in the lower right-
6 hand corner, NREL estimated and monetized the value of some
7 of our criteria emission reductions from our ZEV
8 investments.

9 Looking to the future, of course, we have a 2017
10 Benefits Report to look forward to. We're hoping to have
11 draft materials for that report to accompany a public
12 workshop sometime next spring to summer.

13 But we also wanted to bring your attention to
14 another planning exercise that we're undertaking.
15 Obviously, we're able to highlight our past funding of
16 projects, which is handy for the Benefits Report. However,
17 we also want the ability to highlight our expectations for
18 future investment. And one way to do that is to develop a
19 set of benchmarks for each of our project types so that we,
20 you and other stakeholders can compare our progress against
21 our goals.

22 As Jacob and I have stated numerous times over
23 previous years, our program takes a portfolio approach
24 toward funding, recognizing that no single alternative fuel
25 or technology is guaranteed of perfect for all situations.

1 Each one has its own unique market barrier. And for this
2 reason we feel it's only appropriate to consider unique
3 benchmarks of progress for each one.

4 Some of the key things that we hope to get out of
5 here include what do we expect from each project type, how
6 much have we progressed, and at what cost? We're looking at
7 setting these benchmarks for the short, medium and long
8 term, possibly defined as pre-2020, 2021 through 2025, and
9 2016 and beyond.

10 As far as timing for the work goes, we're hoping
11 to have a draft set of benchmarks developed in time for
12 including into the revised Staff draft of the Investment
13 Plan, whether as an appendix, or maybe as highlights within
14 the main text of the sections. Having a draft set of
15 benchmarks by then would allow an opportunity for you, our
16 Advisory Committee Members, to weigh in on them at the
17 second Advisory Committee meeting.

18 So what are some examples of these benchmarks? So
19 here are a few possible attributes we're currently tracking.

20 On the biofuel production side, we're looking at
21 goals for increasing in-state biofuel production capacity
22 through our projects, or for the average carbon intensity of
23 biofuels produced by our program, or by the increase of GHG
24 emission reduction capacity by our funded projects.

25 For hydrogen stations, we already have AB 8

1 guiding us to develop a network of 100 stations. But we can
2 also set goals for total statewide fueling capacity and/or
3 the renewable content of dispensed hydrogen.

4 This next slide is a depiction of what a tracking
5 system and reporting of these benchmarks might look like.

6 And I want to stress, these are absolutely hypothetical
7 examples for biofuel production project type. I thought up
8 these values, so please don't hold our Biofuels Unit to
9 them. So I'll walk you through some of the columns.

10 The type and status, of course, is the project
11 type. Below that, the amount of funding that we have
12 awarded thus far. And below that, the number of individual
13 awards that we've made for that category.

14 Next are the goals. These ones I outlined
15 previously on the previous slide, such as increasing
16 production capacity in terms of diesel gallon equivalents,
17 producing biofuels with a low average carbon intensity, and
18 increasing the capacity for GHG reductions from our funded
19 projects in terms of millions of metric tons carbon-dioxide
20 equivalent.

21 And then, of course, you have the different time
22 frames, the short, mid and long term. Each of these happens
23 to have a quantifiable goal, which is something that we'll
24 talk about. And then, of course, the progress that we have
25 made to date on that goal. So, for example, increase annual

1 biofuel production capacity in California, our progress, I
2 think it's reasonably close to increasing capacity by about
3 84.3 million diesel gallons equivalence as of this year, as
4 well as our current average for carbon intensity among our
5 biofuel production projects, I believe, is around 15 grams
6 Co2 equivalent per megajoule as of this year.

7 Now as mentioned, we're still in a relatively
8 early phase of this. We're still trying to determine the
9 appropriate scope of the work. In the previous examples you
10 noticed I highlighted examples of benchmarks that have
11 quantifiable goals. That way we can check one number
12 against and get a concrete idea of our progress. However,
13 there are also goals, important goals that don't lend
14 themselves very readily to quantifying.

15 For instance, we've previously funded the
16 California Department of Food and Ags Division of
17 Measurement Standards to get their support in establishing a
18 retail standard for hydrogen on a per kilogram basis. And
19 this was a critical step in establishing a commercial market
20 for hydrogen, but not one that lended itself to quantifiable
21 progress.

22 Also, we need to assess whether to set these
23 benchmarks as aspirations, on the one hand, or as
24 expectations on the other. In the one scenario, this could
25 mean extrapolating current unit costs into the future. In

1 the other, we might incorporate assumptions about reduced
2 ARFVTP project costs in the future.

3 Finally, we'll have to consider the assumptions
4 that we make about ARFVTP funding. This issue applies to
5 both the program's total, historically about \$100 million
6 per year, but also to the individual Investment Plan
7 allocations for each project type. Obviously, if we
8 substantially change the funding amount for a category in
9 future years, we would expect to reconsider our benchmark
10 goals for that category into the future.

11 So these are just a few of the things that we're
12 still trying to parse out. As mentioned, our hope is to
13 include a draft set of these benchmarks in time for the
14 revised Staff draft, which will be the subject of your next
15 Advisory Committee meeting.

16 And with that, I turn the microphone back to
17 Jacob.

18 MR. ORENBERG: Thank you, Charles.

19 Going forward, we will be seeking feedback on
20 these allocations, the Investment Plan, and the program, in
21 general, from all stakeholders. In order to incorporate any
22 comments into the revised Staff draft, we're asking to
23 receive them no later than November 10th, that's a Thursday,
24 two weeks from now. We prefer to receive comments through
25 the Energy Commission's e-commenting system. And there's a

1 link to that on this slide, and in the workshop notice. We
2 also accept comments via email and regular mail. And
3 instructions for where to send those are also in the
4 workshop notice.

5 We are anticipating releasing the revised Staff
6 draft to the Investment Plan in advance of the January 10th
7 deadline we have, and are planning to hold a second Advisory
8 Committee meeting in late January or early February with a
9 location yet to be determined.

10 This slide shows a summary of all of the funding
11 allocations we are proposing in this draft of the Investment
12 Plan. The Advisory Committee discussion will begin
13 momentarily, during which we hope to have an open and frank
14 discussion about these proposed funding allocations and
15 categories.

16 I can also answer any clarifying questions about
17 this presentation now. However, I do ask that you hold off
18 on any questions or comments about specific fuel types,
19 technologies or allocations until the discussion or public
20 comment period.

21 Thank you.

22 COMMISSIONER SCOTT: Thank you very much, Jacob
23 and Charles.

24 I did have a couple of remarks that I wanted to
25 make as we went through the presentation. One of the things

1 I wanted to call folks' attention to is some of the program
2 highlights, which is on page 17 of the Draft Investment
3 Plan. And I always think it's kind of nice to see.

4 Kind of we see the numbers and how much money has
5 gone into each category, but this kind of tells you what
6 that works out to be in terms of, you know, 48 projects in
7 the biofuels area, and \$49.1 million to help the Air
8 Resources Board Clean Vehicle Rebate Project in a time when
9 that funding was really lean. And it just kind of shows you
10 some of the places where -- it gives you specific examples
11 of where the money is going and what the investments in the
12 projects are, and it's pretty exciting. Those actually lend
13 themselves really nicely. We've got on our web page what we
14 call the clean transportation tour, where we've highlighted
15 about 20 of the projects. So you can actually see the
16 different projects, where they are in the state, what they
17 mean, how they fit into our clean air, our climate goals,
18 our energy security goals here for the state.

19 And there are a couple of things, actually, from
20 the last time that we've met that I just wanted to
21 highlight. I may have highlighted this at the meeting we
22 had on the previous investment plan at the beginning of the
23 year. But the Energy Commission Transportation Team has put
24 in place some merit reviews. They're modeled after the
25 Department of Energy's Annual Merit Review, although it's

1 much less ambitious. We don't have, you know, a convention
2 center full and look at literally every project that we've
3 funded. We don't have, you know, the resources to do that.

4 But we did spend time digging into the biofuels'
5 projects. We had a terrific discussion about a year or so
6 ago. A lot of folks came in, really allowed us to kind of
7 see what they're -- you know, not confidential business
8 information but, you know, what their business models looked
9 like, what was successful, what were issues that, if we
10 could figure out how to tackle those, could really help
11 raise the whole industry. We had a great discussion there.

12 We talked in the medium-duty/heavy-duty space.
13 It's the same type of conversation, how is it going, what
14 things have worked really well, what things aren't working
15 well, again, kind of like a lift all boats, basically,
16 message at the end, what are the things that we can learn
17 from the projects that we've helped fund, you know, and take
18 that to the next level. And we did these in partnership
19 with our friends over at UC Davis.

20 And we also did on the electric vehicle
21 infrastructure which is, as you all know, changing rapidly.

22 It really requires some flexibility in our thought and in
23 our investments. And so we spent some time digging in,
24 really digging into some of our projects. And if any of our
25 project developers are out there listening, I want to say

1 thank you to them for letting us kind of pull them in and
2 really put their specific project under a little bit of
3 additional scrutiny and heat to kind of see how it was going
4 in order to really help inform the program.

5 We have, as you heard from Charles, been working
6 hard on benefits and the benchmarks' discussions. And so we
7 will have an in-depth discussion that follows kind of the
8 hypothetical that he laid out for you that we are working
9 very hard to try to get into, as he said, the next version
10 of this report, so I'm excited about that.

11 As you see, hopefully you read this report which
12 is great. And in detail, it also highlights some of the
13 work that we're doing to make sure that low-income,
14 moderate-income, disadvantaged communities are included in
15 both where the projects go, but also in being able to come
16 to the Commission and bid and compete in the different types
17 of categories for the money that we're giving out.

18 We put together a little road show and went and
19 talked about, you know, this is what the program is, here's
20 how you apply, you know, walk folks through the web page so
21 they can understand, you know, where the information is, how
22 to get the information.

23 So these are things that we're really proud of
24 that we've been working hard to continue to try to improve
25 the program. And, of course, it's so important to make sure

1 that all Californians have the benefits of these types of
2 programs. So we're working hard to continue to do outreach
3 in that space.

4 And last year, I'll just note, we were really
5 pleased to be able to bring the Final Investment Plan in
6 Spanish. So we're also working to make sure that we can get
7 some of our key documents out in other languages, again to
8 help make sure that our program is inclusive of all
9 Californians.

10 I want to welcome our Advisory Committee Members
11 Tyson Eckerle, who has joined us since we started, and also
12 John Shears.

13 And let me turn to Miki and Jacob, just to see if
14 there any other Advisory Committee Members who have joined
15 us on the WebEx? And if you have, this would be a great
16 time to say hello.

17 MR. ORENBERG: Yes, Commissioner, both Simon Mui
18 and Ann McMonagle (phonetic) have joined us on WebEx, as
19 well.

20 COMMISSIONER SCOTT: Terrific. We heard Simon
21 earlier, and welcome Ann. Okay.

22 MR. ORENBERG: And I don't know, did Claire Jahns,
23 did she have --

24 COMMISSIONER SCOTT: She did.

25 MR. ORENBERG: Okay.

1 COMMISSIONER SCOTT: She introduced herself.

2 So let's turn to Jacob and Charles's terrific
3 presentation. Do Advisory Committee Members here around the
4 table have questions? And then we'll -- go ahead, Joe.

5 COMMITTEE MEMBER GERSHEN: Hi. Good morning.
6 Thank you.

7 COMMISSIONER SCOTT: Good morning.

8 COMMITTEE MEMBER GERSHEN: Great job, as usual.
9 Thanks for all the effort on your behalf, and Staff.

10 I think we're -- I've gone through this over the
11 last couple of days and had a few kind of macro comments.
12 We're going to submit some more formal comments from CBA
13 here in the next couple weeks. So a few things.

14 In paragraph -- in chapter one in the second
15 paragraph it says, at the end of that paragraph, "The state
16 will need to continue to reduce petroleum fuel used to meet
17 greenhouse gas reduction targets," which, of course, I think
18 we all agree on.

19 Just in an effort to kind of think outside the box
20 a little bit, because we know there are all these different
21 categories, I think there's -- we know that there are
22 technologies out there that can also reduce the carbon
23 intensity of that petroleum refining process. We know that
24 there are some available now. There are some in the near
25 term. And so I would encourage Staff to look into some of

1 those technologies and become more aware of them. Because,
2 you know, if you can reduce that process, even as we reduce
3 the use of it if we can reduce the carbon intensity 10 or 20
4 percent, that's really a tremendous reduction. And it's a
5 way of thinking outside the box that I think, you know, I'd
6 encourage folks to do.

7 MR. ORENBERG: Joe --

8 COMMITTEE MEMBER GERSHEN: yeah?

9 MR. ORENBERG: -- I'm sorry, could I -- I hate to
10 interrupt you. But right now we're just taking questions,
11 clarifying questions about the presentation.

12 COMMITTEE MEMBER GERSHEN: Okay. Fine.

13 MR. ORENBERG: Could we hold off on the Advisory
14 Committee discussion until --

15 COMMITTEE MEMBER GERSHEN: Great.

16 MR. ORENBERG: -- a little later?

17 COMMITTEE MEMBER GERSHEN: My apologizes.

18 MR. ORENBERG: Yeah. So anyone with just
19 clarifying questions about the presentation right now, if
20 you would? And if not --

21 COMMISSIONER SCOTT: Any Advisory Committee
22 Members on the WebEx have clarifying questions for Jacob or
23 Charles? If you do, please speak up.

24 COMMITTEE MEMBER ESPINO: This is Joel with
25 Greenlining.

1 COMMISSIONER SCOTT: Yes. Go ahead, Joel.

2 COMMITTEE MEMBER ESPINO: A clarifying question.

3 There was discussion on the slide regarding the advanced
4 freight and fleet technology categories. And I heard the
5 word "autonomous vehicles" in there, and just wanted to know
6 if you can please clarify again or at least repeat what that
7 was pertaining to?

8 MR. ORENBERG: So the autonomous vehicles, the way
9 we're envisioning this is we might fund projects for
10 autonomous vehicles related specifically to the medium- and
11 heavy-duty vehicles, that's Class 3 through 8, as well as
12 any of those off-road vehicles that I mentioned such as the
13 supported ones, such as cargo handlers, drayage trucks or
14 forklifts. Now that's really something that would be
15 specified in the solicitation as to what we would fund in
16 particular.

17 COMMITTEE MEMBER ESPINO: Okay. Great. Thank you
18 for that clarification.

19 MR. ORENBERG: Thank you, Joel.

20 COMMISSIONER SCOTT: Steve, go ahead.

21 COMMITTEE MEMBER KAFFKA: Steve Kaffka. Very nice
22 presentation, incidentally.

23 MR. ORENBERG: Thank you, Steve.

24 COMMITTEE MEMBER KAFFKA: In your slide on
25 electric charging infrastructure you point out that about a

1 quarter of a million electric vehicles have been sold in
2 California, but the objective is to reach maybe six times
3 that level by 2025, which, of course, involves a lot of fast
4 charging infrastructure, as well as projected sales. How
5 realistic do you think that those objectives are? I mean,
6 it's hopeful. But, I mean, I'm curious what you really
7 think is the potential for that.

8 MR. ORENBERG: You know what, I think I'm going to
9 have to defer to our EV Team. They will be providing a
10 brief presentation before the Advisory Committee discussion
11 on that section.

12 COMMITTEE MEMBER KAFFKA: Thank you.

13 COMMISSIONER SCOTT: John?

14 COMMITTEE MEMBER SHEARS: Good morning everyone.
15 John Shears, the Advisory Committee. And apologies for
16 showing up late, although I was listening from the start on
17 the phone on my way in this morning.

18 Again, I just want to complement the staff on the
19 good work on this year's update plan. And if Bonnie were
20 here, I'm sure she'll show up at some point, I think she'd
21 also want to express thanks for highlighting the issues
22 around continuing the importance of this program, not only
23 in the climate but an area that's dear to our hearts on the
24 criteria and air pollutants side. So we're appreciative of
25 that being sort of more highlighted, especially in the

1 introductory language in this year's plan.

2 So given that this is meant to be just general
3 comments, I'll just limit my comments now to that. But
4 thanks, very much appreciated.

5 COMMISSIONER SCOTT: Anyone else?

6 Go ahead, Jan.

7 COMMITTEE MEMBER SHARPLESS: To John's point on
8 criteria pollutants, as I read through the report, I mean,
9 obviously we've been in the business of trying to meet ozone
10 standards for some time, but particulates has turned out to
11 be a major issue, as well. And I think I only saw
12 particulates mentioned once in the report.

13 So where does the program specifically address
14 particulates, are you just imagining that by doing biofuel
15 diesels, that somehow the particulate issue will be -- and
16 advanced technology on diesel trucks, that somehow that
17 issue -- I don't see any measurements. I don't see any
18 direct, you know, thing about meeting criteria pollutants
19 for particulates.

20 COMMISSIONER SCOTT: Yeah, we do have one measure
21 in there for particulates. And I think we're looking,
22 especially in the electrification area, to see what those
23 reductions look like there. So, for example, like a motive
24 power, which is an electric engine that can go into a
25 medium-duty vehicle and how that might replace, you know, a

1 diesel in that same space. And so that's where we're
2 looking at the particulates and measure them most directly.

3 COMMITTEE MEMBER SHARPLESS: Well, just on some of
4 the studies that I've seen come out nationwide and in
5 California, one in the transportation in terms of
6 particulates, not just looking at diesels but looking at
7 internal combustion engines, as well, a major portion of
8 roadside particulates comes from brake pads and oil. So,
9 you know, that may not be within your program bounds, but it
10 certainly would take down the health effects significantly.

11 COMMISSIONER SCOTT: Thanks.

12 Go ahead, John.

13 COMMITTEE MEMBER SHEARS: Yeah. There's also
14 issues with GDI, the new fuel efficient gasoline engine
15 technologies that are being deployed on the road right now
16 and what their PM fingerprint looks like and could look like
17 as the manufacturers and their suppliers try and perfect the
18 technology.

19 Very appreciative, as well, of, you know,
20 acknowledging how, you know, again the integration of all of
21 the different policies. But was the short-lived -- I can't
22 recall if the Short-Lived Climate Pollutant Plan was also
23 mentioned. Because there, again, that goes after black
24 carbon, PM, methane.

25 So this program is also going to be important as

1 we pursue the -- you know, they have the Lara Bello
2 (phonetic) which basically puts it in statute, which now
3 means that Ryan and the poor folks over at CARB have to
4 rework the draft plan that they were going to bring to the
5 Board. But soon there will be a final plan that's delivered
6 for consideration by the Board. And I think this program
7 also has some synergies there that are quite important.

8 COMMISSIONER SCOTT: Yeah. That's a good
9 suggestion. I'm not sure that -- so we run through the
10 related policies and program at page 24 through kind of the
11 end of that chapter. So we can make sure that that's added
12 in there.

13 And I'd like to say welcome to Bonnie Holmes-Gen
14 who has joined us.

15 Go ahead, Howard.

16 COMMITTEE MEMBER LEVENSON: Thanks, Commissioner
17 Scott.

18 And I just want to reiterate what John said about
19 SB 1383, which is legislation that codifies the Short-Lived
20 Climate Pollutant Plan and sets forth some very significant
21 changes in state mandates regarding organic stuff. And that
22 will form the foundation for a recommendation that we'll
23 make later on in writing --

24 COMMISSIONER SCOTT: Okay.

25 COMMITTEE MEMBER LEVENSON: -- about the

1 biomethane category. But it's definitely a sea change in a
2 lot of policy.

3 COMMISSIONER SCOTT: Good.

4 Do we have any other clarifying questions for
5 Jacob or for Charles? Any WebEx folks on the Advisory
6 Committee? If so, speak up.

7 COMMITTEE MEMBER MUI: Good morning. This is
8 Simon.

9 COMMISSIONER SCOTT: Good morning.

10 COMMITTEE MEMBER MUI: Can you hear me?

11 COMMISSIONER SCOTT: Yes.

12 COMMITTEE MEMBER MUI: Hey. I just wanted to add
13 to some of the comments. This was a very well done
14 presentation, and I wanted to just commend. I think the
15 intro sections and the chapter two for the context around
16 the Investment Plan has been very helpful.

17 You know, one of the helpful areas was the actual
18 schematic of the program implementation and kind of how the
19 various data points feed into the benefits report. I had
20 some questions on some of the benefit slides that were
21 shown.

22 Do you have a sense of -- the first one was do you
23 have a sense in terms of the different types of financing,
24 the different types of mechanisms that you're using?

25 There was a discussion in terms of the four or

1 five, you know, different types of incentives and sort of
2 grant approaches, and perhaps a movement within the way AB
3 118 is being -- funds are being utilized.

4 Do you have a breakdown of how the current
5 projects are funded in terms of whether, you know, their
6 federal cost share is first come-first served or operate,
7 you know, more producer-type incentives? And do you expect,
8 as some of the technologies become commercialized, to move
9 towards different types of financing mechanisms? Can you
10 give some insight on that?

11 COMMISSIONER SCOTT: Yeah. Let me -- I'll turn to
12 Jacob, as well. I know that we do have that type of
13 information. I don't have specific numbers that tie back,
14 but he may, but different categories. You know, so
15 typically our Regional Readiness Plans, for example, are a
16 first come-first served type of grant. Most of our programs
17 are in grants. We have one Loan Loss Reserve Program out
18 there. And then production incentives, we had some
19 previously. I don't think we're funding anything that way
20 right now, but let me let Jacob weigh in, as well.

21 MR. ORENBERG: Yeah. Thank you for your question.
22 So the vast majority of our grants are given out -- or a
23 mass majority of our funding is given out through
24 competitive grants. And I don't have an exact number with
25 me right now. I believe it's actually over 90 percent, well

1 over 90 percent of our funding goes out through competitive
2 grants. Then there's the first come-first served grants, as
3 Commissioner Scott just referenced. And we have our -- we
4 have a financing program available for electric charge
5 infrastructure. That is discussed in the electricity charge
6 and infrastructure section, as well.

7 And all of our funding mechanisms are also
8 discussed in detail in chapter two.

9 COMMITTEE MEMBER MUI: Yes. Okay. Great. Thank
10 you.

11 MR. ORENBERG: Now we have a request for public
12 comment from David Lopez who is on WebEx.

13 COMMISSIONER SCOTT: We're just doing clarifying
14 questions --

15 MR. ORENBERG: Yeah.

16 COMMISSIONER SCOTT: -- from the Advisory
17 Committee right now for --

18 MR. ORENBERG: So I just wanted to -- I wanted to
19 clarify.

20 COMMISSIONER SCOTT: But we'll get to public
21 comment in a little while.

22 MR. ORENBERG: Oh, I'm sorry.

23 COMMISSIONER SCOTT: Okay. Anybody else on the
24 Advisory Committee? And then once we get into discussion,
25 we'll take public comment on each of the areas. So when we

1 get to biofuels, we'll let the Advisory Committee have their
2 discussion. And then we'll do some public comment on the
3 biofuels. When we get to each category, we'll do the
4 Advisory Committee discussion, then we'll get to public
5 comment. And then when we -- as we close the meeting we'll
6 get the general comments on the broader report.

7 But if there's any other clarifying questions for
8 Charles or Jacob -- go ahead, Brian. This is a great time.
9 And then we'll get into the discussion.

10 COMMITTEE MEMBER GOLDSTEIN: So there may be a
11 time for this -- excuse me. This is Brian Goldstein from
12 Energy Independence now.

13 I noticed there's a mention of the additional
14 resources from the Volkswagen settlement in the overview
15 here. And there's also a little bit more mentioned further
16 in the report. Is this an appropriate time to, you know,
17 ask how the Energy Commission is following up on that and
18 what the status is, or should we wait?

19 COMMISSIONER SCOTT: Let's dig into that --

20 COMMITTEE MEMBER GOLDSTEIN: Okay.

21 COMMISSIONER SCOTT: -- when we get to the EV
22 section.

23 COMMITTEE MEMBER GOLDSTEIN: Okay. Great.
24 Thanks.

25 COMMISSIONER SCOTT: All right. Well, let's turn

1 to the discussion, and I'll turn back to Jacob to kick that
2 off for us.

3 MR. ORENBERG: Great. Thanks, Commissioner Scott.

4 COMMISSIONER SCOTT: And for folks in the room who
5 would like to make a public comment, if you can please fill
6 out one of the blue cards that are up at the front desk
7 there and then bring it over to either Mickey, who's waiving
8 at you right here in the corner. She'll make sure that
9 those get up to me or to Jacob, and that's how we'll know
10 when we get to each section that you want to make a comment.
11 And if you want to make a general comment about the
12 Investment Plan, we'll hold those until the very end and do
13 public comment as we're wrapping up the meeting.

14 MR. ORENBERG: Right. So thanks, Commissioner
15 Scott.

16 We are now going to proceed with the Advisory
17 Committee discussion on biofuels. Our Biofuels Team is
18 going to start off with a brief presentation on their
19 allocation. We will then proceed with the discussion, and
20 after which we'll have that public comment period. If
21 you're on WebEx and you would like to provide public
22 comment, please use the raised hand feature. Miki will then
23 record your name, and we will then call your name to speak
24 and un-mute you during the public comment period.

25 So at this point I'd like to turn the microphone

1 over to Bill Kinney, who will be presenting for the Biofuels
2 Unit.

3 MR. KINNEY: Good morning, Commissioner, Deputy
4 Director, Council Members and Staff and guests. My name is
5 William Kinney. And you'll please excuse a little
6 hoarseness in my voice this morning. I woke up with a frog
7 in my throat.

8 So far we're in good shape, because usually when I
9 get up here the AV system breaks, so we're rolling good
10 here.

11 Okay. So I'm going to talk a little bit, a very
12 brief kind of snapshot about biofuels and what we've been
13 doing and what we hope to do a little bit, and a little bit
14 about what we're hoping to do in the future.

15 You know, I just returned to the theme, the
16 portfolio approach that we all try and take. I try not to
17 pick winners or losers. So we have what we call, you know,
18 lanes or pathways to achieving the state's goals. And those
19 include large commercial facilities that can produce high
20 volumes of low-carbon fuels in a cost effective way. We
21 also fund community -- what we call community-scale
22 facilities where we try and match production with locally-
23 available feedstock. And we also address complimentary
24 state goals in waste diversion and short-lived climate
25 pollutants and so on.

1 And just, you know, in passing, I will say that in
2 our most recent solicitation, which we're still in the
3 process of evaluating but we do have criteria inserted into
4 the scoring criteria now that look at short-lived climate
5 pollutants, and we've always tried to look at criteria
6 pollutants. Excuse me.

7 We are trying to develop advanced technologies
8 that are transformative that can dramatically increase the
9 yield of productivity of biofuel production, and especially
10 the cost effectiveness. Game changing sorts of technologies
11 that might develop new drop-in fuels, that's the general
12 idea there.

13 And finally, we have a sustainability
14 category or lane, if you want to call it that. And we have
15 recently completed a five-year project in forest biomass
16 utilization sustainability, which we might have a slide
17 today. There was some discussion yesterday about including
18 that. There it is. So we had a group of contracts that
19 totaled \$2.22 million, it started back in 2011, with the
20 U.S. Forest Service, a research station in California, the
21 southwest area, the Northwest Research Station, UC Davis, UC
22 Berkeley and Portland State University, and the private
23 group Spatial Informatics. We had over 30 academic and
24 research scientists' efforts spanning this five years. And
25 the study involved a total of ten technical tasks and two

1 project integration tasks.

2 So I'm just going to go back and just say a couple
3 of words about that.

4 Two of the tasks that we included in that, one
5 task was to develop a planning tool so that given a set of
6 conditions in the forest and a set of conditions or goals
7 for a particular area or region, the land manager can use
8 this tool, it's called Biosum 3. It's the third iteration
9 of this. Actually, I think it's actually there may be a
10 later number on it. And it's a rather elaborate planning
11 tool that includes the cost of getting the wood out of the
12 forest, the income derived from various sources, including
13 biofuels, and the prescriptions that would be used to
14 sustainably harvest that material. And the focus was, of
15 course, on sustainability.

16 Task 8, which is also important and quite relevant
17 to biofuels, we had a geospatial modeling effort that was
18 able to identify the potential for woody biomass sourced
19 biofuel facilities in the Sierra. And the conclusion was
20 that up to a couple of dozen of such facilities at 15 to 20
21 million gallons per year each could be sustained given the
22 current credit prices in fuel prices. So just -- that
23 doesn't -- you know, this criteria -- this sustainability
24 area doesn't come along very often. It's something that we
25 just recently completed.

1 Now also in 2014 we had PON-14-602 which was an
2 early and pre-commercial technology development. And this
3 was specifically focused on transformative technologies to
4 significant industry problems, and that would target unmet
5 needs.

6 We had a little over \$2.9 million in funding that
7 we were awarded for separate projects. Those projects
8 included Altex Technologies' proposal to develop a biomass
9 conversion to synthetic gasoline system. San Diego State
10 developed a cost effective micro algae cell breakdown, or
11 disruption as they call it, for extraction of lipids for
12 biofuel production. UC Davis is attempting to improve the
13 productivity of micro algae feedstock using carbon dioxide
14 and waste nutrients from anaerobic digestion facilities.
15 And finally, West Biofuels is attempting to develop a
16 technology to produce advanced renewable fuels, ethanols,
17 and value-added chemicals from woody biomass.

18 Our current solicitation which is in progress, I
19 can't say too much about that at this point, we had \$37
20 million in funding that we're hoping to award. We did get a
21 very strong response. We're very happy about the response
22 that we got. As usually, there's several multiples of
23 our -- oversubscribed by several multiples of available
24 funding.

25 We are using a new process now. Actually, we used

1 it on 14-602, but that was a very small solicitation. This
2 one, this process is a two-stage scoring process. So we've
3 completed the first stage where we evaluated ten-page
4 abstracts of the proposals. And now we have a set of
5 finalists who will prepare their final full proposal. Those
6 are due on November 14th. We hope, despite the Christmas
7 season, to have our NOPA by January 10th of next year. And
8 the proposed allocation for next year is \$20 million.

9 So we're not going to do questions now, is that
10 the deal, or how did you want to do that?

11 COMMISSIONER SCOTT: Advisory Committee
12 discussion.

13 MR. KINNEY: Okay.

14 COMMISSIONER SCOTT: And I saw that Joe had his --

15 MR. KINNEY: Okay.

16 COMMISSIONER SCOTT: -- card up right away, and
17 then we'll go to Howard.

18 Go ahead, Joe.

19 COMMITTEE MEMBER GERSHEN: Thank you. Sorry for
20 jumping the gun earlier. So I'll just kind of continue on
21 from what I had talked about before.

22 So briefly at sort of a high level, in chapter
23 two, the Table 2 and Table 3, just wanted to make an
24 observation that it looked like there was about 9.7 percent
25 of the funding and 4.4 percent of the total projects in

1 Table 2, and also in Table 3 on page 19 it was only about 9
2 percent of the total funding. And sort of we know that the
3 biofuels overall category is providing quite a bit, sort
4 of -- I think it's over 90 percent of the benefits under the
5 Low Carbon Fuel Standard right now.

6 So just, again, I just wanted to point out, it
7 seems to be a pretty large discrepancy. And, you know, I'll
8 sort of continue on with my drumbeat there.

9 Let's see, chapter two, I just also wanted to
10 comment on the VW diesel emission settlement, which I think
11 all of us were pretty outraged by what VW did, but just had
12 sort of a comment: Why were none of those dollars put into
13 more biofuels or upstream biofuels infrastructure which
14 would certainly solve some big problems?

15 We know, for instance, there's, you know,
16 approximately one -- well, there's quite a bit of production
17 which is great, partially thanks to ARFVTP funding. But we
18 know domestically in the U.S. there's about, you know, over
19 a billion gallons of unutilized capacity. And really the
20 only bottleneck is infrastructure in California. There's
21 about 85 percent of the diesel bulk fuel racks and terminals
22 that are not capable of blending biodiesel right now. So
23 that really is a pretty minimal investment to get a huge
24 bang for the carbon reduction buck. Okay.

25 So moving right along, chapter three, in biofuel

1 production supply, the second paragraph, there's an
2 assumption there that OEM limits of five percent without
3 modification may -- I think that might actually be wrong.
4 We know that there are several markets around the world now
5 that are mandating blends that are higher than that, several
6 here in the United States are doing that. And then
7 Indonesia, Europe, certain European markets are doing that.
8 So we know that the OEMs are needing to increase those --
9 they're already increasing the blend availability. So I
10 think that needs to be addressed or looked at more closely.

11 And also in the same paragraph it says that there
12 are three California biodiesel plants that were funded by
13 ARFVTP grants. And additional five received funding but are
14 not operational. I think that's not correct. Again, on my
15 cursory review, CRIMS (phonetic) and New Leaf Community,
16 Bio-Deco and Springboard have all received funding. So
17 that's more than three. And then Buster, Eslinger, and
18 Verdis, are nonoperational. And I may have missed some, as
19 well, but I just think that needs to be tweaked a little
20 bit, so I wanted to point that out.

21 And then also I just wanted to clarify, chapter 3,
22 page 40, the second paragraph it talks about a need for
23 production incentives stems largely from extended volatility
24 in the price of petroleum fuel. So the main reason the
25 incentives, we believe, are needed is because, you know,

1 basically there's a huge amount of imported product, and
2 that's undermining California production. It's more
3 expensive to make anything in California, including
4 biofuels. So we're sort of at a disadvantage right out of
5 the gate.

6 Producers in China, Korea, South American, India,
7 et cetera, they enjoy much lower costs of production, labor,
8 energy, raw materials. And they're also further
9 incentivized to send their product to California where they
10 enjoy the Low Carbon Fuel Standard credit values, RIN values
11 under the RFS2, and pretty generous dollar per gallon
12 blenders credit in many cases.

13 So really in-state production incentive
14 essentially just makes an attempt towards leveling the
15 playing field. In fact, they don't really get there, but
16 they make a significant dent in that. And I just wanted to
17 sort of clarify that.

18 And my final comment for today, but again, we'll
19 put some more detailed and thoughtful comments together and
20 submit them to the docket, is in the benefit section.

21 Again, I just want to kind of point out, there's a
22 difference between expected benefits and actual benefits.

23 And from an investors point of view, and I'm
24 involved in that community, as well, you know, if I give
25 somebody \$1 million and they say we're going to do X-Y-Z, if

1 we come back and we don't get X-Y-Z and then they say we'd
2 like another \$1 million, we may not give them that extra \$1
3 million.

4 So to say, hey, we think we're going to give you
5 X-Y-Z and we might give you X-Y-Z, and this is what we
6 expect and so we should keep giving the \$1 million every
7 year, it just sort of flies in the face of reason, I think,
8 in many cases. We understand transformational technologies
9 and we encourage it, it's the right thing to do. There are
10 several in all of these spaces that are really worthwhile.
11 It just maybe bears a bit of a closer look at expected
12 versus actual benefits. So just, again, wanted to just flag
13 that for discussion.

14 Thank you.

15 COMMISSIONER SCOTT: Thanks, Joe. I think that
16 that is a really important point and something that maybe
17 the team is already looking into but if not we should dig
18 into, and I think part of the reason we started with
19 expected benefits is because, you know, four or five years
20 ago many of the projects were still under construction.
21 They weren't actually up and running so we could look and
22 see what the actual benefits are, but now they are. So we
23 need to make that transition in our measurements. So it's a
24 really great point.

25 Let's turn to Howard.

1 COMMITTEE MEMBER LEVENSON: Thanks. And again, I
2 apologize, I'm going to scoot to CalEPA right after this, so
3 the timing is good.

4 I want to thank Jacob and team for putting
5 together a great report, and John, also, for facilitating
6 some discussions between the two -- the Energy Commission
7 and CalRecycle, so that's been really fruitful.

8 I want to make a specific comment about the
9 biomethane category and a recommendation. And we'll follow
10 up in writing before the deadline.

11 I think some of you can recall, for years we've
12 tried to make a distinction between landfill projects and
13 then pre-landfill biomethane projects. And to some extent
14 that's been reflected in solicitations under this category.
15 But in light of the couple pieces of recent legislation, one
16 that John brought up, the Senate Bill 383 on Short-Lived
17 Climate Pollutants which has a new goal of getting 75
18 percent of organics out of landfills by 2025, and then tied
19 with that, Assembly Bill 1826 of a couple of years ago which
20 is commercial organics recycling, we want to recommend that
21 we simply -- that the Commission simply change this category
22 so that landfill projects are not eligible for this
23 category. It's time to make that distinction, given these
24 significant new pieces of legislation.

25 So that's the main point that we wanted to make

1 today. And we'll follow up with that. And then Tim Hall is
2 here if you have any questions later on about things, so I
3 appreciate that.

4 COMMISSIONER SCOTT: Okay. Great. Thanks,
5 Howard.

6 Steven, and then John.

7 Go ahead, Steven.

8 COMMITTEE MEMBER KAFFKA: Again, I thought this
9 has been a very informative set of presentations from Staff,
10 so thank you.

11 I want to talk a little bit about the renewable
12 diesel issue.

13 California has created an incentive and market
14 for -- basically based on prices and credit prices and so
15 on -- for renewable diesel and biodiesel and other advanced
16 biofuels, for example, cellulosic biofuels, most of which in
17 the U.S. come from corn kernel fiber.

18 It's an interesting issue associated with the
19 renewable diesel issue. If we import diesel fuels made from
20 waste fats, oils and greases in other parts of the world,
21 that certainly helps stimulate the development of those
22 fuels worldwide. It's certainly one atmosphere in the
23 world. But they come into California at a high price. And
24 they could certainly be used in the countries of origin
25 equally as well.

1 So I think it's extremely important for very many
2 reasons, both for social justice reasons and for just, I
3 could say common political sense, that we emphasize as much
4 as possible in-state feedstock development across all the
5 sectors. The biodiesel one has been a savior for the Low
6 Carbon Fuel Standard Program in a certain sense because
7 there have been a lot of the volumes of fuels, as well as
8 the credits for the -- the LCFS credits and so on from --
9 those sources are becoming predominant. So it's important
10 that we keep encouraging the development of those.

11 But I want to just make this point, that as much
12 as possible we should be focused on in-state feedstock
13 development and production. Because I think in the end the
14 fuels that are being imported into California are needed
15 where they're produced as much as they are needed here.

16 COMMISSIONER SCOTT: Thank you.

17 John?

18 COMMITTEE MEMBER SHEARS: Yeah. I just wanted to
19 touch base on the blending issues. And I agree, I think
20 depending upon the manufacturer, sometimes it's specific to
21 the engine manufacturer that's supplying the engines to the
22 OEM. Sometimes, you know, it's a deal that's been struck
23 between the OEM and their engine supplier. So like Dodge
24 Ram, I think they'll take up to 20. So it depends.

25 There's still a lot of controversy and concern

1 within the OEM sector about, you know, afame (phonetic)
2 biodiesel versus renewable diesel, non-esterified renewable
3 diesel, or whatever we -- whatever acronym we're using today
4 for the hydrocarbon renewable diesel derived from biological
5 biogenic sources. But we also, at the same time, you know,
6 CARB has done a lot of research. And depending on what
7 generation of diesels we're talking about running those
8 fuels through, there are air quality impacts that we have to
9 consider. If it was all new generation post 2007, post 2010
10 where we have all of the emissions control devices on the
11 vehicles, especially if we're talking medium and heavy duty
12 and things like that, you know, it's less of an issue
13 because those can compensate for the slight increase in NOx
14 emissions, et cetera.

15 And then we have, over on the other side, you
16 know, ethanol being still very important to the Low Carbon
17 Fuel Standard and the Renewable Fuel Standard federally, the
18 blend wall issue. You know, where going forward is there
19 going to be a role for ethanol, given that a lot of
20 manufacturers, you know, are not enthusiastic about going
21 beyond ten percent because it has a lot to do with the
22 components in the plumbing of the fuel system and
23 evaporative emissions, and degeneration breakdown, chemical
24 reactivity that breaks down the materials that make up the
25 fuel supply system.

1 Because as we move towards 2025, right now we're
2 trying to -- there's a big effort trying to figure out, you
3 know, with the smaller -- the trend to meet the fleet
4 average targets for passenger vehicles especially means that
5 they're going to be downsizing the engines down to like,
6 four or three cylinder with turbo charging, et cetera. And
7 you need to move to higher octane fuel.

8 So the question is, you know, where is California
9 going to go, given that we'll still probably have to act
10 relatively independently of what the nation trend is? But
11 then also nationally, you know, what solution is going to be
12 made available to allow the auto industry to seamlessly
13 comply and keep emissions down in the vehicles, while also
14 not having the engines sort of tear themselves apart?

15 So those are issues. So I'm not sure if -- I just
16 wanted to raise, there's the federal effort through what's
17 called the Co-Optima Project that's looking at the octane
18 issue and the blend levels. So I'm hoping the Energy
19 Commission, as well as ARB, are both tapped into those
20 efforts.

21 You know, refiners could theoretically, you know,
22 redesign the fuels to increase the octane. The question --
23 again, it comes down to the cost benefit tradeoff as whether
24 to go that way or to increase, you know, blending levels
25 with things like ethanol. So --

1 COMMISSIONER SCOTT: Thanks John.

2 Steve, and then Bonnie.

3 COMMITTEE MEMBER KAFFKA: I want to -- thanks,
4 John, for bringing up the higher octane blend issue. I
5 talked about that at our benefits review last time. And it
6 does not -- higher alcohol blends or higher octane fuels
7 does not seem to be part of ARB's thinking and isn't really
8 mentioned, as far as I can tell, in the AB 118 documents.
9 But, as John mentioned, there's quite a bit of effort and
10 quite a bit of support for the idea of higher alcohol
11 blends.

12 Now in this scoping plan here today, in the AB 118
13 proposed report there is discussion of the upcoming Billion
14 Ton Study for 2016. I was a reviewer of that report. And
15 it very much focuses on the transformative benefits of using
16 woody biomass, certainly. But I don't really think that
17 woody biomass is necessarily an easy pathway to liquid
18 fuels. But it also provides tremendous support for the idea
19 of using perennial agricultural crops like grasses. And
20 there's value in those, particularly in places like the
21 agricultural heartland, but also elsewhere in the United
22 States for fragile lands and so on.

23 Well, then you run up against the blend wall
24 because we can certainly easily meet, in fact even surpass
25 based on current dry meal corn ethanol facilities the 15

1 billion gallon limit that we think we have in the United
2 States for that source. There's no room for these new
3 transformativ cellululosic fuel crops, really. Corn stover
4 and corn kernel fiber are other sources from existing first
5 generation crops that can meet that.

6 So with a higher alcohol use, it creates room for
7 the development of these landscape scale sustainability
8 solutions that are emphasized in the Billion Ton Study.

9 So I really would like to see the Energy
10 Commission, and also the Air Resources Board, consider that
11 more thoroughly. Even the Union of Concerned Scientists,
12 for example, has a study, you know, discusses this with very
13 favorable language. So I think there are least some
14 elements of the NGO community that think it's a good idea.

15 COMMISSIONER SCOTT: Thank you.

16 We'll go to Bonnie. And then I want to check and
17 see if there's anyone on the phone, on our WebEx who would
18 like to weigh in after. And when we go to the WebEx, I'll
19 come back to you, Jack.

20 Go ahead, Bonnie.

21 COMMITTEE MEMBER HOLMES-GEN: Thank you. And
22 apologies, also, for being late. We are releasing an
23 exciting new report today, I'll talk about it later, called
24 Clean Air Future, and it has to do with electric vehicles.

25 But I just wanted to make a comment and ask a

1 question. And I appreciate the opportunity to comment on
2 this, and the presentation is very helpful. And I just
3 wanted to underscore the ongoing concern in this category,
4 that we are paying close attention to any potential air
5 pollution emission increases.

6 And I think John brought up the NOx emissions.
7 And I appreciate that you included in the overview about --
8 I appreciate the expanded discussion of air quality and the
9 state implementation plans. And the South Coast Air
10 District is writing a plan right now to achieve an 80
11 percent reduction in smog-forming emissions by the 2030s.
12 And, you know, that is a huge task.

13 So I just wanted to make sure as we're looking at
14 some of these categories, like biodiesel, I know that the
15 Air Board is looking very closely at this, but that we are
16 paying very close attention to the air quality impacts of
17 any projects and fuels that we are promoting, and looking
18 ahead, making sure that we're not going to be adding to the
19 air pollution burden.

20 And I also just wanted to note, it's very
21 exciting, some of the progress that's being achieved with
22 biomethane, and you noting in here the importance of
23 biomethane as serving as a low carbon substitute for natural
24 gas and a source for renewable hydrogen. And I know we've
25 had a lot of conversations about that in the natural gas

1 category, about how can we be focused more on these cleanest
2 options for biofuels.

3 And I'm wondering, I was kind of looking in this
4 chapter to try to get a sense, I know this is not a huge
5 amount of money, but how much are the projects that we're
6 funding really moving the needle in terms of being able to
7 take more advantage of biomethane as, you know, cleaner GHG
8 reducing substitute for natural gas? And I was just
9 wondering if you could comment about that.

10 COMMISSIONER SCOTT: Okay. We'll follow up with
11 our Biofuels Team. It looks like Steve might have an answer
12 for you, so we'll turn to him. Then I want to make sure we
13 don't leave out our Advisory Committee Members on the WebEx.
14 And then we'll go to Jack for his question.

15 COMMITTEE MEMBER KAFFKA: I think -- this is Steve
16 Kaffka. I think that some of the ARB 118 investment funds,
17 in fact, have led to increased potential and/or actual
18 biomethane supplies that are going into transportation.
19 There's a big project coming online at CR&R, for example, in
20 Paris that has had support from I think this program or
21 others that is going to be -- in fact, it's coming online
22 now. And I think it's kind of a glittering success, really.
23 And there's other smaller biomethane producers around.

24 There is a very heavy lift, for example, in the
25 dairy sector to bring about more methane capture and use.

1 It's just simply a matter of cost. I mean, the dairies are
2 there and the feedstocks are there, but building, you know,
3 the cost of building an anaerobic digestive system and
4 operating it and creating clean enough gas for compressed
5 natural gas uses, that's where the public good cost comes in
6 between the different in what -- natural gas being so cheap,
7 in fact, that's one of the great limitations.

8 I think there is potential, myself, for rice/straw
9 as a major feedstock for biogas. And it also reduces
10 methane emissions from the fields and so on.

11 But anyway, there's still significant public good
12 or cost or need to sustain investments to see those things
13 come about, but I think it's promising. I think it's
14 promising in California. The policy instruments are mostly
15 there or partially there.

16 COMMISSIONER SCOTT: Let me check, do we have
17 Advisory Committee Members on our WebEx that would like to
18 comment on the biofuels section?

19 COMMITTEE MEMBER JAHNS: Sure. This is Claire
20 Jahns. Can you hear me?

21 COMMISSIONER SCOTT: Yes, we can. Hi Claire.

22 COMMITTEE MEMBER JAHNS: Great. Hi. Thanks for
23 letting me call in, despite the fact that I would normally
24 be in Sacramento.

25 I just want to kind of echo the appreciation for

1 the presentation, both this one, and then the overview
2 presentation that Staff has given. And also appreciate the
3 note that there are additional state priorities, certainly
4 in the climate, fuels and energy -- or climate change and
5 energy space, but also should be factored into kind of
6 decision making in some way or another. And I'm thinking of
7 things like the Short-Lived Climate Pollutant Program, and
8 now the supporting legislation, as well as efforts to save
9 our organic waste from landfills. And, of course, efforts
10 have ramped up over the last year to figure out how to
11 improve utilization of dead and dying trees associated with
12 the bark beetle and drought tree kill.

13 And it just seems like (indiscernible) or some
14 kind of semiformal way to look at those kind of co-benefits
15 outside of the Low Carbon Fuel Standards contribution in
16 reviewing projects.

17 COMMISSIONER SCOTT: Thanks Claire.

18 Any other members on the -- Advisory Committee
19 Members on the phone?

20 COMMITTEE MEMBER MUI: Yes. Hi. This is Simon
21 from NRDC. I just wanted to comment.

22 Yeah, thanks for the presentation on the biofuels
23 supply portion. Just two comments.

24 One, you know, I think Joe Gershen had echoed some
25 of the -- sort of had mentioned co-processing or renewables

1 with current refineries. And I did want to flag that as
2 something for CEC to, maybe going forward, take a look at.
3 We're starting to see petroleum refineries themselves start
4 talking about co-processing of renewables.

5 And so the question, I guess, would be how does
6 that sort of fit into the rubric here in terms of as CEC
7 looks at sort of biofuels supplies?

8 So just something to keep on CEC's radar screen.
9 And I know ARB is planning to have a workshop on this issue
10 pretty soon.

11 The second item is in terms of -- let's see, I
12 took some notes here -- is in terms of as you look towards
13 the types of feedstocks that -- you know, these types of --
14 as you emphasize the waste feedstocks more heavily, one of
15 the questions, I guess, is in terms of -- as the
16 technologies develop, obviously the types and levels and
17 commercialization will be at different stages for some of
18 the next generation types of fuels. And one of the
19 questions that's ongoing, both in the legislation and in the
20 industry, is in terms of the best way, given limited funds,
21 to finance, to magnify, amplify the benefits of limited
22 dollars.

23 And so one of the things, we recently saw a report
24 from ICCT on some types of mechanisms to look at in terms of
25 a reverse auction. I know that there's been other

1 discussions, of course, about things like a price floor for
2 the LCFS. It would be good to get -- I think for CEC to
3 start to weigh in, perhaps, or to look at these types of
4 different mechanisms, just tying back to chapter two's
5 discussion, as well as CEC looks towards ways to leverage
6 funding going forward, away from straight-out incentives to
7 ways to magnify both private dollars and leverage them.

8 COMMISSIONER SCOTT: Thanks. I think one thing
9 that we are always open to and always thinking about having
10 to do is how to maximize the reach of our limited dollars.
11 And so we warmly welcome suggestions on that.

12 I think, as you all know, typically we'll do a
13 pre-solicitation workshop in each of our categories before
14 we're getting ready to disburse the funding to really
15 understand, what's the latest and greatest information
16 that's out there. Is there something that we should be
17 considering that we aren't that ought to be included into
18 the solicitation. And so we do a lot of outreach for the
19 type of information that you all are providing here around
20 the table as we're designing those solicitations, to make
21 sure that they are, you know, as relevant as they possibly
22 can be, taking into account the latest status of the
23 industry. So we think about -- we're very mindful of that
24 as we're developing the solicitations that we put together.

25 Let me turn to Jack, and then I had Joe, and then

1 Steve. And then we'll see if there's anyone else on -- the
2 Advisory Committee on the phone.

3 Go ahead, Jack.

4 COMMITTEE MEMBER KITOWSKI: Thanks, Janea. And
5 thank you for the presentation and the information.

6 I want to -- I'll start just by feeding a little
7 bit off of what Simon said. Many of the people around here
8 know the ARB and the governor's proposed budget last year
9 was scheduled to get \$50 million for -- related to this
10 category. It would have been complimentary. We were
11 looking to use it for in-state -- a per gallon in-state
12 production. We thought that would have worked very
13 synergistically with the types of grants and incentives that
14 CEC was giving off.

15 But even beyond that, we were looking, thinking of
16 trying to utilize more clever options that I think both of
17 our agencies haven't been able to do, something like the
18 reverse auction, or some type of, you know, green financing
19 that can be leveraged for many years. Those are heavy
20 lifts. They don't fit within our current structure. Many
21 times they probably take a legislative buy-in from the
22 beginning in order to get the authority to do the funding in
23 a different way for it to extend a longer period of time to
24 get more up front, but then have that commitment last
25 longer.

1 It is something that I think is worth investing
2 the time, you know, trying to, I don't know, bash your head
3 against the wall and maybe see if we can make a little crack
4 in that. It's sort of been on our list for years and years,
5 and we haven't been able to make a lot of headway. But, you
6 know, moving forward, we are looking for more creative
7 options. Maybe that is one of the areas we are able to make
8 some success out of.

9 The other was just a more general comment. ARB is
10 strongly supportive of in-state production, especially use
11 of waste feedstocks and ways to increase the biofuel
12 production in our state. And many of the projects -- and
13 biomethane was discussed previously. The LCFS Program
14 provides a very nice lucrative incentive program for say
15 methane dairy digesters. But that in and of itself is
16 probably not enough.

17 I mean, there are issues to be resolved. The
18 financing issue, often I think folks still may need a little
19 more up front. But then also there's just coordination
20 issues with local rules and permitting and local
21 communities. There are issues to be resolved on all of
22 these. And I think they end up needing a cooperative effort
23 by all of our agencies and the local agencies to work
24 through them, especially the first, you know, the first few
25 are always more challenging.

1 COMMISSIONER SCOTT: Thank you.

2 Joe, and then Steve.

3 COMMITTEE MEMBER GERSHEN: Thanks. Sort of going
4 backwards, thanks, Simon, your talk about co-processing.

5 Also, I just want to point out, there's also
6 renewable hydrogen technologies that can lower CI
7 significantly. And those -- that renewable hydrogen can be
8 also used in the refining process. And, you know, we know
9 that there are some that will lower CI up to maybe 80
10 percent of the hydrogen that's used in that processing.

11 And then John and Bonnie both talked about NOx
12 reduction and issues around that. And we know that there's
13 a significant effort going into mitigating NOx with
14 additives and other things. And we expect to see some
15 pretty exciting things happen in the next -- certainly
16 before 2018. And also in 2023 the fleet transition is
17 required to be in place. So we know that sort of there's a
18 fairly short time frame that we'll deal with the NOx
19 emissions in biodiesel. So I just wanted to make sure I
20 pointed that out.

21 Thanks.

22 COMMISSIONER SCOTT: Great. Thanks.

23 Steve, and then Tyson.

24 COMMITTEE MEMBER KAFFKA: I couldn't let Claire
25 Jahns comment go without comment. I wanted to say amen.

1 I know that we are very much concerned with carbon
2 as the primary metric by which we measure success in these
3 programs. But particularly in the biomass area, all biomass
4 use has landscape-scale effects, both positive and negative.

5 And to the degree that we can figure out a way -- and this
6 is very difficult to monetize benefits such as fuel load
7 reduction in forests or dead tree removal in forests, which
8 is really a generational challenge, it's not just a one-year
9 or one-off right now thing.

10 It's a process that we need to put in place so
11 that our forests can be usable, sustained and manageable in
12 a warmer, drier future, let's say. And we certainly want to
13 sustain the wellbeing and livelihood of rural communities
14 and people who are dependent on forestry and agricultural,
15 to the degree possible.

16 The dairy project, for example, capturing methane
17 is only one benefit, potentially, if we could create
18 commercial-type fertilizers from the residuals, the dairy
19 manures, then you also help protect groundwater, and in the
20 process you help sustain really one of the most productive
21 and resource-use efficient dairy industries in the world.

22 So I think it's worth some consideration in the AB
23 118 program, and also for the ARB program, to try to make
24 those kinds of benefits more explicit and important.

25 COMMISSIONER SCOTT: Thanks.

1 Tyson, and then Brian, and then Jan.

2 Go ahead, Tyson.

3 COMMITTEE MEMBER ECKERLE: Thanks, Commissioner
4 Scott. It's been a great discussion. I think this is a
5 really important section.

6 I just want to throw out a little bit of a plug
7 from GoBiz. You know, in-state production is a big deal.
8 We want to make sure we develop jobs and all the resources
9 here. I just wanted to let people know and make sure they
10 were aware that from the go, what Jack had said, you know,
11 in terms of permitting, siting, there's a lot of services at
12 GoBiz that I don't personally do, but we can connect you in,
13 in terms of developing biofuels projects, that, you know,
14 in-state production.

15 And so I just wanted to throw that out there and
16 make sure people are aware that at GoBiz, that's kind of
17 what we do is assist with the local community development
18 process.

19 COMMISSIONER SCOTT: Thanks.

20 Brian, and then Jan.

21 COMMITTEE MEMBER GOLDSTEIN: Well, I'd like to say
22 that it's nice to hear Joe firmly planted in the hydrogen
23 camp finally, so good to hear those comments.

24 But I'd like to echo those comments. And I was
25 considering, you know, saving the biomethane and the

1 hydrogen intersection comments for the hydrogen section, but
2 I think this is an appropriate time to talk about it.

3 And I'm wondering if the Commission looks at the
4 incremental costs and incremental benefit of adding on a
5 hydrogen production capacity to existing biomethane
6 production projects? And, you know, I'm not sure that the
7 dynamics would work for every project. But it seems like
8 it's worth looking in to in an attempt to kind of, you know,
9 leverage a little bit from each program to create kind of
10 something that can serve the greater good and certainly
11 serve both programs very well.

12 COMMISSIONER SCOTT: Thanks. I don't have a
13 specific answer right now. I don't know whether we'll have
14 to -- we'll do a little digging and circle back with you on
15 that specific question.

16 Jan, go ahead.

17 COMMITTEE MEMBER SHARPLESS: This relates to the
18 dairy issue and methane gas. Electricity is a
19 transportation fuel, as well. So this bridges between the
20 transportation side of the Energy Commission and the
21 renewable electricity side of the Energy Commission.

22 There's been a lot of effort, I think, in terms of
23 helping the dairies deal with some of the issues that they
24 have with water contamination and air contamination and so
25 forth, and meeting the portfolio, the electricity portfolios

1 through renewables that deal with dairies and methane.

2 So my question is: How do you take that part of
3 what your organization is doing to help bring in renewables
4 from those kinds of sources to calculate what it might mean
5 in terms of electricity fuel, and do you account for it in
6 your report?

7 COMMISSIONER SCOTT: It's not in this Investment
8 Plan, just because the Investment Plan is really kind of
9 looking at how much money to put into each of the categories
10 that we're funding. But we do a lot of that work throughout
11 Integrated Energy Policy Report and the planning and the
12 discussions that go on there, especially with our demand
13 forecast shop, because they do need to look at how much
14 electricity is being used, and also how much electricity is
15 being produced. And so a lot of that work goes on there.

16 Some of that work is actually taking place under
17 the work that we've been tasked with for SB 350. Because as
18 you can imagine, energy efficiency fits into that circle, as
19 well. We're asking buildings, for example, to be much more
20 efficient in how they use energy. At the same time, we're
21 asking them to put in hundreds of charging stations, where
22 they're going to increase their plug load when cars are
23 charging up. And so does kind of all of that fit together?
24 And so we're looking at most of that through the Integrated
25 Energy Policy Report process, but some of it within the SB

1 350.

2 COMMITTEE MEMBER SHARPLESS: Yeah. I just think
3 it maybe it might be an interesting footnote.

4 COMMISSIONER SCOTT: Yes. Absolutely.

5 COMMITTEE MEMBER SHARPLESS: And you may not be
6 able to take credit for the benefit under the funding of
7 this program, but it's a bigger window to show how the state
8 is progressing toward meeting the goals. If we only look at
9 this one section of how the state is meeting the goals and
10 do not recognize that electricity is a transportation fuel,
11 as well. And monies and different types of policies are
12 driving that aspect that helps this side, as well.

13 And the other thing that I wanted to ask was Bill
14 put up a slide where he showed like four -- there was a
15 university, a university -- or two universities and two
16 companies that were designing a tool that had to do with
17 forestry.

18 COMMISSIONER SCOTT: Let me go back and look at
19 those projects. Let me see here.

20 This is -- Bill, can you come back and please put
21 up your slide four? At least it's slide four in my
22 handouts. And we can follow up on that question.

23 MR. KINNEY: So --

24 COMMITTEE MEMBER SHARPLESS: It was before that
25 one. Earlier.

1 MR. KINNEY: This one?

2 COMMITTEE MEMBER SHARPLESS: Yeah. So \$2.2
3 million were spent with these four different projects. And
4 the idea was to develop a tool that would help assess --
5 help me out.

6 MR. KINNEY: So, actually, we had basically two
7 contracts, and then subcontractors under those two basic
8 contracts. And the purpose of the overall project was to
9 assess the sustainability and develop prescriptions for the
10 sustainable harvest of woody biomass for biofuel production.

11 COMMITTEE MEMBER SHARPLESS: So that gets to my
12 question.

13 MR. KINNEY: Okay.

14 COMMITTEE MEMBER SHARPLESS: There has been a
15 discussion about using forest waste and some of the barriers
16 that we're up against. It seems to me that these projects
17 were to help address some of the barrier questions, so I
18 think that sounds great. But now that they've been done,
19 what's been the impact of them? Are people out there now
20 asking to use the tool or is it just on the shelf, or what's
21 happening with them?

22 MR. KINNEY: Well, we're hoping to stage a
23 workshop with our investigators to explain the tools and
24 analysis that they've conducted more fully, and to sort of
25 get the stakeholders most affected by this area of biomass

1 conversion all, you know, in the same room or online in the
2 same meeting, so we can sort of brainstorm how to move
3 forward with the tools in the most effective way. We have
4 interest from other state and federal agencies that want to
5 utilize these tools, as well.

6 So we're just really completing -- well, so we've
7 got 11 different task reports. The two that we've made the
8 most progress in finishing the review are on Task 3, which I
9 mentioned, which is the planning tool, and Task 8 which
10 looked at the siting of potential biomass facilities. But
11 there's another seven or eight tasks that also provide sort
12 of, you know, a very fine-grained analysis of different
13 aspects. We have one whole task on wildlife impacts, for
14 instance. So there's a whole suite of resources and impacts
15 that we tried to include in this overall project. And the
16 integration itself was one major task.

17 So you can imagine, it's going to take us awhile
18 to, you know, roll all of this out. And we've got to have,
19 you know, our stakeholder groups that are interested come
20 forward and help us to figure out the best way to provide,
21 you know, the information to them, so --

22 COMMISSIONER SCOTT: It sounds like in progress.

23 I'm going to ask that we take this discussion
24 maybe offline so you guys can talk in a little more detail.
25 I want to make sure that we have a chance to get any burning

1 comments from Advisory Committee Members on the WebEx, and
2 to do the public comment before we hit kind of our lunch
3 break. But all of these topics are so interesting that we
4 could spend a whole day really in the nitty gritty of each
5 one.

6 So let me see, Mickey, if there's anyone else,
7 Advisory Committee Members on the WebEx. You are un-muted.

8 So if you'd like to weigh in, now is a good time.

9 Okay, I see two burning comments here at the
10 table, and then I'm going to turn to the public comment. I
11 have two blue cards on biofuels right now.

12 Steve, go ahead, and then John.

13 COMMITTEE MEMBER SHEARS: I just wanted to respond
14 a little bit to Jananne's comment about whether we should
15 make electricity or transportation fuels. It's an
16 interesting question.

17 The RPS is much more advanced in terms of being
18 able to be met in California than the Low Carbon Fuel
19 Standard and transportation reduction. So what's the best
20 policy?

21 I mean, people say a carbon tax is the best, and
22 then you get -- all of these things get integrated. But,
23 for example, a carbon tax might not tackle the most
24 difficult thing, which is the transportation sector as
25 directly as the Low Carbon Fuel Standard, for example, which

1 is focused on that does. So I think for the biogas, it's
2 going to be mostly much more valuable as a transportation
3 fuel than as an electricity source.

4 Having a lot of little electricity generators, you
5 know, engine gen sets around, is not necessarily as
6 efficient as putting it in the pipeline and taking it to an
7 advanced combined-cycle power plant, like we have in
8 California, in terms of recovering energy. And so it's kind
9 of a complicated process.

10 But I think that at least in the dairy sector, and
11 perhaps in the MSW sector, that the transportation fuels are
12 going to likely be the better use.

13 COMMITTEE MEMBER SHARPLESS: I would just say, as
14 far as electricity is concerned, when you look at the
15 dairies, they have a relationship with the water districts,
16 who are also in the process of doing electricity. So you
17 already have those relationships and market connections that
18 you don't yet have in transportation.

19 COMMISSIONER SCOTT: John, go ahead.

20 COMMITTEE MEMBER SHEARS: Yeah. I want to thank
21 Jan for bringing us back to this recent discussion in terms
22 of the studies. I just want to highlight, this is a classic
23 nexus in terms of SLCP and how outcomes from this kind of
24 work could help inform, you know, what the state, even the
25 West Coast could be doing, given that, you know, wildfires

1 are a major source of black carbon.

2 I was just curious, these kinds of reports, you
3 know, back in the day I found it much easier to navigate the
4 CEC website to find reports because they were all on
5 reports' pages. And today it's like if you don't know what
6 the report is and what the number is or whatever, you can
7 spend hours trying to search the CEC website to locate a
8 report. So if you don't have the right bulien (phonetic),
9 forget it.

10 Are these types of reports clearly -- I don't
11 recall seeing them clearly linked off of the AB 118 pages.
12 And if not, why not?

13 And I think it would also be good to sort of have
14 a page, you know, for this itself sort of highlighting and
15 sort of giving a quick overview of what -- the work and the
16 various reports, which I don't know if they're ready for
17 public release yet or not. But -- because, you know, some
18 of us here around the Advisory Committee could really help
19 sort of publicize the word around this and help recruit, you
20 know, active stakeholders that are working in this space,
21 but not necessarily the traditional stakeholders that the
22 Energy Commission may have engaged in. So I just wanted
23 to --

24 COMMISSIONER SCOTT: Yeah. I think that would be
25 great. I appreciate that offer. We're always looking for

1 ways to kind of broaden our reach from folks who sort of
2 identify themselves as energy people. Because, as you
3 mentioned, a lot of the work that we do impacts folks far
4 beyond people who will just identify themselves as loving
5 energy.

6 I agree, our web page is a little bit difficult to
7 find things on. Sometimes I know it's there because I've
8 seen it and I can't find it again, so I hear you on that.
9 We are working to overhaul the web page a little bit. And
10 the idea to put all the reports in one place is a great
11 idea, so I will make sure that that's kind of on the list of
12 what folks are working on.

13 COMMITTEE MEMBER SHEARS: (Off mike.)
14 (Indiscernible.)

15 COMMISSIONER SCOTT: We'll have to go back and
16 look at that, yeah, because we want people to be able to
17 find the great work we're doing.

18 So I have two public comments here. We're going
19 to ask that folks limit their comments to three minutes or
20 less.

21 I'm going to start with John Boesel from CALSTART.
22 Welcome. And following John will be Naveen Berry. And I
23 think our staff is going to put a timer up there for you
24 even.

25 MR. BOESEL: Thank you, Commissioner Scott. And I

1 will do my best to be a role model here and stay within the
2 time limit, as I'm sure my colleague from the South Coast
3 will.

4 I just want to thank you very much for the
5 opportunity to share our thoughts today. I'll be coming up
6 here several times, because we have comments on each of the
7 sections.

8 I just think that we want to emphasize that the
9 Low Carbon Fuel Standard is a very critical policy in that
10 what we do here should be very much linked and done in
11 concert with that policy. I think it's incredibly important
12 that the Energy Commission be a strong advocate for
13 supporting a renewed post-2020 Low Carbon Fuel Standard
14 credit a standard in policy, and that we really need to move
15 forward with that. And that that's the kind of discussion
16 with the four energy leaders when they convene, that they
17 should be supporting that.

18 I think the CEC can and should continue to play a
19 role in increasing both in-state production and the
20 advancement of next generation low carbon fuel technologies.
21 We want to be part of the wall-banging/head-banging process
22 in trying to work. We offer our expertise to work with you
23 and the Treasurer's Office to explore innovative financing
24 opportunities. I think there are opportunities out there
25 that we should pursue.

1 I want to really very much echo the statements
2 about marrying this effort with Senate Bill 1383, addressing
3 the short-lived climate pollutants, really putting an
4 emphasis here and now on developing renewable natural gas
5 and putting it in the transportation sector.

6 Just last week the Air Board rejected the San
7 Joaquin Valley APCD's 2.5 -- PM2.5 Plan. They want to come
8 back, give them 90 days to come back with a new plan. If
9 they use methane emissions or methane to power generators,
10 generate electricity, you are -- it's a good thing, but it's
11 actually a bad thing because you're creating more NOx
12 emissions. That doesn't happen when you put it in the
13 transportation sector. And I think CEC funding can play a
14 very big role in helping to make that happen.

15 Senate Bill 1383 calls for five pilot projects.
16 We want to get those on the ground, happening right away.
17 And I think CEC funds, married with CDFA funds, CalRecycle
18 funds can help make that happen, and I'm happy to be part of
19 that discussion.

20 Thank you.

21 COMMISSIONER SCOTT: Thank you, John.

22 Naveen Berry.

23 MR. BERRY: Thank you. Again, Naveen Berry from South
24 Coast AQMD. And I wanted to support the proposed allocation
25 for the biofuels.

1 You know, as we've said many times before, we
2 consider the use of biofuels or biomethane in conjunction
3 with the low-NOx or near-zero natural gas engines as a key
4 near-term ozone strategy, again, concurrent criteria and GHG
5 reductions.

6 With that, I wanted to also complement the
7 Commission and many of the Committee Members today in
8 bringing up criteria pollutants and ozone nonattainment,
9 like ours in the South Coast, and really recognizing the
10 need for that, including the CARB Multi-Source Strategy
11 document and the Sustainable Freight Strategy, which are
12 very much in parallel with our Air Quality Management Plan
13 that's under development right now. So I wanted to thank
14 you.

15 The South Coast continues to also cost share a lot
16 of the local production of biomethane with the CEC.
17 Somebody mentioned CRNR. We also recently got into a
18 contract with another local producer of biomethane that uses
19 biosolids from wastewater treatment plants. So we continue
20 to emphasize this area, and look forward to working with CEC
21 on additional projects.

22 Lastly, and it doesn't really quite fit into the
23 biofuels area, but waste -- page 17 of the draft plan
24 mentions waste-based feedstock. So I wanted to actually
25 suggest that the Committee consider waste gas streams from

1 industrial processes, as well. And it's kind of thinking
2 out of the box, but often these potential energy source are
3 flared or combusted. And often these result in fairly high
4 GHG emissions, but also some criteria and toxic emissions,
5 as well.

6 And these waste streams, we find, can be used to
7 generate hydrogen electricity, heat, or in some cases,
8 depending on the technology used, all three at once. And
9 those would certainly further the stated goals of GHG
10 reductions, petroleum reductions, and criteria pollutant
11 reductions. So the draft AQMP actually includes such a
12 measure to encourage the production of these types of energy
13 sources from waste gas streams from industrial sources. So
14 I wanted to include that in my comments.

15 I also want to thank the CEC for their continued
16 support for the programs, biofuel production and supply
17 programs in the South Coast. And again, we look forward to
18 working on many more.

19 Thank you.

20 COMMISSIONER SCOTT: Thank you. We appreciate
21 your partnership, as well.

22 Let me check to see if we have any hand raisers.
23 I'm seeing, no, we don't have hand raisers.

24 So let's go to Steve.

25 COMMITTEE MEMBER KAFFKA: I'm not sure where this

1 fits, but California has developed so much solar energy and,
2 to a certain degree, wind that it's starting to be a load
3 management issue. And other places in the world have also
4 experienced times when there have to be alternative energy
5 production that has to be grounded or wasted.

6 So one potential way of using that is to create
7 hydrogen. And there's research efforts that are going on to
8 help balance load and supply. And I think that's important
9 somewhere in this discussion and worthy of some kind of
10 consideration here.

11 COMMISSIONER SCOTT: Thank you.

12 I would like to remind folks, if you make a public
13 comment and you have a business card, if you would kindly
14 give it to our Court Reporter, he'll be sure to get your
15 name spelled right in the transcript, so that would be
16 terrific.

17 So we are just a couple minutes after 2:00 [sic].
18 We will break for lunch. So please come back at one
19 o'clock. We'll get started. We have quite a few categories
20 left, so we're going to try to start right at 1:00. Please
21 come back at one o'clock sharp. See you then.

22 (Off the record 12:02 p.m.)

23 (On the record at 1:05 p.m.)

24 COMMISSIONER SCOTT: We are going to go ahead and
25 get started on our next section.

1 So let me turn it back over to Jacob to get us
2 going this afternoon.

3 MR. ORENBERG: Great. Thank you, Commissioner.

4 We will continue on with a brief presentation from
5 our Electric Vehicle Team with Brian Fauble.

6 MR. FAUBLE: Good afternoon, Commissioner, Deputy
7 Director, and Committee. My name is Brian Fauble and I'm
8 with the EV Unit at the Commission.

9 Let's get this in the right spot. There we go.

10 I'm going to start with -- the first slide shows
11 kind of the type of projects the EV Unit has concentrated on
12 through the years, beginning with planning for PEVs and
13 infrastructure, leading to upgrading the legacy chargers,
14 then increasing the number of chargers throughout the state,
15 and most recently, starting to concentrate on the corridors
16 to allow travel border to border, Oregon to Mexico, and to
17 Nevada and Arizona.

18 To date, as of June 2016 the Energy Commission has
19 funded a total of \$49.5 million dollars for EV
20 infrastructure, for a total of 7,632 chargers, and a total
21 of 8,530 connectors. There's also \$13.87 million currently
22 pending approval at future business meetings to fund
23 additional DC fast chargers on California corridors. We
24 also have funded \$2 million with the CPCFA for a Loan Loss
25 Reserve Financing Program for small businesses to install EV

1 charging infrastructure.

2 This map shows, of October 2016, that the number
3 of level two charging outlets in the state, currently there
4 are 8,554 level two public outlets. And the CEC has funded
5 almost 2,000 of those outlets, which represents roughly 23
6 percent of the public available level two outlets.

7 The next few maps are going to be kind of a story
8 of California's DC network evolving over time.

9 This first one is our solicitation. About three
10 years ago we funded level two and fast chargers. But on
11 this map alone, it's fast chargers. Red represents existing
12 and planned at the time. And with this solicitation three
13 years ago we added -- I'm sorry -- we added 64 fast chargers
14 at 50 sites, which are represented by the blue dots.
15 Earlier this year we awarded projects that added 41 sites
16 with 61 fast chargers and 42 level two chargers throughout
17 the state. This was our north-south corridor solicitation,
18 concentration on completing our section of the West Coast
19 Electric Highway that includes I-5, 99, and southern U.S.
20 101.

21 And just, what, today's the 27th, almost two -- a
22 little over two weeks ago we just announced our awards for
23 our interregional corridor solicitation. We are funding the
24 \$13.87 million to have 126 new fast chargers at 79 sites
25 throughout the state. These corridors now will complete

1 southern -- northern U.S. 101, as well as routes leading to
2 Nevada and Arizona, and connecting corridors between major
3 travel routes.

4 The Energy Commission is not alone in expanding
5 California's DC fast charging network. This slide
6 represents just a handful of some of the companies and
7 organizations that are working on DC fast charging efforts
8 in California.

9 We also concentrate on data collection and
10 analysis. We partner with NREL, the National Renewable
11 Energy Laboratory, who manages the Nationwide Alternatives
12 Fuels and Data Center. They help us try to automate data
13 collection of networked EV charging stations to streamline a
14 method for network providers to provide us data so we can
15 analyze it more accurately.

16 We also are beginning to use the electric vehicle
17 infrastructure projections, or EVIPro (phonetic), which will
18 start taking regional data variables and kind of give us an
19 output of really more defined locations for fast chargers by
20 the need at a county level, basically.

21 The next few slides are going to highlight just a
22 few of our recently completed projects that we wanted to
23 point out.

24 The first one was with the U.S. Green Vehicle
25 Council, installing 10 25-kilowatt fast chargers along

1 Interstate 5 and Highway 99. All the sites were either
2 hotels, motels or inns. And they are all completed now.

3 We also funded a project to install 48 level two
4 connectors and one fast charger at the City of Santa Clara's
5 parking garage that's right across from Levi's Stadium for
6 the 49ers. It also has an intelligent energy storage system
7 that connect with the facility, and manages the battery
8 systems and cuts demand charges by up to 50 percent.

9 COMMISSIONER SCOTT: Let me just note, that's 49
10 chargers right across from the 49ers Stadium.

11 MR. FAUBLE: Yes. This last one is with the City
12 of Burbank. We funded eight level two charging stations at
13 curbside locations that were heavily frequented
14 destinations, including libraries, restaurants. And they
15 are also located pretty close to multi-unit dwellings. And
16 so it served a multipurpose. And they're very highly
17 visible on curbsides.

18 We also continue to monitor the vehicle market and
19 consumer responses for the state. We evaluate electric
20 charging requirements to support infrastructure demand
21 through focused funding efforts. We continue to work with
22 community-based programs in the underserved areas. And we
23 work cooperatively with utilities, regional readiness
24 planning coalitions, the air districts, the OEMs on
25 strategic placement of the charging infrastructure and

1 deployment of adequate service to support chargers and
2 support zero-emission vehicle deployment.

3 COMMISSIONER SCOTT: Great. Thank you very much,
4 Brian.

5 We will now turn to our Advisory Committee
6 discussion of the \$17 million allocation for electric
7 charging infrastructure.

8 One thing I would highlight that Jacob mentioned
9 in his presentation at the very beginning is we are well
10 aware of the utility investments that are coming in this
11 space, of the VW settlement that's coming in this space, and
12 other efforts, NATO (phonetic) and others. But given the
13 level of infrastructure that we need, we think it makes a
14 lot of sense to continue sort of a pace and be flexible and
15 nimble and strategic in targeting things that may be being
16 left out of those programs. So that's my thought on that
17 for a minute.

18 Let's start with John Shears.

19 COMMITTEE MEMBER SHEARS: So my -- thanks for that
20 quick update on the state of CEC-funded charging ecosystem.

21 My first comment actually relates to what you were
22 saying. And also, I was hoping it would provide us with an
23 excuse to introduce one of your new hires here today, but I
24 don't know if he's back from lunch.

25 I'm just curious as to whether there's been sort

1 of -- I'm getting the sense that it really should become
2 more of a formalized process in terms of I know there's been
3 a lot of informal sort of coordination between all the
4 efforts. And I, myself, am involved in some stuff with EVgo
5 as part of the NRG settlement. So that's -- even that's
6 still out there in terms of the original tranche -- large
7 tranche of make-readies and fast chargers that were supposed
8 to be deployed.

9 So I was just wondering if any kind of discussions
10 had sort of been happening to get to start formalizing?
11 Because I think now we need to be much more strategic. And
12 I think also, with some of the funding coming from CARB, and
13 there's a small amount, \$8 million that was just approved to
14 go towards, again, pilots for disadvantage communities, it
15 would be good for all of the key players to sort of have a
16 formal strategizing process to make sure that, you know,
17 we're not -- CEC, for example, or ARB are not funding
18 duplicative charging stations. Because I know there's a lot
19 of -- it's very dynamic right now in a lot of the key areas
20 where people want to deploy. So just trying to think about
21 how to maximize efficiency and avoid overlaps, et cetera.

22 And then the other thing that I wanted to just --
23 which raises -- you know, so we have the Bolt, Bob Bolt, not
24 Victor Bolt, coming to market. It now looks like the Model
25 3, the latest out of Tesla, now we're looking at 2018 for

1 that, but within a time horizon for funding and deploying,
2 you know, tranches of charging infrastructure. You know,
3 and this is something some of us were cautioned about
4 several years ago is, you know, we need to keep track of
5 what's happening, what the capability of -- the capabilities
6 of the vehicles and how that influences how the consumers
7 use the vehicles in terms of how they relate to the charging
8 infrastructure that they access and use, so how -- sort of
9 part of that ecosystem approach.

10 So we should start -- you know, I think we need to
11 be thinking about kinds of research questions about how we
12 can be tracking that more closely, especially with the Bolt,
13 that will give us an initial peak. But, you know, the i3 is
14 coming out with a little more range. They goosed the
15 battery. BMW has goosed the battery. Nissan has said that
16 they'll respond with a 200-mile range LEAF. VW has said
17 that they'll come out with -- so everyone is responding to
18 the Bolt and the Tesla Model 3. So over the next two or
19 three years we can expect, I think, to see a significant
20 number of 200-mile range, reasonably costed to the consumer
21 EVs in that \$35,000 to \$45,000 range before rebates and tax
22 incentives.

23 So I'm thinking that we need to be incorporating
24 our thinking into the kinds of questions, you know, that
25 NREL, that the funded contractors -- I'm sure, you know,

1 Mark and those guys are probably also thinking about that.
2 But we need to just check with each other and touchstone on
3 the kinds of questions, and making sure that we're
4 collecting the data that can allow us to answer those
5 questions.

6 COMMISSIONER SCOTT: I think to your point about
7 coordination, we are coordinated quite a bit, both in, I
8 think, formal and informal ways. So I would consider this
9 Advisory Committee more of a formal way of coordination,
10 where we've got Air Resources Board, the GoBiz, key partners
11 in the state. And we're similarly on various boards, not
12 boards but committees, advisory committees of Air Resources
13 Boards, as well.

14 I think that under SB 350 we have quite a bit of
15 formal coordination going on around the transportation
16 electrification that the legislature has asked the PUC, ARB
17 and Energy Commission to work on. We have a group there.

18 And I might turn to Tyson for just a minute
19 because he is coordinating through the Governor's Office
20 another group of folks who are working together.

21 So do you want to say anything about that, Tyson?
22 If not, you don't have to.

23 COMMITTEE MEMBER ECKERLE: Well, the ZEV Action
24 Plan, but also -- so recently at GoBiz we expanded our unit.
25 So when I first came onto GoBiz we were, you know, mostly

1 focused on hydrogen and plug-in, and now we're focused on
2 both. And it's just bringing on staff to be able to do
3 that.

4 And so my job now is to actively engage in the
5 plug-in space and make sure we are coordinated and moving
6 together strategically. And so I definitely would
7 welcome -- you know, I think we're looking for input all the
8 time. And one of the things we're thinking about is how do
9 we create kind of an infrastructure plan going forward, you
10 know, with -- you know, almost like the adaptive management
11 type of bench, you know, what data are we going to be
12 collecting? How are we going to be making the decision
13 going forward? I mean, there's a lot of decision to make.
14 But there's also -- there's a lot happening the marketplace.

15 So that's kind of to underscore where we are. And
16 this is to underscore Commissioner Scott's point, I mean,
17 there is a lot of coordination, not even through me but just
18 with the agencies that are already happening.

19 COMMITTEE MEMBER SHEARS: Yeah, you know, I'm
20 aware of all of that. I'm just -- I just want to make sure
21 that it's something that, you know, there's a stream, not
22 just sort of like this thing because it's legislatively been
23 required, and then at the end of the year or whenever the
24 reports are done.

25 So -- and I also want to take an opportunity to

1 put a plug in for your new hire, who is now here. So Noel
2 Crisostomo has recently been hired by the Energy Commission
3 and will also deal with this headache. So congratulations
4 of condolences to Noel.

5 COMMISSIONER SCOTT: Congratulations for sure, and
6 welcome, a hearty welcome to Noel to our team. We're
7 excited to have him.

8 Let's go to Eileen, and then Joe.

9 COMMITTEE MEMBER ECKERLE: I have more to say, but
10 I can say it later.

11 COMMISSIONER SCOTT: Okay.

12 COMMITTEE MEMBER ECKERLE: Yeah. Right.

13 COMMISSIONER SCOTT: Okay.

14 COMMITTEE MEMBER ECKERLE: I got to jump ahead for
15 just a second. Yeah.

16 COMMITTEE MEMBER TUTT: The Chairwoman has got it
17 under control. So Eileen Tutt with the California Electric
18 Transportation Coalition.

19 And I just want to say, when it comes to
20 coordinating I am experiencing it firsthand. We are
21 coordinating with GoBiz, with the Governor's Office, amongst
22 the utilities themselves, with stakeholders, all of this
23 infrastructure investment on the utility side, the public
24 side, and the private sector side is -- in my mind, if
25 there's another Committee, somebody might get upset. So I

1 just want to -- I don't want to -- I wouldn't -- I think
2 we're probably a lot more coordinated than you're aware.
3 There's just multiple efforts.

4 COMMITTEE MEMBER SHEARS: Yeah. I wasn't thinking
5 about adding, but hopefully consolidating.

6 COMMITTEE MEMBER TUTT: Yeah. I do want to -- I
7 think the \$17 million allocation, given the whole budget, is
8 probably -- I mean, I don't think we're going to oppose it.

9 But I do want to say, it is definitely not enough. And we
10 did do an assessment right after the VW settlement was
11 announced where we looked at the utility investment, the
12 public sector investment, both on infrastructure from the
13 Air Resources Board and from the Energy Commission, and then
14 the VW investment, including the EVGO work. And we're not
15 even a quarter of the way where we need to be if we're going
16 to, based on your -- on the Energy Commission's NREL study
17 in the 2020 time frame, not even mentioning 2025.

18 So at the end of the day, this sounds like a lot
19 of money. You know, the utility investments look huge.
20 They're really not. They're not even ten percent of what's
21 needed in the market. The VW settlement is actually quite
22 small given the challenge, especially if it has to -- you
23 know, if we're going to do both hydrogen and plug-in
24 electric vehicles.

25 So I don't -- I mean, I'm not going to oppose or

1 even in any way -- I think the staff has done an excellent
2 job with the budget you have. But despite these various
3 investments, there's just simply not enough.

4 I also -- I do want to address your point, John,
5 about the new types of vehicles that are coming onboard. I
6 don't -- because we're -- the infrastructure out there is so
7 anemic right now, it doesn't concern me as much whether or
8 not a 200-mile vehicle will plug in more or less often.

9 I do know that from a utility perspective, we
10 really want to take advantage of this vehicle connecting to
11 the grid. So ideally, when the car is parked, which is
12 really for most people about 23 to 24 hours a day, it's
13 plugged in and the grid can either feed the vehicle or, in
14 some cases it can go the other way around.

15 But even with low cost technologies, we could
16 really address the grid issues associated with storage,
17 associated with over-generation, which are coming but really
18 are still a ways off. But when that happens we want to be
19 prepared, so we need these points where vehicles are
20 actually plugged in and connected to the grid and can
21 communicate in some way with the grid in order to get the
22 full benefit of electrification.

23 So anyway, thank you. I thought the -- I think
24 the staff did an excellent job. I just want to say that it
25 seems to me that every year it gets better. And I'm really

1 looking forward to the whole discussion of metrics. And the
2 way you've laid it out looks pretty intelligent, not
3 surprisingly, so thank you.

4 COMMISSIONER SCOTT: The, Eileen.

5 Joe, and then Tyson.

6 COMMITTEE MEMBER GERSHEN: Thank you. Yeah, so
7 probably a little bit of a surprise comments here, but in an
8 effort to continue to think outside of the box.

9 So there are interesting technologies out there.
10 There's a company called FreeWire Technologies that has a
11 portable battery storage system. And what they've done is
12 they basically charge these systems up, they're using
13 refurbished AV batteries, and they charge them at night when
14 rates are low, and then they discharge during the day.

15 They have a program going with LinkedIn, and I
16 think they just recently signed a Wal-Mart, so that their
17 employees can get charging. You know, they have a company
18 with only a limited amount of fixed charging infrastructure.

19 So these are units that are portable and they charge them
20 at night. And they found -- and then they charge the
21 vehicles during the day. And employees have a smart app on
22 their Smart Phone. And what they find is LinkedIn mentioned
23 that after the first year of their program they're actually
24 saving money on energy costs by charging these systems at
25 night.

1 So there are some really interesting ways of
2 addressing the grid and addressing storage and charging.
3 And companies like FreeWire are doing some really, really
4 cool things and worth looking at. I'm not sure if they've
5 applied for any solicitations at all, but just interesting
6 stuff that's out there.

7 COMMISSIONER SCOTT: Yeah. I don't know. It's a
8 great question.

9 And one thing. So we're focused today, of course,
10 on the ARFVTP funding. But through our Electric Public
11 Interest Charge [sic], the EPIC program is looking in
12 second-life batteries, in vehicle grid integration, V2G.
13 They're doing a lot of -- they are investing in that space,
14 as well. And we are often talking with each other, of
15 course, from the Transportation Team and the EPIC Team to
16 kind of see how those things are going.

17 COMMITTEE MEMBER GERSHEN: These are -- you know,
18 this is part of the charging infrastructure, though, for
19 vehicles.

20 COMMISSIONER SCOTT: Yeah.

21 COMMITTEE MEMBER GERSHEN: Yeah.

22 COMMISSIONER SCOTT: Tyson, and then Bonnie.

23 COMMITTEE MEMBER ECKERLE: Just really kind of
24 underscoring what Eileen had just said, I think the tendency
25 in, you know, conversations, at least the VW money, and then

1 the IOUs, I think there's a tendency to think we have enough
2 going forward, and that certainly is not the case. I think
3 the \$17 million is probably one of the most important parts,
4 because there's a lot of flexibility.

5 And I think it's, you know, stuff that you guys
6 know, so I just wanted to make sure, just to put that out
7 there from my vantage point, how important this money is and
8 how, you know, the Energy Commission, the way you invest it
9 can really open up marketplaces.

10 COMMISSIONER SCOTT: Tyson -- I'm sorry, Bonnie,
11 and then Brian.

12 COMMITTEE MEMBER HOLMES-GEN: Commissioner Scott
13 and Members, so I'm Bonnie Holmes-Generation with the Lung
14 Association again. And I also wanted to support this
15 category and this amount, although I would certainly support
16 increasing the amount, so I'd like to note that.

17 We, from the Lung Association perspective, and as
18 an EV owner also, I am so appreciative, really, of all the
19 work that the Commission has done to support this charging
20 network as it's growing in California. And as I see these
21 slides, it's very impressive to see the distance that we've
22 come, and truly having some of these interregional
23 corridors. And I appreciate the emphasis on multi-unit
24 dwellings and workplaces. I think those are very important
25 areas to focus. And, of course, on the fast charging

1 network.

2 And I wanted to -- I did mention earlier that the
3 Lung Association released a report. And I just wanted to
4 just note that. And we'll submit it in the record today,
5 that we did just release a report that quantifies the cost
6 of our current dependence as a society on petroleum vehicles
7 in California, and in ten of the states that have adopted
8 the California ZEV program and the benefits of moving toward
9 a robust fleet of ZEVs. And, you know, just in California
10 alone we found over \$13 billion in health and climate
11 benefits. So just to note that we can quantify even some of
12 these health benefits, and air quality benefits, and count
13 up reductions in hospitalizations and emergency room visits
14 that are related to the air pollution from the vehicles and
15 from the climate health impacts.

16 I did want to just point out something in the
17 chapter that I really appreciate, also, which was a
18 suggestion that there should be some funding available for
19 the repair and upgrade of existing chargers, and I don't
20 think that was mentioned. But that does -- I'm not sure
21 what Eileen and others, how they've -- how you've thought
22 about how this would happen. But this seems like an
23 important focus here, to try to look at those legacy
24 stations that are out there and aren't functioning.

25 And I know I've personally had frustration with

1 stations that are not operating and have been abandoned,
2 essentially, because nobody's -- you know, there's this
3 complex network of different agencies that came together to
4 fund and to initiate the station. And then when something
5 goes wrong, there's nobody really that's fully responsible.
6 So I really -- I appreciate that.

7 And I'm curious, is there a specific amount that's
8 being set aside, or this is just something that you're
9 talking about working into the solicitation process? So I
10 would be curious about that.

11 MR. ORENBERG: So this is Jacob Orenberg. And I
12 don't want to necessarily speak for our EV Team or what
13 they're going to be doing in future solicitations.

14 But as far as the Investment Plan is concerned, we
15 don't have a specific amount set aside going towards
16 operations and maintenance or repair and upgrade of legacy
17 chargers. But these are definitely things that are, I
18 think, very high on our list right now, specific the repair
19 and maintenance of chargers. I think all of our new
20 solicitations require maintenance plans to be included for
21 five years, I believe.

22 COMMITTEE MEMBER HOLMES-GEN: That's helpful to
23 know.

24 So in summary, definitely support this investment
25 as an important air quality and health priority. Very

1 appreciative of the work here. And I'm wondering, are we
2 talking about the hydrogen allocation now, too, or is this
3 just --

4 COMMISSIONER SCOTT: Not quite yet.

5 COMMITTEE MEMBER HOLMES-GEN: Not quite yet?

6 Okay.

7 And if I do zip out, I will rejoin by phone or in
8 some other way.

9 COMMISSIONER SCOTT: Okay. That sounds good.

10 I have Brian, and then Jack.

11 COMMITTEE MEMBER GOLDSTEIN: Hey, Brian Goldstein
12 with Energy Independence Now. Just a couple of quick
13 questions.

14 I think the charging program is great. I mean,
15 we're looking at huge numbers of cars on the road right now,
16 and obviously a very aggressive target in a few years.

17 So that led to a couple of questions, one to build
18 on one of Eileen's comments that, you know, generally cars
19 are parked for 23 hours a day.

20 Is there some type of incentive or metric where
21 we're trying to figure out how to move vehicles through the
22 charging stations or to provide a disincentive for people to
23 leave it there once it's done charging?

24 Because it seems like, you know, we still need
25 more charging stations. There aren't enough to charge all

1 the vehicles out there. And if people are, you know,
2 parking one for a day, going to work and leaving it there
3 for nine hours, other people, obviously, aren't able to
4 charge.

5 So I'm wondering if we're keeping track of metrics
6 or if there is a, you know, kind of program in place to
7 address that?

8 And then the second question is are we keeping
9 track of the metrics of the renewable portion of the energy
10 going into the vehicles and, you know, if that has grown
11 over the years, and just what are the metrics around that?

12 Thank you.

13 COMMISSIONER SCOTT: Yeah. So on your first
14 question, that is not something that we are currently
15 tracking in terms of which cars are sitting at what places
16 too long, and how do you get the turnover? We're not
17 collecting that kind of information.

18 I think in terms of the amount of renewables going
19 into the cars, I think we're making the assumption that it's
20 similar to what's on the grid, on the grid in California
21 today versus, you know, a few years ago versus where we'll
22 be in 2020. I don't know if we have any more sophistication
23 to it than that, but let me see if --

24 MR. ORENBERG: Yes. Atomic International just
25 want to concur with what Commissioner Scott just said.

1 Unless the charger is being powered with a local renewable
2 energy source, I think we just assume the renewable content
3 of the electricity is equal to the grid since it is pulling
4 from the grid. I know there are several manufacturers of
5 charging stations out there now that have integrated
6 photovoltaics. Those are some very interesting products.

7 And let's see, I think I forgot something. Was
8 there another part to your question?

9 COMMITTEE MEMBER GOLDSTEIN: Well, just to
10 clarify, the customers aren't -- they're not paying for the
11 electricity at this point at the charging stations; right?

12 MR. ORENBERG: At some of them, they are.

13 COMMITTEE MEMBER GOLDSTEIN: Some of them are, so
14 it's kind of a mix.

15 MR. ORENBERG: Yeah.

16 COMMITTEE MEMBER GOLDSTEIN: Okay. But the
17 stations specifically through this program, it's just a mix.
18 Some are paying and some aren't?

19 MR. ORENBERG: Right.

20 COMMITTEE MEMBER GOLDSTEIN: Okay. All right.

21 MR. ORENBERG: And as far as the incentives and
22 disincentives for not having people leave their vehicles at
23 the charger when they're not charging, that's usually left
24 up to the site host to determine how they want to handle that
25 situation, either through pricing or, you know, parking

1 limitations.

2 COMMITTEE MEMBER GOLDSTEIN: Great. Thank you.

3 COMMISSIONER SCOTT: And, Eileen, did you have
4 some insight into that?

5 COMMITTEE MEMBER TUTT: Yeah. I just wanted to
6 say that as Jacob said, the site hosts often limit the
7 amount of time you can charge, and they rotate, the cars
8 rotate. They're full off in 24 hours, but they're rotating
9 about every four, three or four hours. So that's kind of --
10 I don't think that's as big a problem as it used to be
11 because there's now time limits on most, especially the
12 over-utilized chargers.

13 And then in terms of the renewable resources, I
14 just want to say that we now have a 50 percent RPS. So the
15 grid is so clean that you don't even -- I mean, you can feel
16 good plugging in, even if you're not 100 percent renewable.
17 And I think -- so I just want to make it clear that we're
18 talking about a future that's within the next, what, 15
19 years where, I mean, you're almost, you know, you're 50
20 percent renewable. And actually, it's going to be more than
21 that because the utilities have to over-comply just to make
22 sure they hit that threshold. So it's a pretty clean source
23 of fuel.

24 COMMISSIONER SCOTT: Let's go Jack. And then
25 we'll check and see, Committee Members on the WebEx, if any

1 of you would like to weigh in.

2 Go ahead, Jack.

3 COMMITTEE MEMBER KITOWSKI: Thank you,
4 Commissioner.

5 I wanted to make a brief comment to thank you for
6 sort of acknowledging that in this area we really do need
7 and support the comment that we need to stay nimble. There
8 are -- there's a lot of funding coming into this area, and
9 the duplication. And there's good coordination, I would
10 agree with that. But sometimes bureaucracies don't
11 necessarily stay all that nimble. And this is an area where
12 different funding sources are coming in and changing the
13 dynamic. And I think the funding is needed and appropriate.

14 But I would sort of second your comment that we've
15 got to be able to look at where the niches are that will
16 need it more than others as we're moving forward.

17 COMMISSIONER SCOTT: Thank you.

18 Do we have any of our Committee Members on the
19 WebEx that would like to weigh in on this topic?

20 COMMITTEE MEMBER KNIGHT: Hi. This is Ralph in
21 Napa.

22 COMMISSIONER SCOTT: Go ahead, Ralph.

23 COMMITTEE MEMBER KNIGHT: And I just wanted to
24 share with you that here in Napa, we have started putting
25 solar in our school sites. And along with the solar is

1 installation of chargers for electric vehicles. So we're
2 putting two chargers at each school site. So currently
3 right now there are six sites that are equipped with two
4 chargers. So we are also growing the need that we have in
5 the valley here, too.

6 COMMISSIONER SCOTT: Sounds terrific. Thanks for
7 sharing the with us.

8 I think I heard Simon, also.

9 COMMITTEE MEMBER MUI: Yes. Hi, Commissioner
10 Scott. Simon Mui with NRDC.

11 I just want to complement Staff for the work here.
12 And I agree with previous comments about the presentations
13 and information just getting better and better each year I'm
14 serving here.

15 In terms of the electric charging infrastructure,
16 I certainly agree with many of the comments that, you know,
17 in terms of the scope, scale and speed that we need for
18 electric charging infrastructure and EV deployment, this is
19 very much an important part of that. And I think you'd
20 certainly be justified in increasing the allocation from \$17
21 million to a higher amount.

22 And the reason I say that, even with the utility
23 programs' funding and the VW investment, going forward the
24 infrastructure will need to support millions of vehicles
25 going forward to meet our SB 350 and SB 32 targets, and this

1 is very much an important part of that. I was very
2 impressed by the fact that CEC has been helping support over
3 a third of the charging infrastructure to date.

4 In terms of building that infrastructure, I would
5 continue to encourage CEC to fund the infrastructure that we
6 need, not just today but 15 years from now. And that does
7 suggest that to build that infrastructure that we'll be
8 using in the future, you know, the discussions around
9 flexibility, adaptation, I think are all very relevant. The
10 flexibility to update, you know, the infrastructure, if
11 needed, or to, as the documents discuss, go back and add on
12 features or as technology advances, I think it will be
13 important so that we're not building a legacy infrastructure
14 but actually infrastructure that is adaptive.

15 The second point I'd like to make is in terms of
16 some of the types of mobility uses going forward. We
17 certainly support things like car sharing. So as we look
18 towards a future where there's going to be more autonomous
19 vehicles and car sharing and different ownership models,
20 having infrastructure that can encourage that car sharing
21 and using EVs together I think will be very important.

22 Also the discussion about grid integration, about
23 integrating more renewables, utilizing the grid to create
24 value for all electric customers, all of that, having that
25 ability will be important.

1 And I will note, you know, we've been doing some
2 look at the ZEV Program. And what we're finding is that the
3 average range of the vehicles is increasing much more
4 dramatically than folks even thought about three years ago.

5 And with that we're starting to see a lot of automakers
6 talk about very high kW, above 100, you know, up to 300, 400
7 kW fast chargers to basically, you know, charge as fast as
8 you would at a gas station.

9 So that is something I think going forward you all
10 are probably aware of. And I just encourage you to continue
11 to coordinate as you've been doing and maybe drawing, you
12 know, sort of lines of responsibility around the different
13 sources and funding, that can help sort of guide everyone,
14 make sure everyone's working together, you know, in separate
15 lanes but going in the same direction.

16 So thank you.

17 COMMISSIONER SCOTT: Thank you.

18 Any other Committee Members on the phone or on the
19 WebEx?

20 COMMITTEE MEMBER ESPINO: Yeah. This is Joel
21 Espino with the Greenlining Institute.

22 COMMISSIONER SCOTT: Hi Joel.

23 COMMITTEE MEMBER ESPINO: Hi. So, yeah, just
24 filling in for Sekita Grant (phonetic) here, who normally
25 makes these calls. So I'll do my best to try to channel her

1 awesomeness.

2 So I just wanted to, you know, thank you all for
3 the opportunity to comment on this particular piece with
4 respect to EV infrastructure. And, yeah, just thanks for
5 the thoughtful Investment Plan. I'm excited to hear more on
6 the other pieces.

7 With respect to the \$17 million, you know, we
8 really appreciate that amount. And I think specifically I
9 wanted to appreciate the mention of targeting disadvantaged
10 communities, and also car sharing, and echoing Simon's
11 comments. I think these two areas are really important in
12 terms of, you know, the future of where we're moving in
13 terms of the infrastructure and the different ownership
14 models.

15 And, you know, I emphasize the targeting of
16 disadvantaged communities, just to not lose sight of that.
17 I know there's a lot of -- we're already mentioned that
18 there's a lot of efforts out there, right, in terms of
19 different funding sources, from NRG to VW to the IOU money.
20 And we do have some minimum targets in the IOU pilots for
21 disadvantaged communities. And I would just say that, you
22 know, that's great, and that it's not enough; right?

23 And so definitely appreciate the flexibility of
24 CEC's funding in this space. And just want to kind of
25 emphasize the need to keep pushing the envelope in terms of

1 placing these stations in disadvantaged communities. For
2 one, you know, if we're going to really meet our goals we
3 kind of need them in these spaces to start and to start
4 inducing demand. And secondly, you know, it's one of
5 California's goals now, as codified by SB 1275, that we, you
6 know, increase EV access in low-income communities and
7 disadvantaged communities. And charging infrastructure
8 plays a big role in that.

9 And we've heard from some of the administrators of
10 the Charge Ahead EV Equity pilots. So, you know, we've
11 heard folks from the Scrap or Replace Program in the Central
12 Valley, in the South Coast. And we heard from the folks
13 here in Richmond who are administering the Financing
14 Assistance Pilot that, you know, a lot of low-income folks
15 are excited about the technology. But when it comes to
16 making the decision, if they don't have charging at home,
17 they're not going to do it. And, you know, their
18 participation rates would be a lot higher if they had more
19 access to charging infrastructure, particularly in multi-
20 unit dwellings.

21 And so kind of just wanted to emphasize that piece
22 of it, just so that we don't lose sight in terms of, you
23 know, meeting our targets and meeting our infrastructure
24 goals, that we also include this disadvantaged community
25 piece of it and not lose sight of that.

1 So thank you for the opportunity to make a comment
2 on this.

3 COMMISSIONER SCOTT: Sure.

4 Anyone else on our WebEx? And then I see that
5 John has a question at the table.

6 Okay, go ahead, John.

7 COMMITTEE MEMBER SHEARS: Yeah. Just want to say
8 here-here to Simon's comments, which basically were a little
9 more driving in the same direction but a little more
10 elaborate than mine in terms of, you know, where the
11 charging infrastructure might need to go with the longer-
12 range vehicles, et cetera. And based on the discussion,
13 it's clear, you know, as in all tranches under this funding
14 program from day one and still today, there's never enough
15 money in any one tranche to fund the needs in any one other
16 tranches.

17 So we're -- you know, once again I'll put out my
18 line. You know, we have a program that includes everything,
19 along with the kitchen sink. And, you know, we're trying to
20 push everything forward with relatively limited funds. So
21 kudos to the staff continuing to sort of monitor and massage
22 the funding lines with each of the Investment Plan updates,
23 so kudos on that.

24 Just to revisit my remarks earlier about
25 coordination, I also just want to highlight that all of the

1 programs, so NRG, EVGO, San Diego Gas & Electric, SoCal,
2 Edison, all of those programs have disadvantaged community
3 components to them. PG&E's, we'll see if they're also
4 required to include a disadvantaged community component.
5 But I'd also like to thank the Energy Commission and
6 reinforce that this is an important area to be looking at,
7 but also need to be coordinating those efforts, although I
8 think you and EVGO are the ones who probably can be most
9 active in that space at the moment. Utilities, it will take
10 them a little longer to sort of get organized and start
11 looking for deployment opportunities in that space.

12 So thanks.

13 COMMISSIONER SCOTT: Any other Advisory Committee
14 Members on the phone or the WebEx, before we turn to public
15 comment?

16 All right, I've got two cards here, starting with
17 Shomik Dutta.

18 I realize --

19 COMMISSIONER SCOTT: You need to speak in the
20 microphone. And we're going to give folks about three
21 minutes. That way the people on the phone can hear you.

22 I'm going to reserve my comment for the
23 manufacturing section, if that's okay.

24 COMMISSIONER SCOTT: Oh, for manufacturing. Okay.
25 I had you for EV.

1 Next I have John Boesel. Oh, I have a few. And
2 John will be followed by Bill Boyce.

3 MR. BOESEL: Thank you. And I think Naveen Berry
4 also wanted to talk on this subject from the South Coast. I
5 have about seven points, and I'll cover them quickly.

6 First of all, I really appreciate some of the work
7 that the staff has been doing that actually wasn't mentioned
8 here, but about moving toward a more efficient CVRP rebate
9 or a voucher kind of process for moving these funds. A lot
10 of money and time and effort goes into doing proposals. It
11 takes a long time to review them, blah, blah, blah, much
12 more efficient. So I commend the staff for doing that and
13 encourage you to do more of that.

14 I think there ought to be a significant allocation
15 here, maybe \$10 million, for the clusters of urban -- urban
16 clusters of DC fast chargers. We still have a big issue, 50
17 percent of the people live in apartments. They don't have
18 access to chargers. It's been very tough to get apartment
19 owners to install them. So having those clusters could
20 really be a good way to meet that need.

21 I think there does need to be, as we're putting
22 more of these DC fast chargers out there, there does need to
23 be an urgent need to get them to be able to communicate to
24 the web for people to know whether they're available, when
25 can I go there? That kind of information needs to become

1 available.

2 I also think that the other benefit of these
3 clusters is that they could meet the needs of the TNCs. So
4 the Ubers and Lyfts, there's a huge opportunity now, I
5 think, to get some of their big drivers, not big as in big
6 but, you know, people who drive a lot to move toward EVs.
7 And having that opportunity to rapidly charge could be a
8 huge opportunity. And that's going to move really quickly
9 in the next two years. So I really encourage the CEC to
10 move ahead with that.

11 I think workplace charging remains an enormous
12 opportunity, but one that is moving way too slow. I think
13 the CEC ought to invest \$1 million in a two-year effective
14 statewide coordinated campaign to get employers around the
15 state to do this. You do a statewide campaign. You can
16 learn a lot of lessons that can be shared across the state.
17 You can leverage materials, information, what's working, et
18 cetera.

19 Next is that I think the CEC ought to invest maybe
20 \$5 million to \$10 million in commercial EV infrastructure.
21 We're going to be seeing the rollout of electricity buses
22 and trucks pretty quickly here. It's going to be supported
23 more by the HVIP program. Having additional funding just
24 for that sector would be helpful.

25 Lastly, I just want to raise a question about the

1 VW settlement. What did we learn about the NRG settlement?
2 Do polluters make good operators of businesses? Was that an
3 effective model? Did EV work well? I think they actually
4 ran out of -- they failed as a business. So do we want to
5 follow that same model? I think there are some really good
6 questions. You've got a good delivery system. Could we use
7 those funds to just backstop your delivery system and not
8 have it go through a third party?

9 Thank you.

10 COMMISSIONER SCOTT: Thank you, John.

11 I have Bill Boyce next, and he's followed by Anne
12 Smart.

13 MR. BOYCE: Good afternoon. I wanted to commend
14 the Commission for the efforts that they put in for the
15 corridor charging, particularly the east-west. I know I
16 made comments to that probably two years ago, and it's good
17 to see that come through. And it takes care of a lot of the
18 phone calls that come to my office of people trying to drive
19 from the Bay Area up into the Tahoe area.

20 The second one I wanted to point out or kind of
21 reiterate what kind of Simon and Joel had said with regards
22 to disadvantaged communities. One of the other things I
23 would suggest, or maybe this is an extra points on proposal
24 evaluation, is also trying to evaluate what effects those
25 have on adoption in those areas. So this also then comes

1 to -- you know, justifies an investment, how many more
2 vehicles will come on the road for every DC fast charger
3 installed in a disadvantaged community? And those are the
4 types of information now, that we have these technologies
5 that would really help guide our investment. And, you know,
6 what are the effects of those? And I tend to think that it
7 would have a larger effect in the disadvantaged communities.

8 The third one which no one has brought up today
9 which I think will really kind of change the game in
10 investment coming up is a change in the Green Building
11 Standards Codes that are going to occur in January, where
12 the conduit and the breaker space are now required for just
13 about all buildings. So looking at programs that will be
14 able to leverage new construction, get in a lot more, in my
15 mind, workplace and multifamily, this is, for me, what I was
16 really going to iterate was this is probably the best way to
17 go attack multifamily and really set some money aside to
18 just leverage getting the hardware in for these locations
19 that are already going to have to put the more expensive
20 stuff in. And then see what your cost effectiveness of that
21 is and, once again, how to make the buck go farther. And
22 how do we get, also, once again, the kind of investment and
23 effectiveness data in all these programs?

24 Thank you.

25 COMMISSIONER SCOTT: Thank you, Bill.

1 I have Anne Smart, followed by Naveen Berry. Is
2 Anne still here?

3 Oh, there you are.

4 MS. SMART: Hi everyone. Anne Smart with
5 ChargePoint. Thank you so much for this Investment Plan.

6 First, I want to introduce John Shot who is our
7 new Dedrick Roper (phonetic), administrating our grants and
8 handling all of our grant development at ChargePoint. So
9 you will hear a lot more from John in the future.

10 We are excited about the Investment Plan before
11 us. I think the amount is appropriate.

12 Bye John.

13 To some comments made earlier, I do think it would
14 be helpful outside of this plan for the state to establish a
15 clear attach rate for charging stations to EVs. I think we
16 have a few different attach rates floating around. We've
17 heard ten-to-one. We've heard four-to-one, I think, in a
18 previous NREL study. I think that would help clarify the
19 investment that we need, as well as where we currently are
20 towards meeting that goal.

21 We agree with all the comments made on
22 coordination across multiple agencies, particularly as it
23 relates to the VW settlement. ARB appears to have some
24 control of Appendix C, and most of the control over Appendix
25 D, though we think that those investments would seem to

1 overlap quite a bit with some of the investments in this
2 plan. I would like to see some coordination and public
3 comment periods across both agencies.

4 I think that in general we think we agree with
5 Greenlining on the importance of focusing on disadvantaged
6 communities, and in general in investing public funds in
7 areas that are under-served. The industry is not entirely
8 dependent on public funding anymore. So the programs
9 through the utilities and through here and through
10 Volkswagen are not the only source of funding. So we really
11 want to make sure that we are directing this public funding
12 to the places that aren't crowding out private funding and
13 leverage a match to the greatest extent possible, so that we
14 can ensure that this money contributes to the greatest
15 number of charging stations.

16 Love the idea that was brought up on potentially
17 using some funding to ensure either rip and replace of
18 broken stations, or to provide or encourage the acquisition
19 of some sort of maintenance plan for existing funded
20 stations. A lot of us in the industry didn't have
21 maintenance plans eight years ago or five years ago, and now
22 almost all of us do. So that type of funding program, we'd
23 be excited to help set up in a way that would work
24 effectively and competitively.

25 And finally, I think that the industry, the

1 charging station industry is a bit underrepresented on this
2 Advisory Committee. We would welcome the opportunity to
3 have a role potentially for our EV Charging Association or
4 another mutual representative. I don't think currently
5 anyone on the Advisory Committee directly represents any
6 charging station company, and we think that would be
7 important moving forward.

8 Lastly, the nimble comment, really important.
9 Stay nimble. We will have many high-speed charging stations
10 coming out across the industry over the next two years. And
11 so encouraging nimbleness in these plans will help ensure
12 that we're getting the best possible technology deployed.

13 Thank you.

14 COMMISSIONER SCOTT: Thank you Anne.

15 And welcome John.

16 Naveen Berry, and then followed by Mehdi Gazi
17 (phonetic).

18 MR. BERRY: Great. Thank you. This is Naveen
19 Berry from South Coast AQMD again.

20 And SCAQMD Staff supports the overall funding
21 allocation for this category. Again, I want to thank CEC in
22 helping the South Coast establish a network of level two and
23 level three chargers with previously years' awards. And
24 again, the funding has been instrumental in establishing
25 infrastructure to maximize the use of currently available,

1 especially limited-range EVs. We think it's helped
2 tremendously in the South Coast.

3 I did want to add that taking into account the
4 significant NOx reductions in the South Coast that were
5 discussed earlier, as well, to achieve the ozone standard,
6 South Coast AQMD Staff request that the Committee take into
7 consideration expanding the scope and emphasizing the need
8 for EVSE for medium- and heavy-duty vehicles, as well. You
9 know, there's been a lot of discussion about light-duty, but
10 I just wanted to kind of bring it back, indicating that
11 heavy-duty trucks continue to be, and in the future
12 especially will be the largest emitters of NOx emissions in
13 the South Coast. And I think this suggestion would also
14 further the goals of ARB's mobile source strategy and the
15 sustainable freight strategy for maximizing the use of such
16 zero-emission trucks.

17 So thank you.

18 COMMISSIONER SCOTT: Thank you.

19 I have Medhi Gazi, and then we're going to herd to
20 the WebEx.

21 Good afternoon. My name Medhi Gazi. I'm with I'm
22 with World End Energy Solution (phonetic). We are a
23 California-based consulting company.

24 Brian, nice presentation. My background is power
25 system engineering, so I'll try to focus on that part.

1 First of all, I recommend to the Commission and
2 the groups, add more benchmarks to the evaluation criteria,
3 and that is the number. Get a little bit more detailed.
4 Get to the V2G infrastructure more. Because the number of
5 the (indiscernible) will make -- electric charging is good,
6 but the number of the V2G capable infrastructures, including
7 the EV charging stations, is going to be wonderful, too. We
8 need to encourage people to buy more EVs in order to get to
9 our SB 350 goals by 2025. So we need to come up with the
10 opportunity for the cars' owners to come up with the extra
11 revenue generation opportunities. At the same time, those
12 type of vehicles are going to be a great resource as a
13 complimentary device for RPS goals by 2030, and 2050, as
14 well.

15 Also, Brian, you brought up something about the
16 control system. So the number of -- the system-wide
17 controlling system needs to be considered differently in our
18 future funding opportunities. We shouldn't take a look only
19 on charging or discharging control system. We need to
20 consider the traffic management in our approach to the cars
21 can be re-dispatched based on the traffic situation and the
22 congestion into the system.

23 And finally, I strongly recommend to consider
24 funding for the schools and colleges and California. Why?
25 Because those campuses, those schools can develop the

1 knowledge of the public in order to be familiar with the
2 issues with the EVs, as well. They can help the
3 researchers, consulting companies and technology developers
4 with more research opportunities, with surveys, and also the
5 deployment of the new technology, which technically is going
6 to help having more EVs on the roads.

7 Thank you.

8 COMMISSIONER SCOTT: Thank you.

9 We're going to be on the WebEx now. We have Sven
10 Thesen first, followed by Thomas Greene.

11 So, Sven, they're going to un-mute your line for
12 you.

13 Is he un-muted?

14 You are un-muted. Sven, if you'd like to speak,
15 now is your opportunity. Okay.

16 Let's go on to Thomas Greene on the WebEx. So
17 after Thomas Greene, Thomas will be followed by Vincent Chen
18 (phonetic). So would you please open up Thomas Greene's
19 line please?

20 MR. GREENE: Hello. This is Tom Greene.

21 COMMISSIONER SCOTT: Hi.

22 MR. GREENE: I would like to -- hello. I'd like
23 to thank you, Commissioner, and the Committee for doing this
24 work. I don't have a commercial dog in this fight. I am
25 just, I guess an EV user in California. And particularly, I

1 thought it might be useful to offer a brief perspective on
2 long distance charging and the CEC. I do try to go long
3 distances in California using corridor charging. Very happy
4 to see the recent awards.

5 That said, the CEC has not been a significant
6 player in this era so far. I am happy to see, I guess, the
7 2013 solicitation has resulted in some working stations.
8 But they can really hardly be called fast charging. They
9 are sort of below, by at least a factor of two, the
10 benchmark for fast charging stations. Those are the ones
11 that were deployed last summer along I-5.

12 And what encouraged the CEC, like I think some of
13 the commenters have said, to be a little more forward-
14 looking in these current awards, just because there seems to
15 be such a big gap between the solicitations and when the
16 facilities actually go into service, you know, on the order
17 of three years, if the first solicitation is any kind of
18 guideline. And as we have heard and seen, the vehicle
19 technology changes.

20 And I think the current requirement of 50
21 kilowatts in the recent solicitations is really only barely
22 adequate now. And the reason why it's only adequate is
23 because the current cars, besides Tesla's, have pretty small
24 batteries and they can fill within an hour.

25 But as we heard, the Bolt EV and a cheaper Tesla

1 EV will be coming online with substantially larger batteries
2 that will take, you know, well over an hour to fill with
3 this current 50 kilowatt standard. And I also heard that
4 the U.S. Government is working with the Department of Energy
5 on a 350 kilowatt standard.

6 So my, I guess, bottom line here is I would
7 encourage the Commission to be nimble and try to make sure
8 that the chargers that they fund and install are not
9 obsolete with they start operation.

10 So that's all I have to say.

11 COMMISSIONER SCOTT: Okay. Thank you.

12 I hear that Vincent Chin is no longer on the line.

13 The next commenter is Kitty Adams.

14 MS. ADAMS: Hello.

15 COMMISSIONER SCOTT: Hi, Kitty.

16 MS. ADAMS: Can you hear me?

17 COMMISSIONER SCOTT: Yes.

18 MS. ADAMS: Hi. Thank you so much for the
19 opportunity to give feedback on the plan. And basically I'm
20 just hoping to request more than \$17 million.

21 I made a short list here of all the people that
22 are waiting for EV charging from me. The California State
23 Parks, I think it would take \$5 million to complete the 100
24 parks that we have targeted as our goal. City of West
25 Hollywood, City of Fowler, City of Reedley, Imperial Valley,

1 City of Buena Park, Discover Cube in L.A. and Santa Ana,
2 Irvine Valley College, Huntington Library, LAUSD who has
3 1,000 schools, 40 percent of which are in SCE territory.
4 And I'm also always approached by houses of worship. So all
5 in all, I think I could spend about \$11.5 million of that
6 funding.

7 And the problems that I face is these popular
8 destinations have not been funded. You know, the last round
9 of funding was all for DC fast charging, corridor charging,
10 so they were kind of overlooked. And it's been mentioned a
11 couple times about the different utility programs, but they
12 do not work. They're not helping me. You know, San Diego
13 Gas & Electric is for workplace of MUD, which most of these
14 don't fall into that. And then the Southern California
15 Edison requirement of ten parking spaces is not an option
16 for most of these. So I'm unable to take advantage of those
17 two programs.

18 And I know people are really excited about the VW
19 settlement. But I see that as being so far down the road,
20 like we've got a lot to negotiate and work out with that.
21 But I just hope that we can continue to find adequate
22 funding to address all these people. You know, the
23 Huntington Library has been waiting over six years for me to
24 find funding. And I've reached out to the OEMs, utilities,
25 AQMD, everybody, to try to make all this happen, and we can

1 only do so much. So I'm hoping that there's some way we can
2 find enough so that everybody's needs get met.

3 Thank you.

4 COMMISSIONER SCOTT: Thank you.

5 Let me make sure we don't have any other hand
6 raisers on the WebEx. Okay.

7 I'm going to give Noel about 30 seconds to
8 introduce himself and say hello to you all. We're so
9 delighted to have him here on the Energy Commission team.
10 And we're going to queue up Jean for after that.

11 MR. CRISOSTOMO: Hi everyone. Hi Committee
12 Members. My name is Noel Crisostomo. I'm an Air Pollution
13 Specialist in the Fuels and Transportation Division. I look
14 forward to working with you all and bringing my experience
15 from the Public Utilities Commission's oversight of all EV
16 policy to help in the integration of the state's energy and
17 transportation programs.

18 COMMISSIONER SCOTT: Welcome.

19 Okay, back to Jacob and to Jean to talk about
20 hydrogen infrastructure.

21 Thank you. Good afternoon, Commissioner Scott,
22 Mr. Kato, and Jacob, and all the Committee Members here. I
23 am the Supervisor of the Hydrogen Unit here at the Energy
24 Commission. Quite a few people work in hydrogen in this
25 building, and I'm really lucky to work with them.

1 We'll talk quick about the stations we've built.
2 We currently have 22 open retail hydrogen refueling stations
3 in California. Four to five are operational and working and
4 becoming open retail, 23 are in planning or under
5 construction, and that makes a total of 48, plus a temporary
6 or a mobile refueler. Network capacity, name play
7 (phonetic) capacity, that is, is 9,300 kilograms a day.

8 I just want to identify what open retail is about.

9 This allows a station operator to sell a kilogram of
10 hydrogen using a credit card system. And on page 50 the
11 table shows an investment in the Division of Measures
12 Standards Program to measure this kilogram, and also work
13 we've done with the Hi-STEP Program, U.S. Department of
14 Energy.

15 By way of comparison, a year ago we had two open
16 retail stations, and today we have 22, as I said. So we've
17 had a lot of success this year. It's been very exciting.

18 These are some photos of our completed projects.
19 The Truckee FirstElement Fuel Station is in the upper left.
20 That's a ribbon cutting there. Fairfax Station in the L.A.
21 Area by APCI is shown. Costa Mesa, upper right, by First
22 Element Fuel. And then the West Sacramento by Lindey
23 (phonetic), the station opening that we held.

24 The staff at the Energy Commission accumulate data
25 from the invoices. So this is the paid charges for building

1 the station, the labor, the permitting, the engineering
2 costs, the equipment. And we develop reports and send them
3 to the National Renewable Energy Laboratory Technology
4 Validation Program. I don't know how many people are
5 familiar with Tech Val, but this is a USDOE program started
6 to verify that equipment in general meets its
7 specifications.

8 This is a list of the data sets that we collect.
9 We send the data quarterly to NREL. And it is reported out
10 annually at the U.S. Department of Energy Technology Review
11 Program. We document the energy consumption during
12 compressions, pre-cooling and dispensing. We document the
13 quantity and day and time of fills of hydrogen. The fueling
14 pressures filled. And then the retail price of dispensed
15 hydrogen.

16 This chart is a part of our 2016 assessment. We
17 look at the overall time and costs remaining to reach 100-
18 station milestone. And this chart shows the weekly
19 dispensed hydrogen. In the first -- let's see, quarter
20 three of 2015, quarter one of 2016, and quarter two of 2016.
21 And as you can see, we've had an up-tick in the amount of
22 dispensed hydrogen. This is on a per-station basis.

23 This is also a part of our 2016 assessment of the
24 time and cost required to build 100 stations. Here we talk
25 about the time of day, with 3:00 p.m. having the highest

1 amount of fills. And that goes up through quarter two this
2 year.

3 As I mentioned, we do write an assessment of the
4 time and costs needed to attain 100 hydrogen refueling
5 stations in the state. This is really a progress report.
6 And it's a progress on establishing the network of the
7 stations. We look at the capital expenditures, the
8 throughput of the stations, the operation and maintenance
9 costs. And we develop this report with the California Air
10 Resources Board. It's a joint report between the California
11 Energy Commission and the California Air Resources Board.
12 This URL was our -- is where our 2015 report is posted. And
13 our 2016 report is due the end of this year.

14 The 2016 assessment will include a self-
15 sufficiency study. The idea here is given a set of entities
16 who are using hydrogen, producing hydrogen, operating
17 hydrogen stations, looking at the general overall management
18 of fleets, how do they value hydrogen? And what is the
19 threshold for hydrogen dispensing in quantities in
20 locations? Are they effected by the fuel costs differences?
21 So this study this year will kick off a framework for this
22 self-sufficiency of the network.

23 And those are the lists of the entities.

24 We are currently in an open solicitation period.
25 I mean, we're scoring applications to Grant Funding

1 Opportunity 15605. And this slide lists a few of the
2 characteristics of the GFO.

3 We do require stations comply with industry
4 standards for fuel quality, protocols for fueling and hoses.
5 We do require a minimum daily fueling and a peak fueling.
6 We have a dispenser conformance requirement which is based
7 on California regulations. We require safety plans. We
8 require renewable hydrogen as a component of the dispensed
9 hydrogen. We require a point of sale terminal so that
10 credit cards can be used. And we require connection to the
11 station operational status system managed by the California
12 Fuel Cell Partnership. Preference points are given for
13 locations in disadvantaged communities, and also stations
14 that include a conduit for EV charging systems.

15 This is a map of the Southern California hydrogen
16 stations. It's pretty broad coverage around the L.A. Area.
17 And we hope that the qualitative benefits that Charles Smith
18 was talking about would include things like how does the
19 fuel cell electric vehicle driver feel about the placement
20 of the stations, the reliability of the stations, and their
21 availability? So I'm thinking maybe that would be a good
22 qualitative benefit of our assessment.

23 And this slide shows the Northern California
24 stations that we funded and are planned and open and
25 operational. You can see, they make a U around the San

1 Francisco/Bay Area. They also extend to West Sacramento.

2 Proposed allocation, \$20 million. Thank you.

3 COMMISSIONER SCOTT: Okay. Thank you, Jean.

4 Let's turn to the Advisory Committee Members for
5 comment.

6 Brian, go ahead.

7 COMMITTEE MEMBER GOLDSTEIN: Well, I'd like to
8 commend the Commission on just a tremendous amount of
9 progress made in this area, and this year alone. I mean,
10 just in the last 10 months to have 22 stations, I guess 20
11 of those 22 have opened their doors in the last, you know,
12 10 months is just absolutely huge. We've seen the
13 automotive OEMs who have relied heavily on this program
14 suddenly release, you know, high numbers of vehicles. At
15 least to date, I think we were at 300 vehicles in April, and
16 now we're somewhere between 800 and 1,000. So we're seeing
17 a dramatic ramp-up of these vehicles.

18 The state of California is setting an example
19 worldwide, I think, with this program. And I think it's
20 helping to drive the momentum in other countries. And
21 certainly specifically with the Commission's allocation to
22 the Department of Weights and Measures, we've created a
23 Standards Program that is replicable across the country.
24 And I think it's really going to help advance this vehicle
25 technology very quickly in other states. So that's

1 absolutely huge, and certainly commend you guys on the work
2 there.

3 I think the renewable requirement is absolutely
4 great. It's interesting to look at the graphic that was put
5 up in the opening presentation, where we're actually looking
6 at having more cars than fuel and fueling stations in just a
7 matter of three or four years.

8 So I know there's a portion of the emerging
9 opportunities section that discusses the, you know,
10 opportunity to take a look at renewable hydrogen production
11 within the state of California. And I know we talked about
12 that a lot this morning, especially relative to the
13 biomethane production conversation. But I think that's
14 something that we have a brilliant opportunity to take a
15 look at right now as the industry is very young, as we build
16 hydrogen capacity in the state, to really take a look at
17 what it's going to take to make that hydrogen 100 percent
18 renewable and continue to kind of set the standard for the
19 rest of the country and the rest of the world.

20 So thanks for all your hard work on this. You
21 know, I'd love to sit here and say that, yes, we need a lot
22 more than \$20 million in this area. But I understand that
23 every fuel type is getting its fair share here. So thanks
24 for your dedication to hydrogen. And it's really great to
25 see the momentum that's been gained this year.

1 COMMISSIONER SCOTT: Thanks.

2 I have Jack, and then John.

3 COMMITTEE MEMBER KITOWSKI: Just quickly, I also
4 wanted to commend the Energy Commission and provide my
5 thanks, as well. I think this is a great progress. This is
6 one of those areas, like so many, when you think about it on
7 the surface, you're providing the funding. But there's a
8 lot more work that goes on behind just writing checks. And
9 there's a lot of work done in getting those 20 stations
10 open.

11 So thank you. We're glad to be partners in this,
12 and fully supportive.

13 COMMISSIONER SCOTT: Thanks. We're glad to be
14 partners with you, as well.

15 John, and then Tyson.

16 COMMITTEE MEMBER SHEARS: Yes. Atomic
17 International don't think there's enough money.

18 No, seriously, though, I also just want to commend
19 Staff, and Jean who has shown incredibly dedication in
20 helping work all the bugs out, along with Tyson at GoBiz,
21 other Energy Commission, and ARB staff. So I just want to
22 commend everybody on the efforts today. And we're now, you
23 know, facing, you know, that old statement of having, you
24 know, what a good problem to have, which is out of the
25 success that it looks like we're facing, we now are

1 challenged with keeping up with the actual number of
2 vehicles that are -- if they continue at pace, that we're
3 going to be seeing on the roads.

4 So kudos to everyone. And thanks for all the good
5 works.

6 COMMISSIONER SCOTT: Thank you.

7 Tyson?

8 COMMITTEE MEMBER ECKERLE: Just commending the
9 Energy -- sorry, the Energy Commission and the team. They
10 go above and beyond to get these stations over the hurdle.
11 I get to work closely with Jean and her staff, and they've
12 done a tremendous job.

13 The other part just to drive home is the value of
14 the long-term commitment from the state. You can see that's
15 really changed the paradigm from the automakers and kind of
16 their commitment. And so it's really a big deal with this
17 consistency going forward. So thanks of the Energy
18 Commission for staying strong and seeing this through.

19 COMMISSIONER SCOTT: Thanks.

20 Back to John.

21 COMMITTEE MEMBER SHEARS: I can't believe I forgot
22 to say this. I want another Sacramento station.

23 COMMISSIONER SCOTT: Brian.

24 COMMITTEE MEMBER GOLDSTEIN: Another one that I
25 forgot to add, as well, and I know you guys didn't point

1 this out, but the lead time on building a station from the
2 point that it's approved to the point that it's opened up
3 has increased, I mean, by years, and just over the last
4 funding year. So I think the collaboration --

5 COMMITTEE MEMBER SHEARS: Decreased.

6 COMMITTEE MEMBER GOLDSTEIN: Decreased. Did I say
7 increased? So the lead time has decreased, so -- and I mean
8 like by maybe 60 percent more. And I think that's from, you
9 know, collaboration between the Energy Commission and
10 Tyson's office at GoBiz. The zoning and permitting manual
11 that they created and put out there was one of the first of
12 its kind. And I think they're really setting the state and
13 this entire program up for success by creating these models
14 that other people can go out and replicate, so thanks guys.

15 COMMISSIONER SCOTT: Great. Let me turn and see
16 if on our Advisory Committee Members on the WebEx have
17 anything they'd like to say? You are un-muted, so please
18 speak up if you do.

19 COMMITTEE MEMBER MUI: Simon Mui with NRDC.

20 Just nothing too much here. Just wanted to echo
21 some of the prior comments in support of the funding.

22 COMMISSIONER SCOTT: Great. Thanks, Simon.

23 Any other Advisory Committee Members?

24 Okay, we will turn to public comment. I just have
25 one in my hand right now, that's Naveen Berry from South

1 Coast.

2 MR. BERRY: Thank you again. Naveen Berry with
3 South Coast AQMD. I'll be real brief.

4 SCAQMD Staff again supports the funding allocation
5 that is part of the draft. And I want to echo my comments
6 from the EV infrastructure, and again thank the CEC in
7 helping the South Coast establishing a network of hydrogen
8 refueling stations, as well.

9 I do have a couple of minor suggestions, however.

10 I suggest that the Committee consider larger scale onsite
11 production hydrogen stations in an effort to lower hydrogen
12 costs. I haven't heard that earlier today.

13 And then also using a reformer or other
14 technology. I'm just using one example with biomethane, is
15 one such approach, has been demonstrated by Sunline Transit
16 that can lower the cost of hydrogen for the vehicles.

17 Again, another demonstration that we did at Sunline awhile
18 back was dual-use stations where light-duty vehicles and
19 other larger fuel cell vehicles can fuel. And I understand
20 the pressure differential, but it's something that we, I
21 think, should consider as part of this effort to further
22 grow the market.

23 And then lastly, I'll echo the same comments I had
24 on the EV infrastructure for hydrogen infrastructure, to
25 consider efforts to also look at medium- and heavy-duty

1 vehicles, as well, because that's a growing area that we all
2 are interested in.

3 With that, thank you again.

4 COMMISSIONER SCOTT: Thank you.

5 Do we have any other folks in the room?

6 Let me turn back to John.

7 COMMITTEE MEMBER SHEARS: Yeah. As a Fuel Cell
8 Partnership Member, and I don't think any of my colleagues
9 from the Partnership were to represent the Partnership on
10 the Advisory Committee today. I just want to highlight that
11 the action plan for medium- and heavy-duty trucks was
12 released, what, the last -- within the last like ten days,
13 two weeks. You can get copies off of the California Fuel
14 Cell Partnerships website, so --

15 COMMISSIONER SCOTT: Great. We should remind them
16 to submit that to us, too, so that we're considering that as
17 part of the record for this.

18 Any other Advisory Committee comments?

19 Let me just double-check. I didn't get any hand
20 raisers from the WebEx. Okay.

21 So that is hydrogen.

22 We will now go on to the Natural Gas Vehicles and
23 their infrastructure. And that's going to be Jacob and Sam
24 Lerman.

25 Oh, I'm sorry, hold on. We do have one comment on

1 the WebEx for hydrogen. Please go ahead. Let me double-
2 check. I think they're un-muted; right? Oh, okay.

3 MR. ORENBERG: Yes. Lakvinder Singh, do you have
4 a public comment?

5 COMMISSIONER SCOTT: Lakvinder, you are un-muted.
6 If you'd like to make a comment, now is a good chance.

7 Okay, we're going to go on to our natural gas
8 vehicles and infrastructure, and that will be Jacob and Sam
9 again.

10 MR. LERMAN: So good afternoon. My name is Sam
11 Lerman, and I'm an Engineer in the Fuels and Transportation
12 Division. I will be speaking now about the Energy
13 Commission's recent natural gas vehicle and infrastructure
14 investments. And later on I will be speaking about our
15 investments in medium- and heavy-duty vehicle demonstrations
16 and advanced vehicle manufacturing.

17 Here's a brief overview of the total investments
18 to date for each of the areas I will be highlighting this
19 afternoon. The Energy Commission has helped fund the
20 development of 65 natural gas fueling stations to date,
21 including 54 CNG and 11 LNG stations.

22 Over 2,500 vehicles have been purchased through
23 the Natural Gas Vehicle Incentive Program, representing a
24 mix of light-, medium- and heavy-duty vehicles. The medium-
25 and heavy-duty demonstration category has funded the

1 development and demonstration of nearly 300 advanced
2 technology Class 3 through Class 8 vehicles to date. And
3 while these vehicles represent only three percent of the
4 total population of vehicles operating on California
5 roadways, they make up 23 percent of on-road GHG emissions
6 in this state.

7 And then I will be discussing the last two topic
8 areas in detail during separate presentations on those
9 subjects later on.

10 This slide shows recent investments in natural gas
11 fueling infrastructure. The Energy Commission released PON-
12 14-608 in March of last year, awarding 13 projects at a
13 little over \$5 million. Ten projects were awarded to local
14 school districts, while the remaining three were for other
15 public entities, including California cities and sanitary
16 districts.

17 Projects included a mix of private and publicly
18 accessible fueling stations, and will provide fueling to
19 over 275 natural gas vehicles operating currently. The
20 stations are also being designed to support the procurement
21 of additional natural gas vehicles into the recipients'
22 fleets.

23 In September of 2016 the Energy Commission
24 introduced a new solicitation for natural gas
25 infrastructure. This funding opportunity was limited to

1 school districts only, with a little over \$3 million in
2 funding available.

3 Here's a brief look at each of the winning awards
4 under last year's PON-14-608. A lot of the projects
5 represented here are in disadvantaged communities and are
6 providing benefits to economically distressed areas.

7 The top two pictures on this slide are from a
8 recently awarded project with the Fontana Unified School
9 District to upgrade their existing CNG fueling
10 infrastructure. The top left picture shows two existing
11 compressors operating beyond their intended limits to meet
12 fueling demands of the existing CNG school bus fleet. The
13 top right picture shows where a new larger compressor will
14 be installed under the Energy Commission agreement to meet
15 current demand and allow the school district to procure
16 additional CNG school buses. And the bottom two pictures
17 show additional examples of CEC funded CNG fueling
18 infrastructure.

19 Next we'll move on to recent investments in
20 natural gas vehicle deployment. The current incentive
21 program is being administered by the University of
22 California at Irvine. All \$10.2 million currently allocated
23 to the program are either paid or reserved, with an
24 additional \$11 million of incentives on wait list. 453
25 vehicles have been confirmed across 44 applicants. While

1 this program is open to light, medium- and heavy-duty
2 vehicles, the majority of reservations have been for Class 8
3 vehicle types.

4 This slide shows the total investment portfolio to
5 date for Natural Gas Vehicle Incentives. This includes a
6 broad mix of vehicles across multiple weight classes. The
7 current program has \$9.1 million in confirmed reservations,
8 and is expecting 500 total vehicles once the original \$10.2
9 million of funds are completed exhausted.

10 On this slide we have a small sample of CNG
11 vehicle types that are eligible under the program. Here we
12 are showing transit, delivery and refuse applications,
13 although many more vehicle types are also eligible.

14 So thank you for your time.

15 COMMISSIONER SCOTT: Thank you, Sam.

16 So let's talk about the natural gas fueling
17 infrastructure, that's the proposed \$2.5 million allocation
18 that would go just to school districts, or the last
19 solicitation we did in that area went just to school
20 districts.

21 Any comments from our Advisory Committee?

22 Go ahead, Jack.

23 COMMITTEE MEMBER KITOWSKI: Brief comment, thank
24 you, Commissioner, that the focus on school districts I
25 think is very appropriate in this area. I want to convey

1 that our board has heard concerns from school districts.
2 They've still gotten, you know, maybe more than most fleets.
3 They've got a long way to go to clean up their fleets.
4 And, you know, some of our most vulnerable populations are
5 riding those buses every day. By one estimate, there's
6 about 3,500 school buses that still need to be cleaned up.
7 Exactly what that means, I think we're working on it.

8 We have a workshop coming up very soon where we're
9 going to be talking about our efforts, and by our it's
10 really going to be broader than ARB, but it's a report we're
11 bringing back to the board on what options are available for
12 school districts, how big the problem is, the challenges
13 and, you know, what resources we have and what that gap is
14 going to be. There's really not going to be one easy
15 solution, but certainly this is part of it. And we like the
16 focus on school districts.

17 COMMISSIONER SCOTT: Thank you very much. We
18 really -- I would look forward very much to that report.
19 Once it's ready, I'd love to have a chance to see it.

20 I think the anecdotes that we're getting from the
21 school district is just the same thing. It's been awhile
22 since they transitioned from the, you know, 1980-1990 kind
23 of diesel school buses into CNG. And they need to be able
24 to keep their fueling up because they're not able to buy
25 brand new buses. And so if they can't keep that fueling up,

1 they end up having to pull the older buses off the lot. So
2 that was of strong concern to us and one reason why we
3 wanted to keep the funding in this space, but very narrowly
4 focused.

5 Eileen, go ahead.

6 COMMITTEE MEMBER TUTT: Eileen Tutt with the
7 California Electric Transportation Coalition.

8 I would just say that although I definitely am
9 supportive of anything that helps clean up school buses,
10 just because I think, clearly, it should be a priority.

11 I also see school buses as a very attractive
12 technology for electrification. So I just want to put that
13 out there because I think that to the degree you utilize
14 this money, this \$100 million, some of this \$100 million for
15 school buses, I would want to prioritize electrification of
16 the school buses, although I do think natural gas, and
17 particularly renewable natural gas, has a lot of very
18 attractive, you know, transportation technologies that
19 electrification really can't, it isn't viable.

20 So I'd rather look at natural gas being utilized
21 in technologies where electrification or hydrogen are just
22 not viable. And I think those are like Class 7 and 8
23 trucks. I don't -- I think maybe to some degree that may be
24 true for school buses, but much less so. School buses are
25 very, very attractive options for electrification.

1 COMMISSIONER SCOTT: I agree. I think we
2 definitely have our eye towards zero-emission options within
3 the school buses. It's just the school districts don't have
4 enough money to, you know, keep up the buses that they have,
5 much less buy a brand new zero-emission bus. But I think
6 once those prices come down a lot, that's definitely what we
7 will be looking for in this school bus space, especially
8 with our kids breathing, their little lungs.

9 Other comments from the Advisory Committee? How
10 about Advisory Committee Members on the WebEx?

11 COMMITTEE MEMBER KNIGHT: Yeah. This is Ralph
12 Knight in Napa.

13 I think that now is the perfect opportunity for us
14 in the electric field. Because the majority of the school
15 districts are 50 percent-plus special needs transportation.
16 And we now have some choices in electric vehicles for that
17 type of transportation need. And I think that, you know,
18 this is the perfect time and the perfect way for us to go to
19 be able to get rid of some of our old, old buses off the
20 road and have some of the newest equipment we can deal with
21 our special needs kids with. So I think, you know, this is
22 a perfect window for us to work in now.

23 COMMISSIONER SCOTT: That's a terrific data point.
24 If you have additional background information that you
25 could send us, would you please get that to us? We'll make

1 sure that we incorporate that as we move forward with our
2 Investment Plan and our planning in this space.

3 COMMITTEE MEMBER KNIGHT: Okay. Sounds good.
4 Thank you.

5 COMMISSIONER SCOTT: Yeah. Thank you, Ralph.
6 I'm turning to Brian Goldstein.

7 COMMITTEE MEMBER GOLDSTEIN: Hey. Brian Goldstein
8 with Energy Independence Now.

9 This was a point I was waiting to bring up in the
10 emerging opportunities section. But I think, since we
11 brought up so many topics within education right now, this I
12 might be an interesting point to talk about it.

13 You know, I know the Commission is starting to
14 look at education outreach programs for the various fuel
15 types. And I think that the actual education system would
16 be a great target of those, you know, programs.

17 And I think, you know, we can look at even Apple
18 Computers efforts back in the early '80s to kind of bring
19 computers into the school systems and how far that's come
20 in, you know, really just one or two generations.

21 And we're looking at, you know, the kids that
22 we're talking about riding the buses right now are going to
23 be the primary drivers by the time we're starting to hit the
24 targets that we're looking at; right?

25 So I think that education system is a great place

1 to start with cleaning up the fleets, and with kind of
2 conveying the broader point, that his entire program is
3 designed to convey, you know, to school systems, to the
4 educators, and certainly to the fleet operators there, as
5 well.

6 So thanks.

7 COMMISSIONER SCOTT: Thank you, Brian.

8 We've also been joined by Advisory Committee
9 Member Thomas Lawson. And I think he'd like to make a
10 remark, as well.

11 So, Thomas, please go ahead.

12 Is he -- let me --

13 COMMITTEE MEMBER LAWSON: Hi. Good afternoon. I
14 just wanted to ask a clarification, whether or not the 2017-
15 2018 money was only for school districts? I know last year
16 most of it went to -- that was my only clarification. But
17 I'm also happy to be a part of it. I wish I could be there
18 in person, but I'll be there at the next one.

19 COMMISSIONER SCOTT: Absolutely. We didn't -- we
20 haven't made that distinction yet. I got out ahead of
21 myself by talking about what we had done in '16-'17 with the
22 funds.

23 MR. ORENBERG: Oh, and if I may, this is Jacob
24 Orenberg, just to clarify, the Draft Staff Report of the
25 Investment Plan Update does propose limiting the natural gas

1 infrastructure funding to school districts and other
2 municipal public fleets.

3 COMMISSIONER SCOTT: Any other Advisory Committee
4 Members?

5 Brian, is that up from before? Okay.

6 Any -- I don't have any blue cards or any hand
7 raisers? Okay.

8 So let's talk about the next one, which is the
9 natural gas vehicle incentives.

10 Do we have comments from the Advisory Committee
11 Members around the table? Everyone's shy now.

12 How about any of the Advisory Committee Members --
13 oh, go ahead, Jack. Yes, please.

14 COMMITTEE MEMBER KITOWSKI: Just a quick comment
15 that some of the categories that it looks were funded were
16 areas where the 8.9 liter Cummins low-NOx engineering is
17 available, and it should absolutely be a requirement. We
18 shouldn't be funding conventional vehicles when there is a
19 lower emissions one available.

20 COMMISSIONER SCOTT: Yeah. I think Jacob may have
21 highlighted that in his presentation at the beginning, but
22 it's a great underscore.

23 And the other thing that we're looking for in this
24 space that we find very compelling are the fleets that can
25 also combine that with renewable natural gas.

1 Any other Advisory Committee Members around the
2 table?

3 How about on the WebEx, do we have any Advisory
4 Committee Members on the WebEx who would like to speak?
5 You're all un-muted. So please go ahead if you do.

6 Okay, let me turn to John Shears.

7 COMMITTEE MEMBER SHEARS: Yeah. I just wanted to
8 check because -- this is part of the algebra, about how the
9 funding would have to go.

10 But, Jack, do you know what the cost data is for
11 the Cummins low-NOx engines? It's like \$25,000, is it,
12 or --

13 COMMITTEE MEMBER KITOWSKI: The differential cost
14 on a transit bus is -- we've seen it as low as ten. It can
15 be higher, but we've seen it at \$10,000. So that should be
16 a typical amount.

17 COMMITTEE MEMBER SHEARS: So for the Cummins low-
18 NOx over a typical --

19 COMMITTEE MEMBER KITOWSKI: Yeah. If you actually
20 look at the hardware that's different between the two, it's
21 some calibration changes. It's modest hardware, a slightly
22 larger catalyst. It's very modest changes.

23 The reason we offer more is, and we do offer up to
24 \$25,000, is if you are repowering or retrofitting it in an
25 existing engine, then you may have to do some work to

1 accommodate the largest catalysts or other things. So it
2 might end up costing more in that situation.

3 COMMITTEE MEMBER SHEARS: You know, it just would
4 be good, it would be helpful for Energy Commission Staff to
5 have those numbers. So thanks.

6 COMMISSIONER SCOTT: Thank you.

7 Also, Thomas is on the phone.

8 Your part of the Advisory Committee. So when we
9 call on the Advisory Committee on the WebEx to go ahead and
10 speak up, please feel free to just jump in. But please,
11 Thomas, go ahead.

12 COMMITTEE MEMBER LAWSON: Oh, great. Thank you.
13 I'm still learning this whole WebEx thing. I think I was
14 late putting my hand up.

15 COMMISSIONER SCOTT: Not a worry.

16 COMMITTEE MEMBER LAWSON: So I'm working on it.
17 So I had a couple of questions.

18 One, you know, we've been talking with transit
19 folks and refuse folks about what they need to transition
20 over to the low-NOx engine. My question is, this up to
21 \$25,000 for this allocation, is there anything in there that
22 discourages it from being combined with others? I know on
23 the ARB side we specifically had language in there that said
24 that you could use additional funds. So I just wanted to
25 know if you or the panelists -- I'm sorry -- if there's

1 language in there that we need to state that you can combine
2 funds for folks that need additional incentives.

3 MR. FREEMAN: So this is Andre Freeman at the
4 Energy Commission.

5 So that will not be in the Investment Plan, the
6 whole discussion. But as we go to make future iterations of
7 our natural gas vehicle incentive funding, we will talk
8 about eligibility to combine incentive, additional
9 restrictions or additional types of focus for the funding.
10 But our current -- our existing program that we're running
11 through UC Irvine, you are allowed to combine incentives up
12 and to the incremental cost of the -- the incremental cost
13 between the diesel and the natural gas vehicle.

14 So we do allow a combination of incentive funding
15 with some of the Air Resource Board and Air District
16 incentives that are available but, again, not to exceed the
17 incremental cost of that natural gas vehicle.

18 COMMITTEE MEMBER LAWSON: A follow-up question.
19 So if you have a CNG and you want to go to a low-NOx engine
20 using RNG, are you able to use it for those funds, as well,
21 or is just from a diesel to natural gas?

22 MR. FREEMAN: So our fundings don't prescribe
23 whether it's replacing a diesel, if it's a new vehicle
24 purchase. We're really looking just to get an additional
25 natural gas vehicle on the road. For some of our funding it

1 has gone from people switching from diesel to natural gas.
2 In some cases it was for fleets that have already bought
3 into natural gas but just can't make the business case to
4 add additional vehicles, such as school districts. So we're
5 open to pretty much all of those different types of business
6 models.

7 COMMITTEE MEMBER LAWSON: Great. Thank you.

8 COMMISSIONER SCOTT: Thank you.

9 Jack, are you wanting to make another comment
10 or -- okay, just double checking.

11 Any other Advisory Committee Members on the phone
12 want to make a comment on the natural gas vehicle
13 incentives, or at the table?

14 Okay, I have one public comment, that's John
15 Boesel from CALSTART.

16 Come on up, John.

17 MR. BOESEL: Thank you, Commissioner. A few
18 comments.

19 I want to echo what Jack said about the
20 opportunity to support the growth of the near-zero emission
21 ultra low-NOx engine in the nine liter application. I think
22 that can really help improve things, both -- and address the
23 issues in both the South Coast and the San Joaquin Valley.

24 The second question is a little more of a
25 question. But per legislation, we do have a renewable

1 content for hydrogen and using hydrogen. I'm wondering if
2 there's opportunities to encourage the use of renewable and
3 natural gas by adding that to this effort?

4 And then thirdly is I would hope that there would
5 be some close coordination with the ARB and the HVIP program
6 of \$23 million for that nine liter. You know, how do we
7 make sure -- how do we -- are we doing the assessment? Is
8 that too much? What is market demand going to look like for
9 this upcoming year?

10 And then lastly, at some point, you know, you guys
11 fund so many great projects. And I'm looking more about the
12 medium- and heavy-duty vehicle work. There has been
13 investment in electrification somewhat of natural gas
14 vehicles. I think at some point we need to think about, you
15 know, we're trying to decarbonize natural gas, make it lower
16 carbon. Making natural gas trucks mild hybrids is an
17 excellent opportunity, same with the buses. Some
18 manufacturers are starting to look at that. It's just
19 something to think about, where is that technology? Where
20 has your funding gone in the past? How far has that
21 technology come? Are we at a point where we could start
22 trying to provide incentives for mild hybrid natural gas
23 buses and trucks?

24 COMMISSIONER SCOTT: Thanks, John.

25 Any comments -- any public comments on the

1 incentives on our WebEx there? Okay.

2 All right, so we will go to medium-duty/heavy-duty
3 vehicle demonstrations, and that will be Sam.

4 MR. LERMAN: So good afternoon. Sam Lerman again
5 from the Medium- and Heavy-Duty Vehicle Technology Units.

6 The Energy Commission released GFO-15-604 in
7 January of this year, awarding nearly \$12 million for two
8 projects. The solicitation focused on demonstrating
9 technologies involved in freight movement at California
10 seaports. The projects are developing 35 advanced vehicle
11 demonstrations across multiple applications, including yard
12 trucks, drayage trucks and forklifts.

13 Each project also incorporated intelligent
14 transportation system components, a new funding area for the
15 Energy Commission. These technologies include vehicle
16 communications and web-based applications designed to
17 generate the most efficient routes for drivers, decrease
18 congestion, and increase fuel economy around the ports.

19 The projects will result in the direct reduction
20 of 2,000 metric tons of carbon dioxide equivalents, 17 tons
21 of NOx, and 0.7 tons of PM10 over the terms of the projects.

22 These technologies also have the potential to
23 produce significant environmental benefits as the
24 technologies move towards commercialization.

25 The next funding opportunity in this area is

1 expected to be released later this year, including an
2 expected \$27 million, with a continued focus on California
3 seaports.

4 Here we have a breakdown of the winning awards
5 under GFO 15-604 with the Port of Los Angeles and the San
6 Diego Port Tenants Association. These projects represent
7 strong partnerships with multiple-technology vendors and
8 several fleet demonstrators. These projects are also
9 providing significant benefits to disadvantaged communities
10 in and around the ports.

11 This slide shows some of the technologies that we
12 will be demonstrating at the port communities. The top left
13 picture is a Cummins low-NOx engine, similar to the ones
14 that will be demonstrated in a yard tractor application at
15 the Port of Los Angeles. Also shown here are battery-
16 electric drayage and yard trucks similar to the ones that
17 will be demonstrated at both Los Angeles and San Diego.

18 In the bottom right we have an example of vehicle
19 platooning, and innovative ITS strategy that involves
20 vehicle-based communications to allow trucks to draft one
21 another, therefore increasing fuel economy and reducing
22 emissions.

23 Today we will be looking for feedback to help
24 inform future funding opportunities in this program area.
25 For instance, we're looking for feedback on continuing to

1 invest specifically in freight and seaport-type projects and
2 technologies as compared to expanding demonstrations to
3 other vehicle-type applications. We are looking to identify
4 needs to provide funding for infrastructure deployment
5 support for medium- and heavy-duty vehicles over continuing
6 investments in vehicle-type demonstrations.

7 Also, should there be continued focus on early
8 stage technology demonstrations or projects involving large
9 numbers of vehicles nearing commercialization. And we'd
10 also like to have feedback on continuing to invest in ITS
11 technologies.

12 Thank you.

13 COMMISSIONER SCOTT: Great. Thanks, Sam.

14 So as you can see here, we've got a proposed \$18
15 million allocation for advanced freight and fleet
16 technologies. And let me say that we will probably, I'm
17 going to guess, do a more in-depth workshop at some point to
18 get lots of detailed feedback on these questions that Sam
19 presented. But if you do have high-level thoughts that
20 you'd like to share with us, since we're all together,
21 please feel free to do so.

22 John, go ahead.

23 COMMITTEE MEMBER SHEARS: Yeah. So I realize this
24 is focused on freight and fleets on road. I was just
25 curious, because I think, you know, one of the more

1 challenging areas is off-road and construction. And I know
2 a lot of the companies that work in that space are
3 developing, essentially, intelligent management systems so
4 they can choreograph more effectively, and therefore, you
5 know, increase fuel efficiency, reduce emissions, et cetera.

6 So I'm just wondering if there's, you know, in
7 thinking about solicitation in this space looking forward,
8 those types of synergies to capitalize on, given that it
9 looks like the BYD geo stamp (phonetic). I assume that's
10 their intelligent traffic management program.

11 So I just wanted to check on that. Because I
12 know, you know, off-road is particularly a challenging area
13 right now for us to get the emissions down. And that might
14 be one of the areas where we could, sort of in terms of low-
15 hanging fruit early on, that we could capitalize on. So I
16 just thought I'd raise that.

17 COMMISSIONER SCOTT: I think let me have Staff
18 respond to that, as well.

19 Some of these projects are funding within our EPIC
20 program. And we work closely with them to see what they're
21 working on. Typically in this space we focus on the on-
22 road, as you know, because the funding for the program comes
23 from a vehicle registration fee which is an on-road sector,
24 and the legislature kind of likes to see most of the money
25 go back into the on-road sector.

1 But it is important to kind of see what's going on
2 in both the on-road and off-road to make sure that we're not
3 missing any synergies or overlap there. So I think we
4 should look into that, if we're not doing that.

5 COMMITTEE MEMBER SHEARS: Especially given that
6 the off-road sector I'm thinking of is about, quite often,
7 constructing roads; right?

8 COMMISSIONER SCOTT: Fair enough.

9 COMMITTEE MEMBER SHEARS: So it's --

10 COMMISSIONER SCOTT: Jack, and then Eileen.

11 COMMITTEE MEMBER KITOWSKI: Yeah. A couple of
12 comments.

13 First of all, I think many of you know, as part of
14 the funding plan that ARB just adopted earlier this month,
15 there was a portion of that that was demonstration programs,
16 as well. I think our agency coordinates with John and his
17 team well on making sure we're synergistic in how we do
18 that.

19 Our program does include -- specifically includes
20 some off-road categories. So there is some funding.
21 Construction equipment would be eligible. Work trucks that
22 are hybridized, that kind of thing.

23 The point -- one of the points I think you kind of
24 glanced at that we're also trying to take a strong look at,
25 for most of these categories it really is on-road trucks are

1 where the technology starts, or in some cases it's light-
2 duty, and then it goes to heavy-duty, and then it goes to
3 off-road. There's a very clear timeline on which that
4 happens, and there are a number of reasons for that. But
5 ITS is actually one of those where in many ways, both in
6 construction industry and in agricultural industry, they
7 have some pretty advanced ITS systems. You know, they
8 can't -- they're not maybe directly applicable. But some of
9 those technologies, we should look at transferring back, you
10 know, the other way.

11 So I think there are opportunities there in
12 efficiency and in emissions, criteria emissions. So we're
13 looking at that strongly.

14 COMMITTEE MEMBER SHEARS: Great. Yeah. I just
15 wanted to make sure that whichever side of the AB 118
16 ledger, that it was being considered, so thanks.

17 COMMITTEE MEMBER KITOWSKI: Yeah. And we do
18 coordinate. We'd welcome your participation in some of
19 those groups.

20 Related to some of your questions, I think a
21 freight focus is -- from ARB's standpoint a freight focus is
22 appropriate. I would also say a focus -- some of the
23 categories, electric vehicles or electric equipment is there
24 or nearly there. And I'd rather see, especially at the
25 ports where there's such a concentration of emission

1 sources, we'd rather see, just go all in on electric rather
2 than try and do a low-NOx solution in those applications.
3 Where we can, let's try and focus on the zero-emission.

4 COMMISSIONER SCOTT: Great. Thanks.

5 Eileen?

6 COMMITTEE MEMBER TUTT: Totally agree with Mr.
7 Kitkowski.

8 So I just -- I want to just say that the important
9 thing about this money right now, because I am somewhat
10 familiar with the ARB's low-carbon transportation funding,
11 but that funding, it's completely unreliable. The
12 legislature has played politically with it for the last
13 couple of years particularly. We get a lot less every year
14 than what we original request. And it's just completely
15 insufficient to really transform the goods and people
16 movement to clean technologies, and obviously zero-emission
17 technologies.

18 So I just want to highlight the importance of this
19 particularly element of the funding plan, thank the Energy
20 Commission because your consistency in funding these
21 programs is so important, especially since it probably is
22 the only funding source that is consistent for these kinds
23 of technologies, particularly when it comes to zero
24 emission.

25 I also, to John's point, I think if you're looking

1 for low-hanging fruit, and I know we've shared our
2 transportation and electrification assessment with you, but
3 there's a lot of opportunities in very, you know,
4 inexpensive but emission-reducing technologies, like truck
5 refrigeration units and truck stop electrification and
6 forklifts, where really there's no reason why it shouldn't
7 be 100 percent electric.

8 So I just want to point out that there are some
9 technologies that are out there today that are just -- you
10 know, they just need a little bit of a push. And so I just
11 wanted to make sure that you're aware of some of these, what
12 I would call already very nearly if not already cost
13 effective technologies that could use some investment, so
14 thank you.

15 COMMISSIONER SCOTT: Well, that's great. I think
16 if you have data and information that you can send to us on
17 that, that would be terrific. If you don't have it for the
18 investment plan, when we get to our, like the pre-
19 solicitation workshop where again we kind of really dig into
20 what's out there, what needs funding? What could, if a
21 little bit of funding went into it, really push the industry
22 in a very quick way to get from where it is to all zero?
23 We're always looking for that data. So thank you for
24 calling that to our attention.

25 John?

1 COMMITTEE MEMBER SHEARS: Yeah. I just want to
2 ride on Eileen's coattails a little bit, and also point out,
3 there are grid opportunities for fuel cell, application of
4 fuel cell technologies for things like -- especially for
5 forklifts. So I just wanted to remind ourselves that there
6 are several EV technologies, so thanks.

7 COMMISSIONER SCOTT: Indeed.

8 Let's check to see whether we have Advisory
9 Committee Members who are on the WebEx that would like to
10 say something on advanced freight and fleet technologies?
11 You are un-muted, so go ahead.

12 COMMITTEE MEMBER MUI: This is Simon.

13 COMMISSIONER SCOTT: Yes. Go ahead, Simon.

14 COMMITTEE MEMBER MUI: Hi. This is Simon with
15 NRDC.

16 My job is rather easy because I'm on the phone and
17 just have to echo everyone else's comments. But I did want
18 to stress how important this category is and how important
19 this fund is. Largely, you know, when we look at -- when we
20 do our analysis of how to get to some of the SB 32 goals and
21 mobile source strategy, it is the freight sector that is one
22 of the most challenging areas, as many of you know.

23 And to the extent that we will over time need to
24 move towards, quickly towards more zero-emission
25 technologies, we certainly support the funding of

1 demonstration projects. The CEC has done a lot of work
2 there. And we also want to start moving from demonstrations
3 to larger early commercialization of projects. And so I
4 want to stress sort of that transition over time towards
5 commercialization.

6 And then also I think, you know, because a lot of,
7 obviously, the impacts from the air quality perspective, you
8 know, I think as you look to the benefits, right, of
9 supporting demonstration projects, you know, linking it back
10 to the air quality criteria and toxic emissions, I think
11 those are strong reasons to invest even more in this
12 category in particularly when you account for a lot of the
13 state's goals, as well as exposure in communities around
14 these areas, including a lot of communities of color and
15 low-income communities.

16 So thank you.

17 COMMISSIONER SCOTT: Thanks, Simon.

18 Other Advisory Committee Members on the WebEx?

19 COMMITTEE MEMBER LAWSON: Yeah. This is Thomas.

20 Oh, go ahead. Oh.

21 COMMISSIONER SCOTT: Oh, I hear two of you. I
22 heard Thomas first. Go ahead, Thomas.

23 COMMITTEE MEMBER LAWSON: Okay. Thank you. So I
24 guess what I would advocate and just bring up is that, you
25 know, there was some talk about the GGRF ((phonetic) monies

1 that went to -- that were sent out to different agencies.
2 And one of the things that we were, as an industry, were
3 targeted interested in, we were talking about that most of
4 the demonstration money went to zero-emissions. So of all
5 the money that was spent in the heavy-duty truck sector, you
6 know, 70 percent of that went to zero-emission, and which
7 excludes near-zero. So I know that folks talked about, you
8 know, limiting low-NOx and that kind of thing.

9 I think from an equity standpoint and from a
10 technology that's ready to go, as well as for folks that are
11 working on future technology, we've got members that are
12 doing stuff in the light-duty sector and the medium-duty
13 sector with some dual-fuel technology, as well as, you know,
14 converting older engines and whatnot into new technology and
15 working through those things. There's also some folks
16 working on trying to create some hybrid Class 7 and Class 8
17 that use different types of natural gas.

18 So I think there should be a considerable amount
19 of money contributed towards near-zero. Because when you
20 talk about the ports, you talk about all the goals, right,
21 not just what we want to see happen but the deadlines in
22 2020 and 2030, you know, we have a lot of work to do in a
23 short amount of time. We need to get the most GHG and NOx
24 reductions that we can as quickly as we can. And so that's
25 what I just wanted to put on the record there.

1 Thanks.

2 COMMISSIONER SCOTT: Thanks. And there was an
3 another Advisory Committee Member.

4 COMMITTEE MEMBER ESPINO: Yes. This is Joel
5 Espino with the Greenlining Institute.

6 Kind of continuing to echo the chamber here a
7 little bit and just saying that, you know, we do really
8 appreciate the allocation for this advanced freight and
9 fleet technologies. And, you know, we also agree that this
10 is a really important piece of money to -- or an important
11 pot to keep the technologies developing and growing.

12 I also wanted to make a plug. We released a
13 report, actually yesterday, in partnership with the Union of
14 Concerned Scientists on the topic of electric buses and
15 trucks. And the report is titled Delivering Opportunity:
16 How Electric Buses and Trucks Can Create Jobs and Improve
17 Public Health in California. So we'll be definitely
18 including it in some comments, and just wanted to flag that
19 for folks in case folks didn't hear about.

20 Quickly wanted to say that, you know, we did -- or
21 the Union of Concerned Scientists did an emissions analysis.

22 They did some modeling with respect to the technologies,
23 comparing them to natural gas and diesel buses. And what we
24 found was that, you know, even when you account for the
25 lifecycle emissions of all the technologies that are going

1 electric, it just gives you more bang for your buck in terms
2 of reductions. And so I just kind of wanted to highlight
3 that piece of it, and I'll end my comment there.

4 Thank you.

5 COMMISSIONER SCOTT: Thank you, Joel.

6 Do we have other Advisory Committee Members on the
7 WebEx who would like to weigh in?

8 COMMITTEE MEMBER MUI: Commissioner Scott, sorry,
9 this is Simone. I forgot to add that I have to run to
10 another meeting. But I wanted to thank you for, and the
11 Commission for, and CEC for all its work on this program.
12 Thank you.

13 COMMISSIONER SCOTT: Oh, thank you very much. And
14 thank you so much for your time today.

15 COMMITTEE MEMBER MUI: Yes. Have a nice day
16 everyone.

17 COMMISSIONER SCOTT: Will do. You too.

18 COMMITTEE MEMBER MUI: Thank you.

19 COMMISSIONER SCOTT: Everyone else just stay.
20 We're still talking.

21 Any other Advisory Committee Members on the WebEx?

22 All right, I have a couple public comments here.
23 First, John Boesel, followed by Naveen Berry.

24 MR. BOESEL: Okay. Thank you very much. I have
25 to be here again. Several comments.

1 We have -- we do a lot of work and we have a lot
2 of members in the medium- and heavy-duty vehicle space.
3 Wondering, under the heading of Fleet, you're talking about
4 a name change here. I'm a little unclear about the
5 substance that follows the name. So does transit that
6 operate fleets, is that covered under this name change, is a
7 key question?

8 And, Commissioner Scott, we've raised this
9 repeatedly in the past but, you know, continuing to believe
10 that transit is the head of the spear, the point of the
11 spear for the medium- and heavy-duty vehicle independent,
12 we're working out a lot of issues right now for zero-
13 emission technology in the bus sector through an FTA program
14 we helped get created. And now this movement is going
15 across the country. Transit agencies throughout the country
16 are deploying zero-emission buses, mostly electric, some
17 fuel cell. A lot of issues still need to be worked out.

18 Standardization of charging; we need to move away
19 from nonproprietary charges and the interconnects. This is
20 an issue that nobody has really funded yet. We've talked to
21 Staff about it. I think it's a critical area. There's a
22 need for a 200-mile-plus range zero-emission bus to meet the
23 daily -- more of the daily duty cycles. This could be done
24 through a combination of battery-dominate buses with a small
25 natural gas range extender engine or a small fuel cell, a

1 lot of opportunity to improve that and bring the cost down.

2 And that, you talk about technology that then could be
3 applied to the trucking sector, that basic drive train, that
4 would be of great interest.

5 And we are fortunate here in California because of
6 policies. We've had Proterra move from Southern
7 California -- or from South Carolina, rather, to California,
8 both north and south. We've had BUiD (phonetic) move from
9 China. They are building a second plant now. Both of those
10 firms, I believe, would be interested in moving into the
11 trucking sector, but they've got to see a viable bus market
12 evolve first.

13 The third point would be the focus on seaports.
14 Many of these technologies are not being developed at the
15 seaports. The seaports are the most demanding economic case
16 that there is. There's no public subsidy out there, totally
17 bottom line. So I just would question of, you know, wonder
18 why we would be doing that.

19 The Sustainable Freight Plan talked about possibly
20 of a zero-emission rule for first and last mile delivery
21 trucks. If we invest now in teams developing that
22 technology, then that rule could be a possibility. We've
23 already begun discussions with people in Europe and China
24 and Japan about a similar rule. So if we could get that
25 started here in California, it could have global impact.

1 There's technology being developed for the Class 8
2 sector that -- Katy's Power (phonetic), a San Diego firm,
3 has got great advanced new engine technology. I'm not sure
4 if this funding would allow for that or if that would be
5 covered by the ARB funding.

6
7 So lastly, we want to work with the staff on that
8 great chart you have to sort of fill out more of the detail
9 on our need. Yes.

10 COMMISSIONER SCOTT: Thank you, John.

11 Naveen Berry is next.

12 MR. BERRY: Thank you again. Naveen Berry with
13 South Coast AQMD.

14 And Staff was very supportive of the intelligent
15 transportation system, including signal synchronization,
16 platooning, and geofencing that was referenced, as well as,
17 of course, the near-zero or zero-emission fleet technologies
18 that are part of this particularly allocation.

19 Without getting too much into the weeds,
20 demonstration projects that include larger compression
21 engines, zero-compression ignition engines using liquid
22 fuels, preferably renewable fuels that meet the same 0.2
23 grams per brake horse power NOx levels that natural gas
24 engines have been certified to I think will also be very
25 beneficial, especially for long hauls, fleets that serve the

1 freight sector. I think this will really help address all
2 the NOx sources in the South Coast, especially those that
3 are coming from out of the area and going back out of the
4 area.

5 This approach, again, would also further support
6 the recent petition that the South Coast, along with many,
7 many other parties, and the ARB submitted to the EPA for a
8 national standard that would be at the 0.2 level.

9 Thank you.

10 COMMISSIONER SCOTT: Thank you.

11 I have one commenter on the WebEx, that is David
12 Lopez.

13 So they will un-mute you. And, David, please go
14 ahead.

15 MR. LANE: Thank you. This is actually Kevin Lane
16 with the San Joaquin Valley Air Pollution Control District.
17 David and I are attending your meeting together in a meeting
18 room.

19 I appreciate the opportunity to listen in and hear
20 on what you guys are doing today, and then in the future
21 with this funding plan. For the most part we are, you know,
22 very encouraging of technology development projects. We
23 find that it's going to be something that is highly
24 essential to our ability meet national ambient standards, to
25 be able to see advancements in technology and things moving

1 forward.

2 As you know, our particular matter problem is
3 significant, in addition to our ozone problem. And we've
4 had plenty of difficulty getting approval of our plans
5 through EPA, and even the Air Resources Board lately. So,
6 you know, these technologies are going to be a critical step
7 in us being able to move forward.

8 That being said, we are essentially highly
9 disappointed in the continued focus in seaports with the,
10 you know, the first and second round of funding having that
11 focus. It may be time to begin looking at freight from a
12 more complete standard. You know, the section here in your
13 Investment Plan leads off in the very first sentence talking
14 about facilitating domestic goods movement and international
15 trade. And where you are limiting yourself to only
16 seaports, it seems as though you are largely leaving half of
17 this very essential portion of the advanced, you know,
18 sustainable freight untouched in that.

19 And I know that there are, you know, a variety of
20 sources in our valley that include domestic shipping and
21 freight. Ag is a big part of our, you know, valley and our
22 valley's economy. And it's something that I would hate to
23 see have limited opportunity to work with us on these types
24 of projects.

25 Also, in as much as these types of funds are

1 looking to support projects in disadvantaged communities,
2 you know, tying the projects only to seaports, you know,
3 puts in you in a disadvantaged community almost, you know,
4 certainly. But you're missing a lot of other opportunities
5 in a lot of the other statewide disadvantage communities.
6 The valley is, you know, the home for many of the most
7 disadvantaged communities in the state. And the seaports
8 focus I think is unduly excluding them from opportunities to
9 see some of the cleanest technologies.

10 I'd also like to support the continued look at the
11 near-zero emissions. I know CEC has said recently, and it's
12 been in other places, that the near-zero technology with
13 renewable, you know, natural gas is very close to equivalent
14 to electric, you know, from a grid standpoint. And that's
15 something that I think will be essential to the type of
16 freight movement challenges that we see in the valley which
17 are significant and involve longer ranges. And that type of
18 equivalency is an important part of our strategy moving
19 forward towards attainment.

20 That all being said, I appreciate the opportunity
21 to address you today. Thank you very much.

22 COMMISSIONER SCOTT: Thank you. And thank you
23 both for being on the phone -- on the WebEx with us today.

24 Do we have any other hand raisers on the WebEx?
25 Okay.

1 Let us turn now to advanced vehicle manufacturing,
2 and that will be Sam.

3 MR. LERMAN: Hello again. So now I'll be moving
4 to the final topic level I'll be highlighting this
5 afternoon.

6 The last solicitation in advanced vehicle
7 manufacturing was released in September of 2014. This
8 solicitation awarded four projects at a total of \$10
9 million. These projects both expanded existing facilities
10 and established new manufacturing plants. And we saw
11 project types that included both powertrain component
12 manufacturing for light- and medium- and heavy-duty
13 vehicles, as well as facilities to perform completely
14 vehicle builds for electric buses, trucks and motorcycles.

15 Here's an overview of the four projects awarded
16 under the last PON-14-604. The Proterra project is focusing
17 on complete vehicle builds for transit buses at their
18 facility in the City of Industry. TransPower is performing
19 complete vehicle builds of Class 8 battery-electric
20 vehicles. EDI is manufacturing light-, medium- and heavy-
21 duty powertrain components in their facility in Milpitas.
22 And Zero Motorcycles is producing complete EV motorcycles at
23 their existing facility in Scotts Valley.

24 On this slide the top pictures show the EDI
25 manufacturing facility in Milpitas. And down below are

1 pictures from the Proterra EV bus facility. And down in the
2 bottom right, some pictures from the Zero Motorcycle
3 facility in Scotts Valley.

4 Thank you.

5 COMMISSIONER SCOTT: Okay. Thank you.

6 So we have a proposed \$5 million allocation here
7 in manufacturing.

8 Do we have comments from the Advisory Committee?

9 John, please go ahead.

10 COMMITTEE MEMBER SHEARS: Just a query, I guess.

11 Just given that the last round of funding was \$10 million,
12 is it just sort of from reading the pulse of what's out
13 there that the sense was that \$5 million would be all that
14 was needed, or is it just a challenge of the limitation of
15 funds, given the other needs?

16 MR. LERMAN: Yeah. So actually, I think it's a
17 little bit of the challenge of funding limitations, but also
18 the last two funding cycles, we actually moved away from a
19 manufacturing-only pot of funding. We actually combined
20 manufacturing with demo-only solicitations. So we're
21 actually moving in the other direction now, from not having
22 a manufacturing category to now proposing to have dedicated
23 funding pot for manufacturer.

24 MR. ORENBERG: This is Jacob Orenberg.

25 And I also do want to clarify. I believe the last

1 manufacturing solicitation we went out with was for \$10
2 million, but I believe that included to fiscal years of
3 funding. So each fiscal year we had \$5 million.

4 COMMISSIONER SCOTT: Tyson?

5 COMMITTEE MEMBER ECKERLE: Just wanted to
6 underscore the importance of this category. At GoBiz, we
7 get a chance to work with a lot of companies coming to the
8 state. And being able to point them to sources of funding
9 like this is a big deal. And it seems like there's a lot of
10 people in this space who want to start to play and play in
11 California. And, you know, the story of the synergies
12 between advanced energy and jobs is a really great one. So
13 thank you for stepping up.

14 COMMISSIONER SCOTT: Thank you.

15 Other Advisory Committee Members?

16 Go ahead, Jack.

17 COMMITTEE MEMBER KITOWSKI: I'll just say,
18 supportive. It's a little bit of a risky category in some
19 ways. And, you know, I think it's great that you guys are
20 out there. It's exciting, actually, the other way when you
21 see the names here. And then in our other incentive
22 programs we end up funding them down the road because
23 they're now manufacturing products here in the state.
24 That's pretty thrilling.

25 COMMISSIONER SCOTT: I would agree. It's a

1 fantastic story, right, to kind of be able to start -- we
2 have some projects like that, too, where they kind of
3 started in the R&D, actually, and then they ended up in
4 ARFVTP for pre-commercialization, and then they end up with
5 you all to get deployed. And, I mean, that's why we're
6 doing this. It's a cool story.

7 Others around the table, or Advisory Committee
8 Members on the WebEx? Everyone's running out of steam, I
9 guess, at the end of the day.

10 I have, guess who, John Boeing for public comment.
11 Please come on up. We should get you a special chair right
12 there.

13 MR. BOESEL: Thank you, Commissioner Scott.

14 I think the last point that both you and Jack just
15 made was really an excellent one. I still believe that the
16 story of California benefitting economically from our
17 climate policies and investments is an under told one. The
18 fact that Tesla is 15,000 employees in the state of
19 California that are manufacturing cars in Silicon Valley is
20 certainly something that GM and Toyota felt was not possible
21 to do economically. And Tesla just had a great quarterly
22 profit they reported.

23 You know, in Faraday Future, now 1,000 employees
24 in Southern California. There's just -- and GreenPower is
25 the latest one that, as a result of, in part, due to the CCI

1 investment is going to be setting up a bus manufacturing,
2 electric bus manufacturing facility down in the San Joaquin
3 Valley.

4 So I think this is a really interesting
5 opportunity. I think our ability to provide multiple
6 incentives, purchase incentives along with this is really
7 important.

8 One suggestion that you might want to consider is
9 that particularly for these startups is that not only
10 setting up the manufacturing facility is a challenge, but
11 then they also need service, and sometimes distribution
12 facilities, as well, but particularly the service networks
13 for a TransPower or a Proterra to be in the field and have
14 facilities be able to compete with the Detroit Diesels, the
15 Cummins, it's tough. So that might be something where we
16 might want to consider. We haven't yet fully queried our
17 membership on it to get your input, but that's something
18 we're considering doing. But it's just an idea we wanted to
19 float here today.

20 Thank you.

21 COMMISSIONER SCOTT: Great. And thank you so much
22 for your engaged participation with us today.

23 I don't have any other comments from the room.

24 Okay, let's turn to the WebEx. And I have Shomik
25 Dutta on WebEx who would like to make a comment. You're

1 line is open. Please go ahead.

2 MR. DUTTA: This is Shomik Dutta from Romeo Power.
3 I'm sorry I had to step out early.

4 Romeo Power is a lithium-ion electric vehicle
5 battery pack manufacturer. We are new to the business. We
6 started -- we've been in L.A. about two years. We're
7 getting to stand up a 100,000 square foot manufacturing
8 facility right here in L.A. to manufacture battery packs for
9 automotives, and for heavy-duty vehicles, as well, in
10 addition to forklifts, and even airplanes through Kitty
11 Hawk. We're very excited. We'd like to compete
12 aggressively for funding.

13 And I'd like to just point out an important
14 relationship between the most expensive input into an
15 electric vehicle, which is the battery pack, and inefficient
16 competition that we've seen thus far. Part of that is bred
17 from oligopolistic pricing from the cells that we're
18 importing from Korea, and that creates high barriers to
19 entry. And your grant funding will help create a more
20 competitive landscape, which would help drive those costs
21 down and get us to mass adoption, as everyone's been talking
22 about.

23 So I think the input pricing is as important as
24 the incentives and the infrastructure that you guys are
25 building out. And I've just been very impressed in working

1 with the Commission for a few days, and look forward to
2 meeting you guys and working together.

3 And we'd love to host you, Commissioner, at Romeo
4 Power at our new headquarters in Vernon.

5 COMMISSIONER SCOTT: Great. Thank you.

6 Do I have any other hand raisers on the WebEx?

7 Okay, I will turn it back over to -- Jacob, is it
8 going back to you now? Back to Jacob.

9 MR. ORENBERG: Thank you, Commissioner.

10 So to round out our allocations, these are the
11 remaining needs and opportunities allocations. We don't
12 have a staff presentation for these three, and we can go
13 through them one at a time.

14 COMMISSIONER SCOTT: Okay. Great. So let's start
15 with emerging opportunities where we have the proposed \$4
16 million allocation.

17 Do we have comments from the Advisory Committee?

18 Go ahead, Brian.

19 COMMITTEE MEMBER GOLDSTEIN: Well, we -- I talked
20 a lot today about --

21 COMMISSIONER SCOTT: Are you --

22 COMMITTEE MEMBER GOLDSTEIN: Oh, I'm sorry. It's
23 Brian Goldstein from Energy Independence Now.

24 I know we've talked a lot today about hydrogen
25 production renewable, hydrogen production, especially

1 relative to this morning's discussion around biomethane.
2 But I'd like to commend the Commission for including that in
3 the emerging opportunities section. I mean, I'm not going
4 to go through the, you know, dozen reasons why I think this
5 is important again. But, I mean, basically just looking at
6 the amount of demand that we'll have for hydrogen for the
7 transport sector in the coming years, I think this is just a
8 great opportunity to kind of start out on the right foot and
9 really looking at this with a renewable -- from a renewable
10 perspective.

11 But I also think that it's going to set the tone
12 for the energy storage space, as well. And I think that the
13 two sectors will really feed off of each other. And, you
14 know, transportation will help push energy storage and vice
15 versa. So, you know, I really think this is a great
16 opportunity that you guys have put in the emerging
17 opportunities section.

18 I also wanted to comment briefly on the centers
19 for all fuels. I'm not sure if those were under the
20 emerging opportunities section or the --

21 MR. ORENBERG: The centers, I believe, were
22 previously under their category --

23 COMMITTEE MEMBER GOLDSTEIN: Under their own
24 category?

25 MR. ORENBERG: -- for other one or two fiscal

1 years.

2 COMMITTEE MEMBER GOLDSTEIN: So, you know, I
3 noticed that this year the regional alternative fuel
4 readiness and planning awards aren't an item in this year's
5 budget, but I think that's because there's carryover from
6 last year's budget, as well. When I saw last week's release
7 there was an education outreach portion of that which, you
8 know, I touched on briefly, echoing on Eileen's comments for
9 zero-emission vehicles in the education sector.

10 But I think an education opportunity for all of
11 the different -- or saw. For all of the different fuel
12 sectors, I think it's a very important program to not only
13 education consumers, but to really reiterate the success
14 stories from this group to other policymakers and really
15 kind of drive home to those that don't necessarily pass, you
16 know, a hydrogen station every day or don't drive an
17 electric car, the progress that we've made here, you know,
18 through the Energy Commission here in the State of
19 California.

20 So I think the education outreach opportunity out
21 there really goes to helping keep this program funded in the
22 future. And I think reaching out to policymakers, to
23 consumers, to educators, to the business community, and to
24 the NGOs is a really important aspect of what we're doing
25 here. So hopefully that fits in the emerging opportunities

1 section or the all fuels readiness and planning.

2 But I just wanted to say that, so thanks again.

3 COMMISSIONER SCOTT: Thank you.

4 Other comments from Advisory Committee Members?

5 John, go ahead.

6 COMMITTEE MEMBER SHEARS: So are we just -- we're
7 talking about all three?

8 COMMISSIONER SCOTT: Sure. I did say emerging
9 opportunities, but we can talk about all three.

10 COMMITTEE MEMBER SHEARS: Yeah. I was just
11 curious about the regional, you know, not so much disputing
12 the recommended amount as just sort of doing a check on how
13 regional readiness planning efforts are going, given that as
14 the fuel cell vehicles start coming onboard I think some of
15 the regions who haven't been the focus of sort of the
16 cluster deployment concept might need to be able to update
17 and review their readiness plans to more fully sort of
18 engage on the fuel cell vehicle side.

19 So I just want to make sure that, you know, that
20 we don't run short, you know, given sort of the timeline and
21 employment status, it's probably something -- this year it's
22 not as important, but maybe next year or the year after.
23 And I know there's the funding solicitation that's out right
24 now on regional readiness. So I just wanted to check on the
25 thinking around that.

1 COMMISSIONER SCOTT: Well, the short answer there
2 is that -- so we've got that one that's out right now. And
3 we still have funding in the bank for another one, and
4 that's why we were thinking we probably don't need the
5 funding this year. Because we have about two years to
6 develop the solicitations and get the money encumbered. So
7 we have a little money in the account here, so to speak. So
8 it won't get left out.

9 COMMITTEE MEMBER SHEARS: Great. Yeah, I just
10 wanted to check on the timing. I figured --

11 COMMISSIONER SCOTT: Yeah.

12 COMMITTEE MEMBER SHEARS: -- it was something like
13 that.

14 COMMISSIONER SCOTT: I see Peter.

15 COMMITTEE MEMBER COOPER: Good afternoon,
16 Commissioner. I'm glad we finally got the workforce,
17 because I think this is critical to moving this forward in
18 the coming years.

19 We support the language in the plan, as well as
20 the funding amount. I just wanted to give you a couple of
21 areas where our agency has been working together with the
22 Energy Commission.

23 So as the report notes, there's an interagency
24 agreement between CEC and ETP. A new one has just been
25 approved for an additional \$2 million. That will go through

1 2020. So we continue to work closely with CEC Staff and
2 meet quarterly. And I especially want to thank David
3 Nichols (phonetic) from your staff who works with us.

4 As you'll see in the plan, from 2008 to '16 we
5 funded, through ETP, \$13.5 million, with a match of \$10.8
6 million for over 15,000 trainees. One nice thing about this
7 funding is that we can reach businesses, as well as
8 municipalities.

9 One of the things I wanted to bring to your
10 attention is that at our Panel meeting tomorrow, our monthly
11 Panel meeting, we are going to have a press release that
12 will highlight a contract that we're entering into with
13 Applied Materials for \$749,000. So Applied Materials builds
14 manual manufacturing equipment, machines and tools.
15 Specifically they do manufacturing for lithium-ion
16 batteries. And this kind of echoes back to earlier comments
17 from somebody on the phone regarding the importance of
18 lithium-ion batteries for this sector. So we're excited
19 about that.

20 And I also want to mention that we do work closely
21 with the Governor's Office and GoBiz to support the zero-
22 emission vehicles initiatives, and we'll continue to do
23 that.

24 And then lastly, I did want to bring to your
25 attention that we've been doing some more work with the

1 Santa Clara Valley Transit Authority. As the Draft Report
2 mentions on page 73, sorry, 73, it mentions the importance
3 of investment in apprenticeship programs, specifically with
4 transit agencies.

5 And just in two weeks the Transit Apprenticeships
6 for Professional Career Advancement will be highlighted.
7 It's created by the Amalgamated Transit Union, the Santa
8 Clara Valley Transit Authority, Mission College of Santa
9 Clara, the Labor Federation, and funding from the California
10 Community College Apprenticeship Initiative. So there a lot
11 of different agencies. Private and public and union groups
12 have come together to form this coalition and to support the
13 apprenticeship model, specifically in the transit sector.

14 These programs are creating four new
15 apprenticeships, one in coach operator, one in service
16 mechanic, and then track worker, and overhead line. There's
17 a lot of interest by the Department of Labor, the California
18 Labor Agency, as well as others in expanding the
19 apprenticeship model. There's funding in this area. And
20 here's an opportunity where we can work with funds from the
21 AB 118 to support apprenticeship models in the transit
22 sector, so this is pretty exciting.

23 One added benefit of going in this direction and
24 supporting the expansion of the transit apprenticeship model
25 to other areas of the state is that it really starts to

1 address some of the issues around climate equity. As Alana
2 Matthews, your Public Adviser, mentioned at a recent public
3 workshop, you know, that is obviously an interest and focus
4 of the Energy Commission to address climate equity, and this
5 is one way to go about it.

6 So I'm glad both to be able to highlight this
7 apprenticeship model and the promise for future years, as
8 well as the Applied Materials contract that we're entering
9 into tomorrow.

10 So that's just kind of a snapshot of some of the
11 things that we're doing. And if you have any interest in
12 looking at details, feel free to contact me or go to our
13 website, because we have all the details on our contracts.
14 And I just wanted to remind folks that the way we work at
15 the Employment Training Panel is that we have pay-for
16 performance contracts. And so the dollars aren't drawn down
17 until the employer can actually show that somebody has gone
18 through training and has been employed for 90 days.

19 COMMISSIONER SCOTT: Great. Thank you Peter.

20 I would just add, you know, you can't under --
21 wait, you can't overstate the value of a well trained
22 workforce and the importance of the workforce, especially in
23 the alternative and renewable fuels and vehicle
24 technologies; right? It's just I love the synergies of
25 training our students who are going to be the workers of the

1 future on these technologies that are also driving our
2 future. So I just wanted to make that note.

3 I see that John would like to say something, as
4 well.

5 COMMITTEE MEMBER SHEARS: Yeah. It's more just a
6 self-education question.

7 I'm just wondering, you know, right now, depending
8 on how you look at it, you know, we've had a modest growth
9 rate on EVs. Fuel cell vehicles are coming online. You
10 know, we're putting more and more effort collectively here
11 in the state and regional into, you know, supporting the
12 development of the market.

13 And I'm just curious, you know, within the context
14 of the Energy Commission and possibly, you know, the ARB
15 down the road, depending, you know, where the money has to
16 come from, how we're sort of tracking sort of the needs of
17 the market in terms of supplying, you know, or anticipating,
18 as it were, the needs of the market in terms of the
19 appropriate numbers of trained individuals that can be
20 working at, you know, dealerships and whatever to service
21 these new high tech vehicles?

22 It's a similar issue, also, on the first responder
23 side and stuff like that.

24 So I'm just wondering, you know, do we have
25 somebody that's doing that? When should we start thinking

1 about that?

2 So I just wanted to -- because we're -- it's the
3 kind of thing where right now we're -- you know, things
4 could go moderately exponential in two or three years. And
5 just sort of seeding our consciousness in terms of things of
6 things that we might need to be thinking about, so --

7 COMMISSIONER SCOTT: John tells me Dave has a
8 response.

9 Would you like to come up and give a brief answer
10 to John Shear's question?

11 UNIDENTIFIED MALE: Thank you, Commissioner.

12 John, specifically what's being done in workforce
13 development for alternate fuels, we've been looking at the
14 contracts that we've been in for the first several years of
15 the program. We've done some analysis, and we've started
16 looking at additional partners that we think are important.
17 We're finding within larger groups the entities that we
18 need to be working with that are very specifically focused
19 on clean fuels transportation.

20 Specifically, on November the 16th, which is not
21 published yet but it's going to be, I'm going to be meeting
22 with the Southern California Regional Training Transit
23 Agency, along with staff from ARB who are looking at some of
24 the heavy-duty and transit agency issues in alternative
25 fuels.

1 We also are developing and have just reached out
2 and confirmed a meeting with the California Department of
3 Education for career technical education that will work with
4 high schools. We're in the process of exploring the
5 processes that it takes to actual fund these types of
6 programs for training.

7 We do have a very strong commitment right now to
8 the community college system in the state. That support is
9 ongoing. And, in fact, sometime either later today or
10 tomorrow, \$1.6 million in funding from a grant funding
11 opportunity through AB 118 is going to be announcing
12 colleges that are going to be funded for some extensive
13 training, which is going to include both fuel, high cell and
14 electric.

15 So we're looking at a lot of different areas
16 around that. And we're taking input from people that are
17 interested in providing information from that, and our doors
18 are always open.

19 COMMISSIONER SCOTT: Do we have any -- Jack, go
20 ahead.

21 COMMITTEE MEMBER KITOWSKI: I just wanted to add
22 on to that briefly.

23 One of the areas that's just really good to see
24 with many of the larger projects we find to fund, the
25 transit agencies are great examples, folks get -- end up

1 being champions of the champions of the technology. And
2 they actively want to help in the workforce training. So
3 it's, you know, their own employees. They're helping set up
4 curriculum. They're working with others. It's really good
5 to see out there. But, you know, we help facilitate that
6 where we can. We provide some funding for that on our
7 program, as well. But this is really the sort of backbone
8 of that funding.

9 But it's good to see that, you know, they
10 understand the importance, I think people do, once you get
11 into it, and it's actively progressing.

12 COMMISSIONER SCOTT: Any comments from Advisory
13 Committee Members participating by WebEx?

14 COMMITTEE MEMBER LAWSON: Yeah. Hi. This is
15 Thomas Lawson. I wanted to voice my support/our support for
16 the workforce training development monies here.

17 In the discussions and the legislative fight last
18 session on SB 32 and 197, we heard quite a bit of concern
19 from members that were on the fence about what happens to
20 those oil and gas jobs as we transition into greener,
21 cleaner fuels, renewable natural gas and some others. And
22 one of the things that I think we tried to show them is that
23 there is a direct connection between the fuels that they
24 have and modifying and adding additional training to get
25 them to work and be productive in the green energy sector.

1 So I think I would also encourage CEC Staff to
2 make sure that members of the legislature are aware of when
3 these projects are awarded, I saw a couple of companies in
4 there. There were some regional areas, to let those
5 assembly members and senators know that those dollars are
6 being spent in their district to train folks, I think would
7 go a long way in getting legislative support for, you know,
8 additional climate goals and fights that we have possibly
9 coming up in 2017-2018.

10 And I'd also say that I have got to catch a plane
11 by to Sacramento. I've enjoyed the WebEx version of this,
12 and hopefully can be there in person next time. Thank you
13 guys.

14 COMMISSIONER SCOTT: Great. Thank you for
15 participating. We appreciate your time today.

16 Do I have comments from any other Committee
17 Members on the WebEx?

18 COMMITTEE MEMBER ESPINO: Yes. This is Joel
19 Espino.

20 COMMISSIONER SCOTT: Go ahead, Joel.

21 COMMITTEE MEMBER ESPINO: Hi. Yeah, this is Joel
22 Espino again with the Greenlining Institute.

23 Wanted to make two points, the first with respect
24 to the manufacturing piece. And I guess my comment actually
25 applies to all the categories, which is, you know, just

1 leveraging these public dollars to create broader economic
2 opportunity, particularly to low-income communities and
3 communities of color, you know, encouraging things like
4 targeted hiring and the hiring of folks from under-served
5 communities I think is key among all of these programs. So
6 that's one thing.

7 And then the other thing, too, is just the
8 importance of contracting with diverse-owned businesses,
9 minority and women-owned businesses and things like that, so
10 that we're really maximizing the impact that this money can
11 have on folks in the community. And I know that this is --
12 these are areas that the California Energy Commission is,
13 you know, really committed to. And from Greenlining's
14 perspective, we just really appreciate kind of the
15 leadership that the Energy Commission has taken with respect
16 to these economic opportunity issues and making sure that
17 we're being inclusive in this new clean energy economy that
18 we're creating, so I wanted to make that comment.

19 And then my second comment is with respect to the
20 workforce training and development piece of the money.
21 Yeah, we just really appreciate the increase, really.
22 There's a great need for training programs, as folks have
23 mentioned, throughout the state of California, especially as
24 we -- you know, as these technologies continue to roll out,
25 there's more of a need for assemblers and electricians to

1 put the charging stations, and technicians to maintain them.

2 So just excited for the opportunities that this
3 money represents in terms of connecting under-served
4 community workers to job training possibilities. And I've
5 actually made some of these remarks recently in your
6 workshop that you put on in August. I believe David put
7 that on. And just really want to emphasize the need of pre-
8 apprenticeship and kind of just pre-training programs. A
9 lot of the workers in under-served communities tend to need
10 soft skill training and have low skills. And so they kind
11 of need to kind of get ready before they enter some of these
12 more rigorous training programs. And so to the extent that
13 we can leverage these dollars to focus on that kind of
14 training, I think it would create a lot of benefit.

15 And I notice that in the remarks in the morning
16 that you guys were exploring using some of this money for
17 even some like high school pipeline programs. And that's
18 something that, you know, we really appreciate and we think
19 it's really important, especially if we're talking about
20 under-served communities.

21 And I kind of want to make another plug for the
22 report that I mentioned earlier, delivering opportunity. We
23 provide some great assessment in the report in terms of what
24 these jobs are starting to look like in terms of skills and
25 in terms of just the experience needed to enter this market.

1 And I'm happy to announce that we've definitely highlighted
2 this pot of money in the ARFVTP. And that report is a great
3 source of funding to create some of these equitable training
4 programs that we want to see.

5 So thanks, and I'll end my comments there.

6 COMMISSIONER SCOTT: Thank you, Joel. And will
7 you please make sure, I think you mentioned this when you
8 mentioned the report the first time, but that we have a copy
9 of that? It goes into our docket so that we can incorporate
10 the findings into our updated version of the Investment
11 Plan.

12 COMMITTEE MEMBER ESPINO: Absolutely.

13 COMMISSIONER SCOTT: That would terrific. Thank
14 you.

15 Other Advisory Committee Members on the WebEx?

16 COMMITTEE MEMBER HOLMES-GEN: This is Bonnie
17 Holmes-Gen. Is it -- do you hear me?

18 COMMISSIONER SCOTT: Yes, we can.

19 COMMITTEE MEMBER HOLMES-GEN: Am I on? Oh, okay.
20 Great. Glad it worked.

21 Thanks for the chance to comment. And I wanted to
22 just pipe up about the regional alternative fuel readiness.

23 I know you discussed that a little bit. But, you know,
24 I've expressed before, I think it's so important to reach
25 out and work with local governments and air districts. And

1 I'm understanding, it looks like all the applications that
2 you had in this category were funding, so I'm curious if
3 that's correct?

4 But I wanted to just put a plug in for -- it would
5 be great to try to take a look at is there more that could
6 be done in this category? Are there more partnerships that
7 we could -- that the Energy Commission could encourage
8 through this kind of funding? Because it is so important,
9 and we're not nearly ready, I think, at the local level.
10 There is so much more that needs to be done to make our
11 communities ZEV ready and fuel cell ready and other
12 alternative fuel ready, and to encourage local leaders to be
13 really engaged in this effort.

14 And it seems like there's a component here that
15 could be explored in terms of readiness within disadvantage
16 communities, also, as we're talking about this and I'm
17 listening to my colleague from Greenlining.

18 So, you know, I'm hearing that you've funded what
19 was -- the passing -- applications that have been presented.
20 But just wanting to express my interest in this area and see
21 if it makes sense to take a look at setting some goals for
22 maybe expanding this in the future.

23 COMMISSIONER SCOTT: Thanks, Bonnie. I will say
24 that we are thinking about that. We're not far enough along
25 for me to be put any specifics --

1 COMMITTEE MEMBER HOLMES-GEN: Yeah.

2 COMMISSIONER SCOTT: -- to that, but we are
3 certainly thinking about that, as well. So thank you very
4 much for raising that point.

5 COMMITTEE MEMBER HOLMES-GEN: Okay.

6 COMMISSIONER SCOTT: Other Advisory Committee
7 Members, either on the WebEx or here in the room? All
8 right.

9 Well, let me turn to John Boeing for some public
10 comment on the emerging opportunities, workforce training
11 and development and regional readiness planning.

12 And as he's making his way to the microphone,
13 we'll transition from that to sort of the general public
14 comment. If there was anyone who wanted to say something
15 about the plan and hasn't done that yet, that is what we
16 will do following John. So please sure, if you're in the
17 room, to get a blue card, and if you're on the WebEx, to
18 raise your hand for Tan (phonetic) so that she'll know.

19 Go ahead John.

20 MR. BOESEL: Thank you, Commissioner Scott. And I
21 just want to thank you for being very generous and willing
22 to listen to my input and thoughts on behalf of the CALSTART
23 team and our 116 member companies.

24 And I just want to really commend John and his
25 team for the progress and the work that's being done. It

1 has been awhile since I've been to an investment Committee
2 meeting. And I'm really impressed by how far things have
3 come.

4 I will be summarizing my comments and submitting
5 them into the written document -- or docket.

6 A few things in this general category.

7 One is, I do think that if you look at our state,
8 you know, we set up these centers in L.A. and in the Bay
9 Area. And I think that the one area that really continues
10 to need really focused attention where the poverty is the
11 worst, where the air quality is the worst is the San Joaquin
12 Valley. And so I think providing an opening for additional,
13 whether you want to call it a center or a technical
14 assistance outreach efforts helping that area to put
15 together programs and build teams is critical. We were very
16 appreciative of the first year of funding we got from the
17 Energy Commission, due to expire at the end of -- middle --
18 or three-quarters through next year. We've done a lot with
19 that. So there's a huge opportunity going forward.

20 Additionally, I think this bucket probably could
21 benefit from being a bit higher. I think in particular,
22 being able to leverage federal -- and this bucket being
23 emerging opportunities, is the opportunity to leverage
24 federal funding. We know that the Federal Transit
25 Administration is going to be coming out with a research

1 development demonstration program for low- or no-emission
2 buses. We believe that the DOE will continue to express
3 interest in this area under the next president. So I think
4 there will be lots of opportunities.

5 The other one is in -- this will be in my writing
6 docket, I'm going to hit my target this time, is the LEED.
7 The CEC has been a great champion of building standards, so
8 improving efficiency in the built environmental. The LEED
9 Program has been incredibly helpful in terms of getting
10 companies to go above and beyond what they normally would
11 do. We have created, with the National Association of Fleet
12 Managers, NAFFA (phonetic), the largest professional fleet
13 association, a similar rating system from fleets. And this
14 program has really become understood and understood as a
15 tool nationally. We'd like to see California become a state
16 where this standard really gets off the ground and it's
17 geared toward the 2050 goal of 80 percent emission
18 reductions below 1990. So that could be a great
19 opportunity.

20 I noticed there was no funding set aside for the
21 PVC 2.0, what that next version is. Perhaps the hope is
22 that the money will come from the VW settlement, and I'd be
23 all for that.

24 And I love the idea of retraining oil and gas
25 workers. However, oil and gas consumption continues -- oil

1 consumption continues to rise in California, so that may not
2 happen too soon.

3 Thank you.

4 COMMISSIONER SCOTT: Thank you, John.

5 All right, so we will transition to the general
6 comments. I do not have a blue card from anyone in the room
7 who might like to make a general comment; is that true? Is
8 there anyone who would like to say something.

9 Okay, let's go to the WebEx. Nina Babiarz. I
10 don't know if I got that name right, but your line is open.
11 Please go ahead.

12 MS. BABIARZ: Can you hear me?

13 COMMISSIONER SCOTT: Yes.

14 MS. BABIARZ: Well, good afternoon. This is Nina
15 Babiarz. I'm the Training Director with the Southern
16 California Regional Transit Training Consortium, the SCRTTC.
17 We're actually going into our 12th year. And we were
18 originally funded by the Federal Transit Administration and
19 Senator Boxer, with the provision of our training needs
20 assessment. So, you know, the training needs specific to
21 transit and the mandates in California have been fine-tuned
22 by this consortium.

23 Just a little background. I was at that time a
24 training director for the Advanced Transportation Technology
25 and Energy Center for the state out of the College of the

1 Desert. And so as a founding member, academic member of the
2 consortium, I'm extremely familiar with how important these
3 liaison with the community college system is.

4 But now we're looking at other issues than just
5 internships and apprentice programs. We're looking at
6 incumbent workers, new course development, You know, in
7 some cases some of these courses have not even been
8 developed yet. So there's additional funding that needs to
9 be implemented for these new technologies, as well as
10 sustaining the workforce, the incumbent workforce.
11 And I look forward to the additional conversation with CEC
12 and ARB on this issue.

13 COMMISSIONER SCOTT: And when you said your name,
14 Nina, I'm like, oh, I remember you from the Long Beach
15 meeting. Thank you so much for participating.

16 MS. BABIARZ: Exactly, in January.

17 COMMISSIONER SCOTT: I have one --

18 MS. BABIARZ: Thank you very much for --

19 COMMISSIONER SCOTT: Oh, sorry. I didn't mean to
20 cut you off.

21 MS. BABIARZ: Well, I'd just like to reinforce one
22 other thing that Joel mentioned earlier, and that is there
23 really is an opportunity for synergy between developing some
24 of these new job opportunities in the disadvantaged
25 communities. And so that's one of the things I'd like to

1 talk about as we, you know, further this conversation in
2 terms of what -- you know, this issue transcends just about
3 every goal that your agency is trying attain.

4 COMMISSIONER SCOTT: Uh-huh. Great. Thank you.

5 MS. BABIARZ: And outreach into those communities
6 and workforce development for new job opportunities is
7 something that we can further detail, as well.

8 COMMISSIONER SCOTT: Thank you.

9 I have one other commenter on the WebEx, which is
10 JoAnne Golden.

11 JoAnne, you are un-muted, so please go ahead.

12 MS. GOLDEN: Perfect. Good afternoon,
13 Commissioner Scott and Members of the Advisory Committee. My
14 name is JoAnne Golden and I represent Penske Truck Leasing.

15 Over the past 25 years Penske has been able to
16 assess, demonstrate and implement large scale deployments of
17 natural gas and other alternative fuel vehicle operations
18 throughout the U.S., including California. Penske's
19 customers range in size from one vehicle to several
20 thousand. But really the average customer has less than
21 five vehicles in its fleet.

22 Leasing offers fleets of all sizes, a convenient
23 financing mechanism akin to bank financing, and full service
24 leasing which consists of an operating lease, often five to
25 seven years in length, de-risks the fleet's transition to

1 alternative fuels. Penske absorbs the downtime, maintenance
2 and residual risk, which is a key benefit of an operating
3 lease, and provides additional support to ensure successful
4 deployment of alternative fuel vehicles.

5 So whether the lien holder is Penske or banks
6 really makes little difference to fleet. And Penske
7 encourages the Commission to craft programs whereby the
8 application is really the end user, regardless of whether
9 fleets elect to buy, bank finance, capital lease, or full
10 service lease vehicles be an operating lease. Equal access
11 to program funding regardless of the financing mechanism
12 will enable Penske and its peers to support more California
13 fleets, which will increase the success of the Commission's
14 program and help California meet its emission reduction
15 targets.

16 So with that, we'd, of course, welcome and
17 opportunity to talk with the Commission in greater length
18 about this. But we would really encourage your input as it
19 relates to this matter in any further solicitations, and
20 encouraging that end user to really be the end application.

21 So with that, thank you.

22 COMMISSIONER SCOTT: Thank you.

23 I have one more, which is David Lopez. You are
24 un-muted. Go ahead.

25 MR. LOPEZ: Yes. Hi. Thank you once again,

1 Commissioner and everybody there at the group.

2 I just wanted to kind of follow up with what Kevin
3 was talking about earlier and just kind of just -- we wanted
4 to more direct this to the Commission in regards to the
5 seaport projects, including the upcoming solicitations, that
6 we really hope you consider funding other types of scopes of
7 the project, not just limiting it seaports. Because,
8 obviously, the San Joaquin Valley has the largest mass
9 community, and we have a large ozone problem. And we would
10 like to see -- we would like to be able to make sure we get
11 some competitive products in there, and we think we have
12 those.

13 So we just want to say thank you for your time.

14 COMMISSIONER SCOTT: Thank you very much. Next I
15 have Bill Leighty.

16 Bill, you are un-muted, so please go ahead.

17 MR. LEIGHTY: Yes. Bill Leighty, representing the
18 Leighty Foundation and Alaska Applied Sciences, Inc., a
19 small company. We have co-authored research papers for 15
20 years, advocating alternatives to electricity for gathering
21 and transmission and storage of renewable source energy,
22 wind and solar in this case.

23 The Investment Plan Update, I think, needs to
24 include some resources for distributed wind and solar in the
25 context of this request for information from DOE called H2

1 at Scale, where the USDOE is recognizing that the real value
2 of renewable source hydrogen to us is probably going to be
3 at large scale, where we even have a pipeline gathering and
4 transmission and distribution system, such as that
5 introduced by ITS STEPS Program at UC Davis.

6 So I've read through the document. I've only come
7 to Table 13 on page 41 which talks about biofuel, \$20
8 million, and then page 50, hydrogen fueling infrastructure.

9 Under the hat of our small company, Alaska Applied
10 Sciences, Inc., we have a wind plant, a distributed wind
11 plant now because of the power purchase agreement is gone in
12 Palm Springs, we would like to convert that to produce all
13 of its captured energy as hydrogen fuel. We have a customer
14 potential down the road at Sunline Transit to be partnered
15 with us on an ARPA-E full application for a novel power
16 electronics and control system for that wind plant to
17 provide hydrogen fuel. And they said, sure, if you can get
18 it to us at a high purity and good price, we'll buy it from
19 you, or it could go to the other nascent markets.

20 So I just encourage you to include something for
21 wind and solar distributed or otherwise grid connected to
22 hydrogen fuel for those nascent markets.

23 Thank you.

24 COMMISSIONER SCOTT: Thank you. Do I have any
25 other comment on the WebEx? It looks like no.

1 Can we -- are we able to open up the phone lines,
2 in case there's anyone is who not participating by WebEx but
3 is on the phone and would like to make a comment?

4 (Background phone conversation.)

5 COMMISSIONER SCOTT: Okay. So I'm not hearing
6 anybody on the phone line who'd like to make a public
7 comment.

8 So will just remind folks that you still have an
9 opportunity to let us know what you think. The public
10 comments are due on November 10th. And I think Jacob is
11 getting ready to put the link up there for you so that you
12 know where that goes.

13 We will then take into consideration all the
14 comments we heard here today, but also all the ones we get
15 in writing, and present with you with a revised Staff draft
16 in January.

17 And then as Jacob mentioned at the very beginning,
18 we anticipate having our second Advisory Committee meeting
19 in January or February. We've typically been doing the
20 second Advisory Committee meeting not in Sacramento. So
21 likely either in the San Joaquin Valley or somewhere down
22 south.

23 And so I would just like to take a minute to say
24 thank you so much to the Energy Commission Staff, especially
25 those who participate here today. They do a terrific job

1 each and every day carrying out this program.

2 I want to say thank you so much to our Advisory
3 Committee for spending your day with us and providing your
4 expertise throughout the year, and especially today, and at
5 our next Advisory Committee meeting. I really appreciate
6 the time that you all take to spend with us and help make
7 this program the best program that it can be.

8 And last but certainly not least, I'd like to
9 thank Jacob Orenberg for his fantastic work on all of this.

10 So thank you very much, Jacob.

11 And we will be adjourned. Thanks everyone.

12 (The meeting adjourned at 3:54 p.m.)

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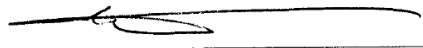
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I do hereby certify that the testimony in the foregoing hearing was taken at the time and place therein stated; that the testimony of said witnesses were reported by me, a certified electronic court reporter and a disinterested person, and was under my supervision thereafter transcribed into typewriting.

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

IN WITNESS WHEREOF, I have hereunto set my hand this 30th day of November, 2016.



PETER PETTY
CER**D-493
Notary Public

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I do hereby certify that the testimony in the foregoing hearing was taken at the time and place therein stated; that the testimony of said witnesses were transcribed by me, a certified transcriber and a disinterested person, and was under my supervision thereafter transcribed into typewriting.

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

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



MARTHA L. NELSON, CERT**367

November 30, 2016